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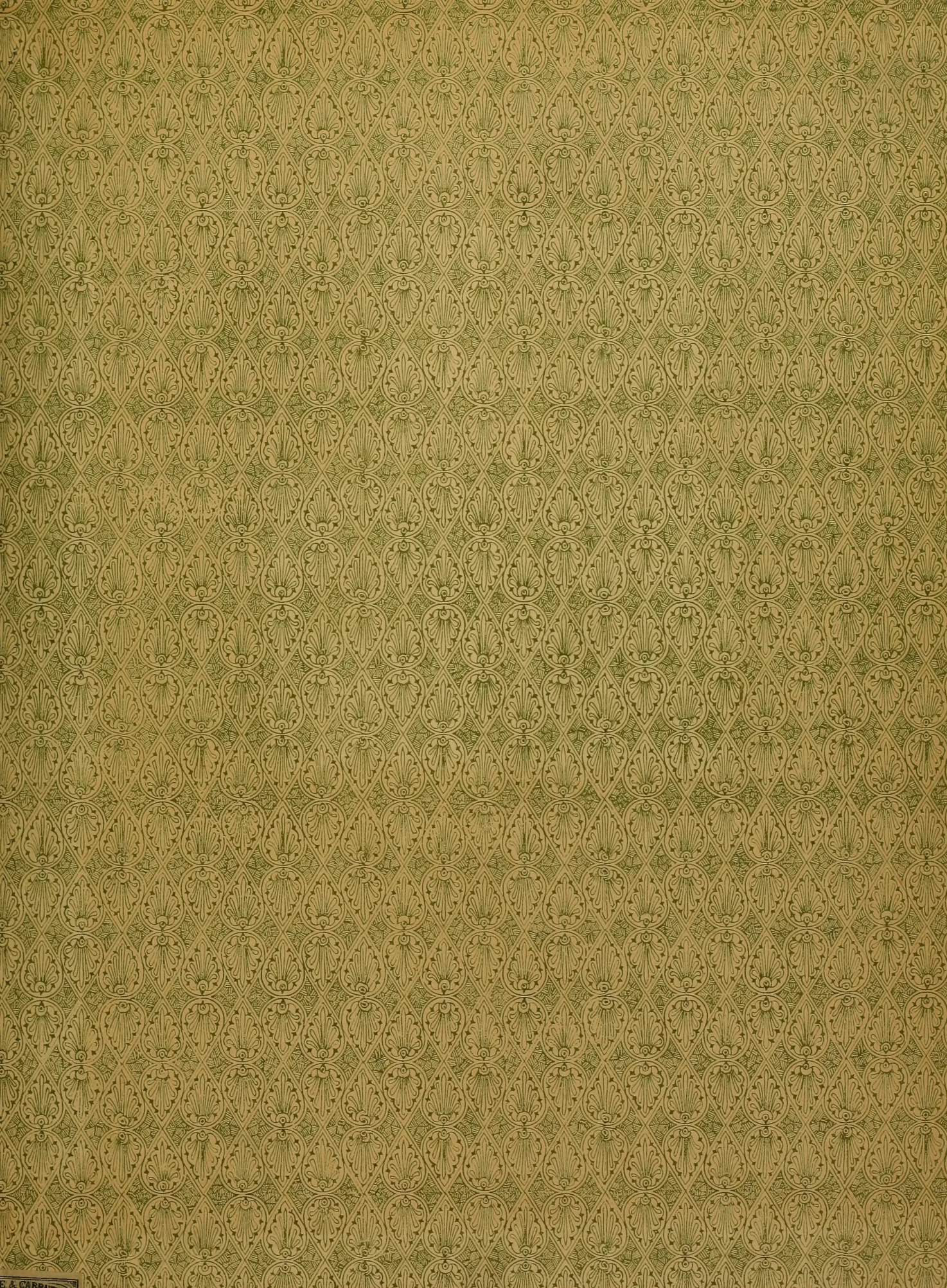
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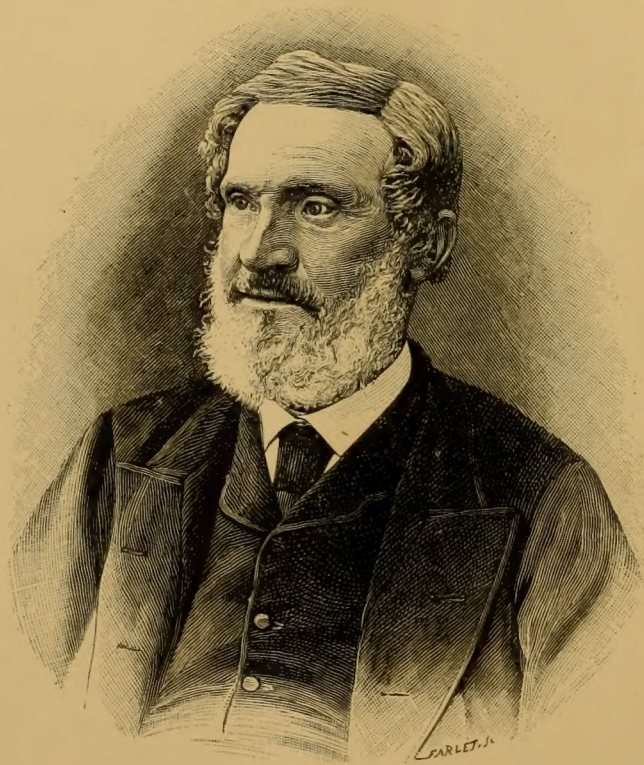








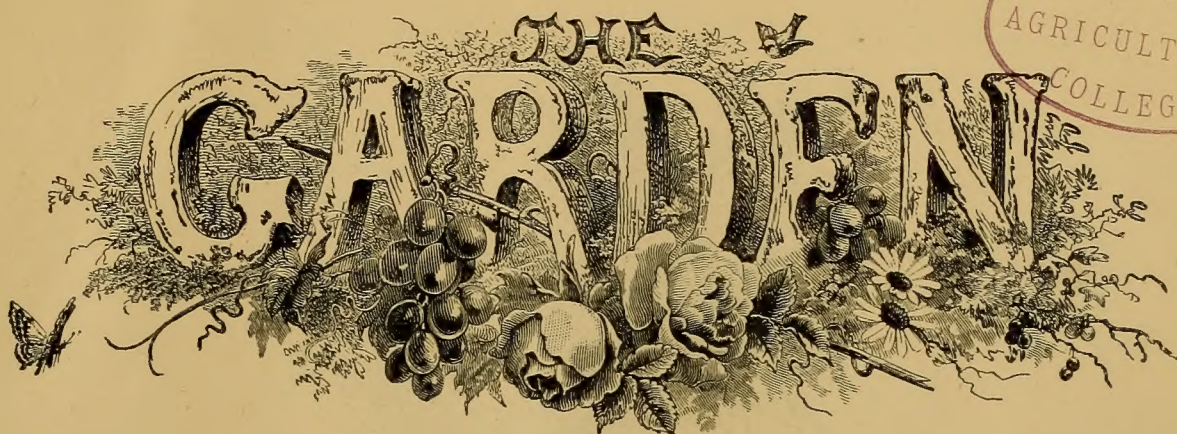




MARTIN HOPE SUTTON.



MASSACHUSETTS  
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AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

*W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.*

"You see, sweet maid, we marry  
A gentle scion to the wildest stock  
And make conceive a bark of baser kind  
By bud of nobler race: This is an art  
Which does mend nature: change it rather.  
'The art itself is nature'—*Shakespeare.*

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[JAN. 2, 1886.



TO

MARTIN HOPE SUTTON,

*OF READING,*

THIS TWENTY-EIGHTH VOLUME OF "THE GARDEN"

IS DEDICATED.

*W. R., Jan. 1, 1886.*

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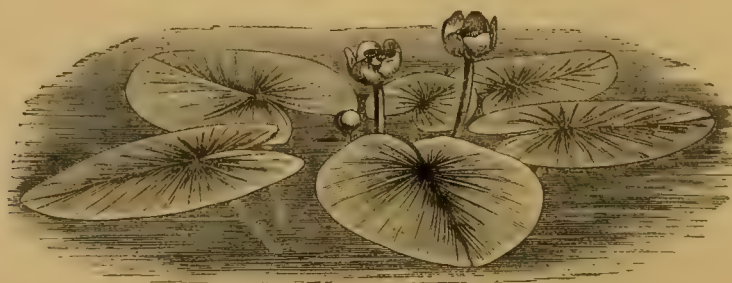
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## MARTIN HOPE SUTTON.

THE name of Mr. Martin Hope Sutton, as the head and virtually the founder of one of the leading houses connected with horticulture in Europe, is doubtless familiar to most of our readers. His career has been a notable one—remarkable for its success, and equally so as an example of singleness of aim and high principle. The Messrs. Sutton have been generally known of late years only as seedsmen, but the fact is that fifty years ago (1837), when Mr. Martin H. Sutton entered into partnership with his father under the title of John Sutton and Son, the usual style of nurserymen, seedsmen, and florists was adopted, and the firm continued about twenty years to do business in all three departments. His brother Alfred Sutton then joined the firm, and under the title of Sutton and Sons an extensive nursery trade was done. This, however, they soon gave up, and devoted their attention exclusively to the seed trade, which forty-five years ago was very different from what it is now. But few seeds were then imported, there being a heavy duty on such importations. English seed growing, too, was confined at that time chiefly to the eastern counties, and so completely were growers the agents and servants of wholesale London seed merchants, that they not only grew exclusively for them, but received their instructions each year as to what they were to grow, such growths being regulated by what was in stock from the previous year. In this way a glut was generally avoided. So wedded to the London houses were seed growers at that time, that Messrs. Sutton were obliged to raise up a number of young men who had worked on the farms of seed growers to become independent growers for their firm. Independently of their English seed farms at the present time, some thousand acres are occupied in foreign lands to grow seeds for the firm. At Reading methodical system has been the order of the day from the very commencement, otherwise the enormous demands in connection with a rapidly increasing trade could not have been met.

Messrs. Sutton have always been impressed with the necessity of having assistants capable of understanding and carrying out their designs, and to this end they have found it necessary, instead of expecting competent help from those who had served in other houses, to engage youths of known good character and of fair education, and train them to the business; therefore, at the present time, besides the proprietors, they have ten heads of departments, who have each been in their employ for from twenty-five to thirty-five years, besides clerks and warehousemen, all of whom are engaged exclusively in the departments in which they have been trained, most of them having been twenty and many over thirty years on the premises. One of the principal means by which Messrs. Sutton have been able from the commencement to ensure a supply of good growing and true seeds has been the extensive use of trial grounds, as well as trials made under glass. However, it is not the purpose of these few notes to give any particulars of one of the best organised business houses in England, but simply to introduce to our readers in the shortest way the portrait of one of the most enterprising and honourable of the commercial horticulturists of our country.





# The GARDEN.

VOL. XXVIII.

## ROOT-GRAFTED TREES.

INTERESTED in some recent remarks by an able American grower on the results of root-grafting fruit trees, we wrote to him for some further information, and he favours us with the following, which we think well deserves attention:—

When root-grafting an Apple—we will say we have a scion 6 inches long and a piece of root 3 inches long—we splice or graft the scion "on to" the root; the two are then 8 inches long. We plant it, leaving an inch of the scion above the soil and 4 inches below the surface. When cultivating the little tree more soil is thrown to it than is generally used. When it has grown three years the scion will have thrown out roots of its own; in fact, oftentimes the original piece of root used (if uncongenial) will cease to grow, be absorbed, and disappear entirely. I have many times root-grafted Pears on Apples, and, when taking them up at three years old, have found every tree furnished with proper Pear roots. Therefore root-grafted trees are much more uniform in their growth than stock-grafted trees, because they all have their own natural roots. I say all in this instance, for when we plant the young trees in orchards we plant them considerably deeper than they stood in the nursery, thus giving the original scion increased inducement to throw out roots of its own. Therefore, as I have said, root-grafted trees are more uniform in their growth and fruiting than other kinds. And if the variety be hardy in withstanding severe cold, it is reasonable to suppose that its own proper roots will also be hardy. In this way we overcome the difficulty of having a hardy tree on a tender root, which we cannot do when we stock-graft.

It is a well-known fact to all experienced nurserymen in this region that one-third of the Apple seedlings grown from promiscuous Apple seed prove tender and get killed by the first severe winter; it is indeed reasonable to suppose that a tree on its own roots

should and will do better every way than one on a root belonging to another variety.

I have found that the Early Richmond (Kentish) Cherry, from large experience, does better in every way (except it suckers somewhat) on its own natural roots than it does on any of the many different stocks upon which the Cherry is worked. Of course these differences are often very slight. A case in point: the standard Pear is usually propagated by being budded or stock-grafted on seedlings of the wild Pear, the best and strongest obtainable; these seedlings are very diverse in all their characteristics, except perhaps one—viz., strong growth. Some of them are very uncongenial to the cultivated Pear; on some of them indeed it will not grow at all, while on others it will grow finely one, two, or three years, then cease to thrive. From this reason we have, in a large standard Pear nursery, a very diverse growth, and it is not possible to get more than half, and usually not more than one-third, of first-class trees at three years old from the number of Pear seedlings planted, and it is not possible to get a good, vigorous, healthy, long-lived orchard from any except first-class trees (unless you happen to plant them so deeply that the Pear would throw out its own natural roots), owing to the want of congeniality between stock and scion, or, in other words, between the wild seedling and the cultivated Pear. With root-grafted Apple trees the case is entirely different; all of each variety grafted will make good uniform trees, and then, when I add that the foliage dominates or rules the roots—for it is a well-known fact that each variety of root-grafted trees has, even as early as the third year, its own peculiar uniform roots—the story seems to be all told.

D. B. WIER.

**Peaches Alexandra and Alexander.**—In the report of the Royal Botanic Show (p. 580) the following sentence occurs: "Of Peaches there was a capital dish of Alexandra, apparently a first-rate early sort." This, I venture to think, requires some further explanation. Alexandra is not by any means

an early variety, being only a vigorous form of Noblesse, nor is it possible, I believe, to colour it. I find it to be rather late, of good size, quite yellow when ripe, and of fine quality. Growing alongside Hale's Early it is fully a month later than that invaluable sort, and apparently a fortnight later than Royal George and Grosse Mignonne. Alexander, on the contrary, is an early sort—quite as early, in fact, as Hale's Early, and in all probability this was the variety shown under the name of Alexandra. It is a free-growing, heavy-cropping, handsome and desirable kind, and may well replace one or more of the several small-fruited early Peaches raised by Mr. Rivers. It is of American origin, and when I first tried to get it from what I considered to be a trustworthy source, one tree proved to be Alexandra and the other Crimson Galande. To avoid confusion I would recommend that the two sorts under notice be catalogued respectively as Alexandra Noblesse and Early Alexander, names under which, I believe, they were originally sent out.—W. I.

## PACKING STRAWBERRIES.

As Strawberries are now plentiful and many will be sent both by post and rail, some account of the safest way in which to pack them may be useful. Those for preserving may be put into small baskets without any packing; they will turn out in fair condition after a good deal of rough usage, but they would not be fit for dessert. We are annually in the habit of sending a good many Strawberries some 200 miles by rail, and for several years past we have adopted a mode of packing which is cheap, simple, and effective. We have a number of boxes 15 inches in length, 8 inches in width, and 2 inches in depth. A layer of Strawberry or Vine leaves is placed in the bottom. The fruit is gathered with the footstalk attached to it and before it is dead ripe. A Strawberry leaf is put round each berry, and then they are placed in the box row after row until the box is full. More leaves are then put on the top and the lid put on. This is neither nailed nor screwed down, as the boxes are too light to stand much of that work; it is kept firmly in its place by cording the box round both ways. When more than one box is sent one is put on the top of the other, and both are tied together. This mode of management is a great convenience at the end of the journey, as no hammer has to be used to open the lid or knock the box to pieces and spoil the fruit—not an unusual occurrence. Another way of packing which answers well is to put a leaf in the corner of the box, and on that place a Strawberry; then put another leaf in against the last Strawberry and another fruit on that, and so on until the box has been neatly filled. Stiff leaves are not good for packing, but young soft ones are very suitable, and all of them will become quite flaccid if gathered a few hours before they are wanted. It will thus be seen



that we do not incur much expense in packing Strawberries, and the fruit turns out equally well as if we did, for very rarely is a fruit bruised or a drop of juice lost. CAMBRIAN.

## FLOWER GARDEN.

### CROWN IMPERIALS.

ALLOW me to thank Mr. Ewbank for his reply (p. 587), and especially for the additional information from Kirkby Malzeard. From what he says it would seem that these bulbs enjoy shade under some conditions. When I spoke of position and a crop of flowers once in seven years I did not speak from memory, but from memoranda, faithfully kept. I tried shade, and four years ago moved my bulbs from the north-west side of 8-foot Hollies into full sunshine. I am 240 feet above the sea and in a river valley, but my garden slopes to the south. Mr. Ewbank quotes my term "extra dryness," but misapprehends its meaning. I said that "extra dryness on limestone is favourable here—i.e., what I might term Yorkshire dryness," which is anything but "frizzling." Surely Mr. Ewbank cannot have taken my remarks to imply anything so scorching. I do not suppose that shady or sunny quarters will constitute a condition to be always relied upon for the prosperity of these bulbs, for doubtless, where they thrive, other conditions yet to be found out exist. I still think that there is something favourable in the warmer and drier soil (even if the positions of the growing bulbs are shady) of the limestone districts. Mr. Ewbank had his bulbs from the dry, sandy, and, I believe, calcareous district of Hotham, where I should consider shade a needful balancing condition compared with bulbs in ordinary or stiffer land. Kirkby Malzeard is in the Yorkshire lime district; so the two instances given by Mr. Ewbank are somewhat in favour of my theory. In stiff land long ago I remember they used to grow in full sun at the base of the wall of a large schoolroom. I noticed in several gardens on the roadside going from Hull to Aldbrough large masses of Crown Imperials in flower in fully exposed sunny positions. I have tested Crown Imperials in both shade and sun, and I have them growing so yet. Those in sunshine, not touched for four years, have flowered finely this spring, whilst those undisturbed for the same period in shade have not blossomed yet; all the bulbs were of the same batch, taken from behind the Hollies just named. Mr. Ewbank, I presume, does not refer to the bulbs, but to the tops, when he speaks of them being burned up in summer, and yet I cannot understand how they get burned, for here ere we well begin summer both my shady and sunny plants seem to have naturally died down. The tops are now straw coloured; how can the summer sun hurt bulbs 6 inches or more deep? If other people's Crown Imperials do not die down in early June, I suppose I must conclude that my treatment is too frizzling. I am a believer in sunshine for flowers, especially early spring ones, and wish we had more of it. J. WOOD.

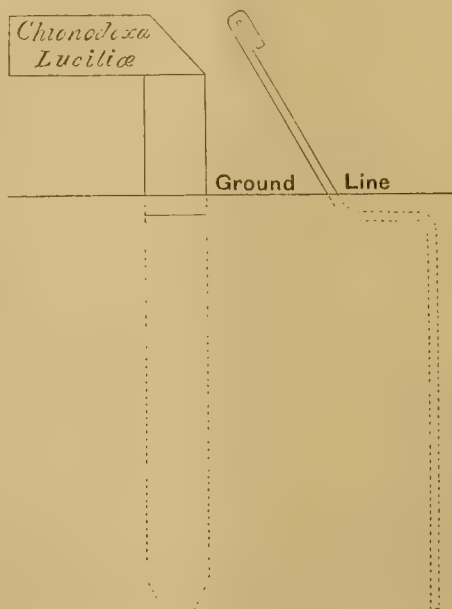
Kirkstall, Yorkshire.

**Daffodil seed.**—It may interest some of your readers to know what sort of a season it has been for Daffodil seed. As far as my garden is concerned, this has been a season of very great promise and great disappointment. The promise was very unusual, so many pods swelled out and felt fairly firm, but most of them (particularly in the incomparabilis section) have withered away, and those that remain have but comparatively few seeds within them. I have, however, about 1000 seeds saved from minor, single Telamonius, luteus, spurius, ornatus, recurvus, amplicorona, obvallaris, and, I may add, one or two others. These I shall be happy to give by fifties to any who think them worth having, and are prepared to wait patiently during the four years before they can reasonably expect them to bloom. Besides these I have saved a few pods of choice ones, three pods of Emperor, one of Empress, four of pallidus præcox, five of Horfieldi, three of cernuus, three of cernuus pulcher, one of maximus, two of princeps, one of Sir Watkin, and perhaps one or two more that I may have forgotten; also three pods of splendid seed

from what in ordinary speech I should call perfectly double Telamonius, though I suppose from a botanical point of view the doubling could not have been absolute. I may mention that I have six seedlings from last year's double Telamonius seed. I sow the seed as soon as it is gathered in an open spot in the kitchen garden and simply keep it clear of weeds, and the green spears will come through next spring. Some people sow in pans, and perhaps with a small number of seeds it is best to do this.—W. WILKS, Shirley Vicarage, Croydon.

### COL. STUART-WORTLEY'S NEW LABEL.

THIS label consists of one piece of zinc. It has the great advantage of being practically immovable, and the horizontal bend prevents it from sinking into the ground, or being knocked out of place when the ground is being forked up or otherwise worked upon.



The head carrying the name of the plant (either written or stamped) is placed at an angle to be conveniently read. These labels have been in use for three years, and they have been most serviceable in keeping rare bulbs and plants marked which would otherwise very likely have been lost.

**Hardy plants at Twickenham.**—In Messrs. Hooper's nursery grounds here, which are entirely devoted to hardy plants, Irises are grown in abundance, but the prettiest seem to be the small-flowered French kinds, of which Gold Cap, Blue Cap (blue self), Belle Jean (white, veined blue), and Defiance (blue and white) are very charming. The stiffer or rather more solid character of the blooms of these kinds renders them more suitable for cutting than the bearded Irises. Pinks are grown in quantity, and show what capital things they are for garden decoration. Standish's Ascot Pink, rose with maroon centre; Lord Lyon, Derby Day, Mrs. Sinkins, and many laced kinds thrive well. Anemone pennsylvanica in a large mass is very pretty. The plants reach 16 inches in height, and the single white blooms are about half the size of those of japonica alba. It is a charming intermediate variety, and comes in between the spring and autumn bloomers. (E. nothra taraxacifolia, a white-flowered species, is dwarf in habit and well suited for a bank or rockery. Its flowers are as large as those of the common Evening Primrose, and the habit being dwarf makes this kind all the more desirable. A pretty plant is Gillenia trifoliata, the height of which is 20 inches; its foliage resembles that of Spiræa japonica, but the blooms are starry in form, pure white, and exceed-

ingly pleasing in a cut state. Pyrethrums are largely grown, as are also Pæonies, and indeed most popular hardy flowers. Winter-blooming Carnations turned out and cut back hard are making stout plants for autumn potting. Hepaticas thrive remarkably well; angulosa especially is in bulk and well furnished with fine lobed foliage.—A. D.

## INDOOR GARDEN.

### CULTURE OF CLERODENDRONS.

SOME species of Clerodendrons are tolerably plentiful, while others are seldom met with. C. Balfourianum is, perhaps, the greatest favourite. In habit of growth Clerodendrons vary greatly; of climbing kinds C. Balfourianum and speciosum are good examples; the best of the others are C. fallax, C. squamatum, and C. fragrans. The last is a most useful autumn flowering plant, and as a vase plant and for room decoration, &c., it is most valuable; its double white, sweet scented flowers, which are produced on the ends of the young shoots, contrast strikingly with its bold leafage. It should be grown in quantity where choice flowering decorative plants are in demand. Cuttings of it should be put in any time from the month of March until June, using light, sandy soil, and inserting them singly in 2½-inch pots; they root freely if plunged in an ordinary propagating pit or case, or in any place where a genial bottom-heat can be maintained, though such is not absolutely necessary. When well rooted they should be shifted into 3-inch pots, using a compost consisting of two parts loam and one of well-decayed manure, mixed with a sprinkling of sand. When the roots begin to take to the new soil, the temperature of an intermediate house will suit this Clerodendron better than that of an ordinary stove, in which it becomes long-jointed, and is more liable to the ravages of insect pests. Neat little plants, carrying good-sized heads of bloom, can be grown in 4½-inch pots, a size very suitable for the purposes just indicated; if larger specimens bearing several heads of bloom are required, shifting and pinching must receive attention, the number of bloom-heads being doubled every time the shoots are stopped. When the pots are filled with roots they should be liberally supplied with liquid manure, as they are gross feeders. The bright scarlet C. fallax produces flowers in the same manner as C. fragrans; the foregoing treatment, therefore, suits it in every respect.

C. Balfourianum is one of the best of the climbing kinds, a large well-flowered plant of it having a grand effect. This species can be increased either by means of seeds or cuttings, the latter being preferable; they should be taken off with a heel when 2 inches or 3 inches in length, as early in the season as possible, and inserted in 2½-inch pots in equal proportions of peat and sand; they emit roots readily when plunged in the propagating case. When well rooted they should be shifted on as required, until they are in 6-inch or 8-inch pots which will be large enough for them the



first season. A suitable compost in which to grow this species is one consisting of two parts good fibry loam, one of leaf-mould and well decomposed manure, with the addition of some half-inch bones and wood charcoal. It also succeeds well in peat and loam in equal proportions, a good dash of sand being added in each case. Repotting should be done at all times carefully, the roots during the growing season being impatient of mutilation. As the shoots lengthen they should be trained to the roof of the stove, the ordinary temperature of which will suit them perfectly. By the autumn the plants will have acquired considerable size, and the amount of water must be gradually diminished to encourage the ripening of the wood. During winter they should be kept in a temperature of not less than 55° or 60°. They will flower freely when fifteen months old if due attention has been paid to the ripening of the wood the previous autumn. Thorough drainage should be ensured during all stages of growth, as during the growing season large supplies of water at the roots are needed, and liquid manure is also most beneficial. If large plants of this species are wanted quickly the flowers should be sacrificed the first season, and every attention should be directed to the formation of strong growths, which should be got well ripened in the autumn. In this way good-sized specimens can be had the third season. Balloon-shaped plants are perhaps most suitable for exhibition, but for decorative purposes train the shoots around four stakes inserted in the pot at regular distances apart. When planted out *C. Balfourianum* is one of the finest stove plants.

Some years ago I renovated a border in which stove creepers were grown, one of which happened to be this *Clerodendron*. The border was some 24 feet long and 2 feet wide. It was so constructed that it admitted of only 10 inches in depth of soil, which was all removed when the six creepers that occupied it were at rest, retaining as much of a ball as was possible about each. The fresh compost consisted of about equal parts of good leaf-mould and fibry loam, some wood charcoal and sand. The *Clerodendron* was replanted in the ordinary way, trained up one of the roof-supports and along underneath the glass, previously cutting out any weak shoots and shortening the others to the well-ripened wood. When started into growth it was syringed twice daily; it broke most satisfactorily, and produced a grand crop of flowers which lasted in good condition for months. It required large supplies of water during the growing season owing to the shallow character of the border, every particle of which appeared to be full of fibrous roots. Manure water made of sheep droppings and soot was used as a stimulant. The wood ripened well in the autumn, owing to the shallowness of the border, which was top-dressed the following spring with a compost of loam and manure with the addition of some half-inch bones. The result that season was more satisfactory, if possible,

than in the previous year. As an instance of the vigour infused into it, I may mention that some of the leaves measured 12 inches from the base of the petiole to the tip or point, and 5 inches across at the broadest part.

D. SHEAHAN.

**Spanish Moss** (*Tillandsia usneoides*).—Apropos of Mr. Hendricks' interesting account of this curious plant, I send some pieces from a cool vinery, where I have grown it on a Vine stem. It was brought from South-west Georgia in the spring of 1884, and has grown fairly well since. It is, I believe, a true epiphyte. I have watched it carefully, and cannot discover any parasitic tendency. Mr. Hendricks writes glowingly of its beauty in its native habitats; my own impression is that it gives the landscape rather a dismal aspect, especially in winter. There is a small piece of this Moss growing in the T range at Kew, but being on a block it gives no idea of the plant in its native wilds, where the trees are festooned with it to a remarkable extent.—JOHN W. ODELL, *Barrow Point, Pinner.*

\* \* The sample sent of this interesting plant was perfectly fresh and good.—ED.

**Drying off Amaryllis.**—Does "J. C. C." mean that Amaryllises are grown at Langport out-of-doors and left in the open borders all winter? My experience with them is that they will not succeed all the year round even in a greenhouse. "J. C. C." states that the gain derived from keeping the roots fresh is an increased number of flowers on a spike. I have had six flowers on a spike, and three spikes from one bulb. One had six flowers, and two had four each. How many have Messrs. Kelway obtained? So far they have only exhibited single flowers. I may add that the treatment recommended by me in no way injures the roots.—J. DOUGLAS.

#### WORK DONE IN WEEK ENDING JUNE 30.

JUNE 24.

A RETURN of sunshine in all its glory is this evening ending in thunder showers, that are most welcome to our recently planted Broccoli and other winter greens. Hoed over Asparagus plots, and staked the stems in young plantations of such as were getting top-heavy. Re-mulched Globe Artichokes with long litter; the heads as ready are cut and placed with the stems in water till they are required for use. Dug border that has been cleared of early Potatoes, and on it made another sowing of Canadian Wonder French Beans. Netted over all Strawberries and gave another washing with garden hose to Morello Cherries, which are now the only fruit trees that are attacked with blight. Gathered from the open border first ripe fruit of Strawberry Vicomtesse Héricart de Thury. They are fully ten days later in ripening than last year. We continue to tie or nail in the new growths of all wall fruits as opportunity offers, and pyramidal trained Pears are having their summer pruning; a few of the strongest shoots are left to be presently tied down in parts of the trees that are thinly furnished. Tied up Tomatoes and cut away all shoots springing from the base of the plants, and the points of side shoots are pinched at the second joint beyond the fruit. The plants on walls have also been nailed in. We are not particular as to the one stem in respect of these, for, provided there is room, all are left that are likely to make good leading shoots. A few berries of White Tokay and Alicante Grapes in an intermediate house have scalded to-day, an occurrence that we accept as notice to put in practice preventive measures in regard to it, which are abundance of air whenever the sun shines, a little fire-heat at night, so as to admit of the ventilators being left partly open, and the opening of them wider very early in the morning, so that the night-condensed moisture may get dried up before the sun shines fully on the house. Lady Downes are peculiarly liable to injury by scalding, and a fortnight hence our house of this variety having reached that stage will for a week or two be aired as fully as an ordinary greenhouse. The bulk

of the fruit of Tomatoes in pots being fully ripe, the plants have been shifted from a warm vinery to a cool Peach house, where they will be left to fruit till we have supplies from the open air, after which the plants will be thrown away. We have young plants coming on to succeed the open-air ones in autumn and early winter.

JUNE 25.

Cloudy and cold; a contrast to yesterday. Finished cutting Box edgings. Picked more seed-pods off Rhododendrons, and cut away the new growths of these and Laurels that were encroaching on walks. The growth of Laurels and Rhododendrons is unusually profuse, and we have to-day been busy both with knives and shears in cutting away all that overhung walks, as well as standard plants of Portugal Laurels, to keep them in bushy and good form. The common ponticum varieties of Rhododendron are so numerous, that, if necessary, we shear away at these with impunity, but named sorts we knife, when pruning is needed, to keep them in bounds, either as to overhanging walks or of overcrowding each other. Cut verges and weeded front of shrubby clumps, and planted here and there a few surplus plots of Sweet William and Canterbury Bells, the remainder being planted in what we have lately christened the "wild garden," but which is really a wood within the enclosure of the pleasure ground, and which, soon as we can get a few of the timber trees down, is intended to be filled with flowers that will thrive without much attention as to keeping and cultivation; so that it will be a veritable wild garden. At present, work in the houses is much the same from day to day; there is therefore no need for reiteration of what is being done, other than that we always endeavour to keep pace with the work, by doing everything at first opportunity after it has once been decided that it requires doing. Fuchsias, Pelargoniums, Petunias, and Marguerites, that are wanted for house and room decoration at the end of August, have to-day had their flowers picked off to encourage growth, and the plants requiring it have been top-dressed with rich soil. All are growing in the open air, with the pots plunged in ashes, to prevent the necessity of watering so often as would otherwise be the case.

JUNE 26.

Thermometer at 5 a.m. stood at 36° and the wind due north; my first thought was as to how Alternantheras had stood the cold bleak night after the fierce sunshine and heat of two days ago. They certainly look no better for the ordeal, and doubtless they have got a severe check. All are mulched with Cocoa-nut fibre refuse, so that the roots can take no harm, and the plants, therefore, will quickly recover, but, for all that, we mean to have less of them and more hardy plants in lieu thereof. Pegging down Verbenas, Petunias, white and blue Violas Mrs. Grey, True Blue, and Archie Grant. Put in cuttings of Pinks; we strike them on borders in kitchen garden and cover them with hand-lights. Sandy loam and a small proportion of finely sifted leaf soil is a description of soil in which they strike well and rapidly make quantities of roots. We have now a grand show of the splendid white Pink Mrs. Sinkins and of the white Clove-scented Carnation Gloire de Nancy, two plants that ought to be grown everywhere and by everybody who appreciates sweet-scented flowers. Many varieties of Peonies, now at their best, are scarcely less sweetly scented, and are so pleasing in colour and effective as border flowers, that one wonders at their cultivation having been neglected so long. We have to-day had to put stouter sticks to support the huge flowers, and some few other herbaceous plants also had attention in this respect. Our Pea crop is the best we have had these two years. Veitch's Extra Early is true to name, for it was ready for use a week before Ringleader, which hitherto has been our earliest. William I. is, however, our first favourite, and though it is a week later than the sorts just mentioned, the superior quality is worth waiting for. Sutton's Berkshire Challenge is our next succession, and this will be closely followed by Veitch's Perfection, Sutton's Giant Marrow, and Ne Plus Ultra. We made another sowing to-day of British Queen, and our next sowings will be of first early varieties. Cauliflowers turn in so fast, that we have found it desirable to



slightly heave part of them with a fork; this check, in addition to bending the foliage over the flowers, may possibly retard them sufficiently to enable us to have an unbroken supply till the successional plot is ready. Other work has been layering Strawberries, potting Chrysanthemums struck last month, and cleaning Strawberry house preparatory to filling it with flowering plants for the summer.

JUNE 27.

Very fine and warm, but the wind still continues north-easterly, and consequently tender bedding plants make but slow progress towards filling out the beds; and therefore, by way of assisting them to do this, we have to-day been busy mulching with Cocoa fibre refuse Coleus, Iresine, Amaranthus melancholicus, and small Lobelias; Alternantheras were done a week or two ago. Pegged down groundwork of variegated Mesembryanthemum, and re-pinned Gold Feather Pyrethrum to keep the plants dwarf and thick at bottom. We have again picked the flowers off Fuchsias and Calceolarias to get more growth into the plants, and the former being used as standards, we endeavour to keep them in good shape by pinching out the points of such shoots as are tending to make the plants look lop-sided or uneven. Mowed terrace garden and clipped all the edgings of beds and the points off small Retinosporas and Cupressus that are planted out on the turf at the angles of the beds, in lieu of ornamental stone flower vases that once stood there, but which were removed because it was thought there was too much of ornament and stiffness about them to harmonise well with the surrounding plain set of flower beds. Besides continuing the pruning and laying in the shoots of fruit trees, cleaning up is all else that our outdoor hands have been able to do. Layered a few Strawberries, watered Pines, late Peach house border, and late Muscat Vine borders. We still use tepid water for all borders except Peaches. Thinned out the growth of Cucumbers and cut all fruit that was ready. Melons in full fruit make so little growth, that pinching and thinning out has to be done carefully. We like to leave all the foliage and shoots it is possible to expose to light, and keep them good to the end; then the fruit is sure to be of the finest quality. We water freely till there are indications of the fruit ripening; then we do it sparingly, but we never allow the soil to get so dry that the foliage suffers. Got out Pine plants having ripe fruit, and placed them in cool fruit room to preserve them. The one difficulty we find in Pine growing is our inability to keep up a regular supply of ripe fruit without at one time having a glut and at another a scarcity. Successional potting of suckers does something towards obviating the difficulty by lengthening out the season of ripe fruit, but still we fail, and sometimes, too, when the fruit would be most acceptable. Of course, with an unlimited amount of houses and pits, ripe fruit might always be secured, but it cannot be with limited space and conveniences. Other work has been scrubbing floors, washing doors, and picking over and rearranging plants, as is our wont on Saturdays.

JUNE 29.

The weather continues bright and sunny, but very cold at night. Hoeing all crops and places on which there are weeds to be destroyed, or the crops benefited by breaking the surface soil. Celery, French Beans, Beet, Carrots, and Parsnips are amongst the crops that have been hoed. We have a large quantity of Rose Souvenir de la Malmaison, and at this early season it is apt to produce a large percentage of bad flowers—green centres—and all such flowers have to-day been picked off, as have also the faded flowers of other Roses, a proceeding that well repays the labour by the earlier production of a successional lot of handsome flowers. Watered Rose beds; our soil is so open and light that it is simply impossible to over-water. Manure water or dressings of artificial manure we apply in showery weather. Summer pruning of fruit trees has been continued, and so has picking out the seed-pods and faded flowers of Rhododendrons. Cleared out another lot of Melons, and prepared soil for planting others. The best stiff loam procurable, a little charcoal and half-inch bones is the description of soil we use, and it is made very firm, but not pounded exceptionally

hard. Layering Strawberries and taking out a few more berries from inside of the bunches of Gros Colman, Black Alicante, Golden Queen, and Mrs. Pince Grapes is all we have been able to do in the houses, except the usual routine work of watering, syringing, stopping laterals of Vines, and pinching out the points, and tying down the shoots of Peaches, Figs, &c.

JUNE 30.

The night temperature has risen 20°, and though there has been little sunshine, the day has been more summer-like than for several days past. Wall fruit trees have again had a large share of attention in the matter of nailing or tying in the new growths, and all but Plums have now been finished. Cut back the longest shoots of Currant trees, and netted them over. There is but the faintest signs of ripening, and yet the birds have opened fire on both these and Raspberries. I would like bird-preserving advocates to have the month of worry and anxiety that from past experience we know is in store for us throughout July, *i.e.*, if we are bent on having the most and best of our own fruit, which means netting up of all and sundry, ripe and unripe, and when we have done this they then take revenge on the Peas, and so the raid continues till they flit to the cornfields in harvest time. Watered Celery and the last plantings of Cauliflowers and Brussels Sprouts. As a rule, we do not care to begin watering kitchen garden crops, but these not having yet got established, the dry north-easterly winds that have prevailed of late has caused them to suffer somewhat from drought, hence the exception of watering. Mulching is a far better cultivator than watering, and this we practise so far as means and time will allow. Peas and Runner Beans we generally strive to mulch. Work connected with flower garden—summer bedding—we have to-day completed by having got all either pegged into position or tied up to sticks as each required. Keeping in order will now comparatively be a small matter, as it will be done regularly, every bed and vase having attention as to picking, tying, pegging, &c., at least once a week. The work about and in the houses has been almost an exact counterpart of yesterday's. Movable Strawberryshelves have been washed and stored away, and the walls, glass, and wood-work that have been stained or dirtied by the watering of the plants will be cleaned at the first opportunity.

HANTS.

#### FRUITS UNDER GLASS.

##### ORCHARD HOUSES.

As the early Peaches and Nectarines are cleared of their fruit the roots, which have been kept on the dry side, must be treated to more liberal supplies of water, which may be of a stimulating nature or otherwise, according to the strength of the young growths and the strain the trees have undergone during the time they were laden with fruit. The syringe will at the same time play an important part, not only in cleansing the foliage, but also in supplying moisture to the buds, which must be kept steadily progressing until they are full, plump, and perfect. If, as previously advised, the roots have not been allowed to break away from the pots, it will be wise to arrange all the fruitless trees together, as time will then be saved in watering and syringing, while the latter operation can be more efficiently performed, as they will stand clear of others which it may not be advisable to expose to copious supplies of water. As future success depends upon the way in which the trees are managed from the time the fruit is gathered until the leaves fall, early attention to the thinning and cutting away of all the superfluous wood that will not be wanted another year must not be neglected—in fact, the annual pruning must be performed for the twofold purpose of letting in light and air and directing the whole force of the sap into the growths, which it will now be the object to fill up and ripen. The shortening of the shoots will, as a matter of course, be allowed to stand over until the wood is ripe, and, with the exception of an extra strong shoot, which may be robbing the others, pinching must be discontinued for the remainder of the season.

*Potting.*—Where maiden trees in moderately sized pots have just matured their first crop of fruit, they

will require a liberal shift into pots sufficiently large to admit of from 1 inch to 2 inches of fresh compost all round and beneath the balls now full of roots. The best time to do this is as soon as the foliage is clean and the young growths begin to respond to moister treatment. Although the routine of potting has often been described in detail, it may be well to remind the amateur that pots and crocks should be clean and dry, and the compost, consisting of heavy calcareous loam, crushed bones, and old lime rubble, must also be dry, as it will have to be rammed with the potting stick until it is as firm as the old balls themselves, otherwise the water will pass down the new soil, the original balls will become dry, and although trees may flower there will be no fruit next year. It is therefore important that the trees be well watered before they are turned out of their pots, as no after watering will moisten them, and they will require a further supply after they are potted and removed to a suitable situation under glass, where they can remain in a moist growing atmosphere until the roots have taken to the new soil. It may be well to remind the timid, who may be afraid of disturbing the roots of a deciduous tree in full leaf, that all crocks and inert soil should be removed and the coiling roots carefully picked out with a sharp-pointed stick, when the union of the two soils will be secured, and fresh root action, under rather close moist treatment, will immediately set in. Older trees already occupying full-sized pots, and which it may be thought desirable to renovate with fresh compost, may also be operated upon, but the removal of an inch or two of the old ball being a more severe ordeal, this section should be allowed to stand over until the foliage shows signs of changing for ripening. Later than this they should not be allowed to stand, as it is important that latent summer heat and ripening leaves be brought to bear upon the formation of new roots.

*Late houses* containing a mixed collection of trees, including Plums and Pears, must now have an abundance of air, good syringing twice a day, and plenty of water. Rich mulching, little and often, will also be essential to the attainment of full size; moreover, it will greatly assist all stone-fruit trees now undergoing the trying process of stoning. If space is limited, all trees that have missed, as well as a few of the early Plums, may now be removed to a sheltered place in the open air, where, plunged and well attended with water, the latter will swell up their fruit and form a succession to kindred kinds left in the orchard house.

##### POT FIGS.

Where these are grown in the ordinary orchard house they should always have the benefit of the brightest and warmest part of the structure, as it is hardly possible to give them too much heat. When thoroughly established in pots, the strongest growers soon become short-jointed and thickly furnished with spur-like pieces, which require very little pinching, and show as many Figs as leaves. All do not, however, come to perfection, as those formed on the young wood after the end of July do not have time to ripen; consequently all such should be rubbed off to prevent unprofitable exhaustion, when, in many parts of the trees, a second set of embryo fruits will form, and not get too forward by the time the leaves fall in the autumn. As it is from these late incipient shows of the preceding season that the earliest supply from cold houses is obtained, it is not difficult to understand that this class of trees does not require much pinching, otherwise blind points well set with fruit, it is true, will push the young Figs too forward, and have to be pruned out in the autumn. To escape this dilemma and to secure a plentiful supply of short growths with bold, terminal points, the roots should be confined to the pots, and the latter should be filled with well-ripened fibres long before the last of the fruit is gathered in September. All intermediate fruits larger than Marrow Peas at that time existing should be rubbed off, as they rarely pass the flowering stage when the trees are excited into growth in the following season. It is from trees so managed that full crops of fruit will now shortly be gathered; that is, provided the roots never feel the want of water after they are once started into growth, and they are copiously supplied with stimulants. Red



spider and brown scale being troublesome enemies, the first must be kept in check by means of good syringing; the second by the removal of the old females with a hard, stumpy brush before the young ones emerge from the parental covering. Once disturbed, scale cannot re-establish itself. Once allowed to extend to the young wood, the rising generation will be found very troublesome throughout the remainder of the season.

#### CUCUMBERS.

A stock of young plants should always be kept on hand for replacing old fruiters, when, through continuous or over-cropping, they show signs of exhaustion, a condition from which it takes as long to restore them as at this season it does to replant and grow young plants clean, fresh, and healthy into a fruiting state. When replanting is decided upon, the pit should be completely cleared out and cleansed before fresh materials are introduced, and the site for the ridge of soil should be well removed from the influence of the hot-water pipes running along the front of the house. These will not, however, be wanted for the present, as the fermenting material combined with early closing will produce the best possible conditions for summer culture. If the daily demand for fruit prevents replanting, piecemeal renovation may be carried out by cutting over a plant or two at a time, thoroughly cleansing with a mild insecticide, and relaying a few of the best of the young vines. Old mulching and inert soil may also be removed and replaced with fresh compost consisting of light turfy loam, flaky leaf-mould, and burnt earth or lime rubble. To complete the operation a brisk bottom-heat must be provided, otherwise the shock may prove more than old plants can bear, but strong fire-heat being objectionable, a good body of mild fermenting Oak leaves will be found the most suitable material that can be used. A close, moist atmosphere and careful shading from bright sun will greatly facilitate the formation of new growths and roots, when the ordinary treatment may be resumed.

*Plants in frames* may be more severely dealt with, as a number of the old stems can be partially buried in the fresh top-dressing, and the frame can be kept as close and moist as a propagating pit. Before frame plants are cut over, a brisk bottom-heat should be secured by renovating the back and front linings with well-worked fermenting material. Frame Cucumbers, no matter how fine the summer may be, should always be covered with mats at night.

#### MELONS.

Where late Melons are in request young stock may still be raised and planted out or grown on in pots until such time as space now occupied becomes vacant. To grow, or rather to fruit and finish, late fruit successfully, top and bottom heat from hot-water pipes should always be provided; fermenting material alone in ordinary seasons will be found quite sufficient to carry the plants through the early stages, but when days become short and nights long and cold, a drier and a steadier heat will become necessary. Some growers now advocate planting out and training on the extension principle, and doubtless this system has its advantages, but where a quick return of full averaged-sized fruit of superior quality is the first consideration, plants grown in good sized pots and plunged in fermenting material over bottom-heat pipes will produce as great a weight of fruit and the quality will always be reliable. Plants carrying crops of fruit will now take liberal supplies of diluted liquid at every watering, and the syringe may be freely applied when the house is closed on fine afternoons with the temperature ranging from 80° to 90°. Morning syringing is not included in good culture, as moisture is apt to condense and scald the fruit, which should never be shaded. To secure good fruit the bottom heat should range about 80°. The walls and floors should be well damped when the morning temperature begins to rise, and the early chink to let out moisture should be followed by liberal ventilation with full exposure to the hottest sun until the maximum is reached, when reducing to prevent a decline must receive careful attention. When the fruit begins to change for ripening water in sufficient quantity to prevent flagging will be quite ample, and syringing must be entirely suspended.

*Melons in pits and frames.*—Where good plants were put out in May and the linings have received proper attention the fruit will now be set and swelling fast under the influence of strong solar heat and atmospheric moisture which this bright summer weather will enable the cultivator to bottle up by early closing. All fruit intended to swell to maturity should be elevated, not entirely clear of the foliage, but a few inches away from the surface of the bed, the better to preserve it from the attacks of woodlice, which are generally present, and to admit of flooding the extremities when heavy waterings are considered necessary. The hills or stations on which the plants are placed being slightly elevated, these copious supplies can be given while the base of each stem remains dry and safe from canker. When every part of the frame is evenly filled with foliage, all spray and superfluous growths must be cut out to prevent crowding and to admit of a free circulation of air amongst the vines when the lights are tilted during the hottest part of the day. If an abundance of heat does exist in the linings, these should be renovated with fresh fermenting material from the reserve, as it is more than useless trying to grow high-class fruit without a strong heat that will admit of giving air on dull days and leaving a chink for the escape of steam when covered up at night. In course of time the linings may require pulling down and rebuilding from the base, but to avoid a check, the coldest, say the front, should be operated upon first, and when the heat has revived, the back should be taken down and rebuilt in like manner. Frame Melons do not require shading after they have taken to the soil, as they cannot have too much bright sunheat, and they should be shut up close with plenty of moisture, at a temperature of 85° to 90°. Prolific green-fleshed kinds like Victory of Bath do better than scarlets in pits and frames.

W. C.

## TREES AND SHRUBS.

### TREES AT KNAP HILL.

MR. ANTHONY WATERER'S great tree nursery at Knap Hill, containing, as it does, such a wealth of old and nobly-grown trees, is not a nursery of the ordinary kind, but rather an arboretum in the true sense of the term, a place in which one may see and study every phase of hardy tree and shrub growth from infancy to the mature stage. Lovers of trees and shrubs have here abundant material to interest them, no matter what particular class of tree or shrub they wish to see provided it is hardy, for it must be understood that none but quite open-air trees and shrubs are dealt with here. Plants of doubtful hardiness may certainly be seen here, but they are either grown and sold as wall plants, or else they are under trial in order to ascertain their degree of hardiness. It was wise on the part of the founders of this nursery to plant permanent specimens of the finest of our ornamental trees as soon as introduced, the result being that we have here some of the grandest specimens of the finer types of trees to be found anywhere in the country, the adult growth of which Mr. Waterer is able to show his customers, and thus give them an idea of what the young plants which they purchase may in time become. The glory of the Knap Hill arboretum is the magnificent Weeping Beech which it contains, and which is unquestionably the finest of its kind in existence. It covers a very large space, and the singular manner in which its long drooping branches are disposed gives it a most picturesque ap-

pearance. Being of great height, too, it has an imposing appearance, both in summer and in winter. It is, however, never so beautiful as in May, when the tender green leaves have just become unfolded. There are other grand specimens of Weeping Beeches in this nursery, but they are comparatively insignificant compared with this grand tree.

THE GOLDEN CHESTNUT is another remarkable tree, being about 40 feet high with a wide-spreading umbrageous head; as seen a short time ago in all the freshness of newly unfolded leafage, this tree had the appearance of a golden cloud, an effect never shown by any other variegated tree. This undoubtedly ranks amongst the finest of all golden deciduous trees. It is thoroughly hardy, too, and a rapid grower. One can well imagine the beautiful effect to be obtained by such a tree associated with the Copper Beech, variegated Negundo, and others. Near this Chestnut one may see perhaps the finest Ailanthus in the country, a noble specimen which, seen when its crimson-tipped leaf shoots are just bursting, has a singularly beautiful effect. The too close proximity of this Ailanthus to the great Weeping Beech, to which every other tree must give place, renders its permanency somewhat doubtful; but it is to be hoped that when Mr. Waterer considers it necessary to fell it, he will send a section of its fine trunk to the national wood museum at Kew as a specimen of English grown Ailanthus.

Among other noteworthy specimens in this arboretum is a noble Douglas Fir, one of the first planted in this country. It is of towering height and its branches sweep the lawn; a more perfect or healthy coniferous tree could not, we should think, be found—not even at Dropmore. It represents the true Colorado form of *Abies Douglasi*, which is superior in all respects to the ordinary form; so convinced is Mr. Waterer of this superiority, that only the Colorado form is grown by him, though the collection of the seeds in its native habitat is extremely difficult.

THE SALISBURIA (Maiden-hair Tree) is represented by a few exceedingly fine specimens, which show well what a beautiful tree this is in its mature stage. It has rather an awkward habit of growth, but even this peculiarity may be taken advantage of in ornamental planting by associating it with trees of more formal habit. The great specimen of *Virgilia lutea* (the American Yellow-wood) must present a most beautiful appearance in early autumn, when every leaf assumes a golden tinge. The largest specimen here is the finest of the kind we have seen, and judging by its appearance it seems to represent the maximum growth of the tree. A noble example of the *Kœlreuteria paniculata* is enough to astonish those who have only seen specimens of it a few feet high. Here it has a great spreading head, and its elegant pinnate foliage gives it a light and graceful appearance something like that of an Ailanthus.



Of the newer kinds of hardy trees and shrubs to be found in this nursery perhaps the most remarkable is the Weeping Copper Beech, a decided acquisition. The existence of this variety had long been considered doubtful, but, be that as it may, it is here a graceful tree, the branches of which are quite as pendulous as those of the green Weeping Beech. It will be a tree of the future, and the fact that its foliage is as rich in colour as that of the best sorts of Copper Beech makes it all the more desirable. Of the Copper Beech itself there are various forms, some being much superior to others; the best is the broad-leaved sort, the colour of which is intensely deep. The best only are propagated here on a large scale, and as they stand in contiguous rows, their differences can be readily seen. The Cut-leaved Beech, of which there is here a noble tree, is in its way most beautiful. It is amongst the best trees for chalky soils, in which but few ornamental trees succeed.

THE NEW PYRAMIDAL POPLAR (*Populus alba Bolleana*), one of the most important introductions of recent years, may be seen here in its true character, though it will be some time before it reaches the height of a full-grown Lombardy. Being a variety of the Abele, the leaves have the same silvery under surface which renders them so beautiful, especially when kept in motion by the wind. The largest specimens here are some 10 feet or 15 feet high, and show even in this state the rigid pyramidal growth which has already won for this Poplar the name of the White Lombardy. Among other Poplars worthy of special note is the Weeping Aspen (*P. tremula pendula*), an extremely graceful tree, whose leaves quiver even on the stillest day. Poplars in demand for shelter and screens are grown here extensively. The best for town planting is the new Canadian (*P. canadensis nova*), an extremely rapid grower, and a handsome tree. It withstands the atmosphere of a town better than any other Poplar. The best street tree for London is pretty well known to be the Maple-leaved Plane (*Platanus acerifolia*); a special feature is made of it here, and by a careful system of transplanting Mr. Waterer is able to plant with success trees with boles a foot or more in girth.

THE SILVER-LEAVED MAPLE (*Acer dasycarpum*) is another tree which is fast coming into favour for town planting and particularly for streets, as its constitution enables it to withstand dust and smoke. When planted on a lawn it is a fine spreading tree, but in streets it may be kept more upright. A variety of it, called *Weiri laciniatum*, is one of the most ornamental trees introduced from America.

ACER SCHWEDLERI is just now exceedingly effective, the foliage being of a rich vinous-purple, finer than that of the purple Sycamore or *Reitenbachi*, the other purple-leaved variety of the Norway Maple (*Acer platanoides*); both are, however, handsome trees, valuable for associating with common

kinds. A golden-tinged form of the Sycamore, called *Worleyi*, is an effective tree contrasted with the purple-leaved Sycamore and such as *Acer Schwedleri* and *Reitenbachi*, and these, together with the variegated Sycamore, form a group of fine-leaved trees of the highest value.

Among Conifers there are, besides the grand old specimens which may be met with at every turn about the nursery, several of the newer kinds that are remarkable for great beauty and interest, and none more so than the Silver Atlas Cedar (*Cedrus atlantica glauca*), which without question is the finest of all Silver Conifers. Only those who have seen the groups of plants here of this Conifer can have any conception of the beautiful effect it produces in association with green kinds. Each plant is as if covered with frosted silver, and yet there is a bluish tint about the silveriness which renders it different from all other glaucous Conifers. It is a pity that such an ornamental tree is yet so rare, but it undoubtedly has a great future before it. Compared with the Silver Atlas Cedar, the glaucous variety of the Deodar is green, and it is most fortunate that the Atlas Cedar happens to be the best suited for our climate. Another silvery Conifer of great beauty is *Abies Parryana glauca*, which is undoubtedly the king among the true Firs, as well as being one of the hardiest. This handsome tree is a native of Colorado, whence it was introduced a few years ago. It is quite as silvery as the Atlas Cedar, but the glaucousness is of a different character, being less tinged with blue. It has a regular conical growth, and the horizontal branches are arranged in flat tiers. The Knap Hill specimens of this Conifer, though comparatively small, show well what a handsome tree it will eventually make, and the fact that it is quite indifferent to our severest winters makes it the more valuable as a tree of the future. The synonyms of this Conifer appear to be somewhat confused, its aliases being *A. Engelmanni glauca*, *A. commutata*, and *A. pungens*, but the name adhered to in this nursery is *Abies Parryana glauca*. It may also be found under the name of *Picea*. Mr. Waterer will point out quite a different plant which he grows under the name of *A. Engelmanni glauca*, and which is inferior in beauty to *A. Parryana glauca* besides being structurally distinct.

These two Conifers, the Silver Atlas Cedar and the silvery Parry's Spruce, are among the finest trees that have yet been introduced to cultivation. A number of valuable Spruces are grown here on an extensive scale, particularly the finest, such as *Alcoquiana*, *polita*, *orientalis*, *canadensis* and its varieties, including the weeping and the broad-leaved *macrophylla*, quite a host of forms of the common Spruce, *A. excelsa* and *Douglasi*, especially the Colorado variety to which we previously alluded. The Cedar of Lebanon, we were pleased to see, is not neglected here, there being hundreds of specimens of a size suitable for permanent planting, as a legacy for future generations, to take the place of

the noble Cedars which our forefathers had the forethought to plant a century ago. Among the other Conifers which most interested us were the golden Yews, which at all seasons are the glory of Knap Hill. Just now they have put on their new golden growth, and the beautiful effect they produce in large masses may be better imagined than described. It is difficult to overrate the value of these golden Yews for ornamental planting, although, like other golden as well as variegated trees, they require to be planted with judgment; otherwise, if planted indiscriminately, their effect is marred. We could wish that a less formal way of growing these Yews than clipping them into cones and pyramids were adopted; nothing is so picturesque as the natural growth of Yews, and they really require no clipping whatever. Another golden Conifer which strikes one at Knap Hill is the true *Retinospora pisifera aurea*, which forms a pyramid or cone of gold far richer than that of any other of its tribe, although a rival to it is the golden Lawson Cypress, which is considered by many to be the finest of all golden Conifers. It has a softer hue than the *Retinospora*, but being constant in colour throughout the year renders it of great value. There are crowds of varieties to be seen here of *Cupressus Lawsoniana*, none being more remarkable or so distinct as the Knap Hill Cypress (*C. Lawsoniana erecta viridis*), which originated here. The large masses of it here of all ages and sizes, from the parent plant to the tiny plants from the propagator's hands, afford a good opportunity to judge of its value. In every stage it is beautiful, presenting erect growth and luxuriant green throughout. The Weeping *Wellingtonia* is likely to prove an elegant lawn tree; the largest specimens here are beginning to show their true character, and will be less like Noah's-ark trees than the original.

#### NOTES ON RETINOSPORA.

AMONG the many Japanese Coniferae that succeed so well in this country, this is one of the most useful. It forms, when young, a somewhat globular bushy plant, but as it increases in size it acquires a tree-like character. What makes this *Retinospora* different from all others is the long pendulous, thread-like branchlets, often terminated by tufts of little shoots. For small gardens and in permanent bedding arrangements, or for similar purposes, this *Retinospora* is, in its young stages, well suited, and when 6 feet or 8 feet high it forms a handsome specimen for lawns of limited extent. When larger, its growth is, as a rule, more irregular in character. *Retinosporas* are easily propagated, quite hardy, and do well in most situations; if they outgrow their bounds, they can be reduced by means of the knife without destroying their beauty, as, if cut back, they all again break freely into growth. *R. obtusa* and *pisifera* are the largest growing sorts, but of both, dwarf compact specimens may be met with.

The principal recognised variety of *R. pisifera* is that in which the foliage is golden, but of *R. obtusa*, which varies more than *R. pisifera* when raised from seeds, there are several varieties recognised as distinct. Amongst them are *aurea* and *gracilis aurea*, compacta and pygmaea, the distinctive characters of which are explained by their respective names. Apart from these recognised varieties, however, from a bed of seedlings may be picked out many distinct and beautiful types varying greatly in habit,



colour, and rate of growth from the original. *R. plumosa* is of rather dense habit, with delicate plum-like branchlets. In colour it is an attractive shade of green, and altogether a very desirable kind. Of it there is a variety (*alba picta*) in which some of the shoots are marked with white, and two others, *argentea* and *aurea*, in which the young growth is suffused with white and gold respectively.

*R. squarrosa* is a pretty low tree, noteworthy on account of the beautiful silvery hue of the foliage, a character which stamps it as very distinct from the rest. The leaves, too, are longer than those of the others, and not adpressed to the branchlets, but stand out clear of each other like the juvenile foliage of *Thuja*s, *Biota*s, and some *Juniper*s. *R. filicoides* is a good deal in the way of *obtus*a, but the branchlets are unusually short and stout, and the colour a very deep green.

*R. lycopodioides* is of loose, irregular growth, with branchlets curiously flattened at the tips. It seems to be more particular as to its requirements than the rest, as it frequently fails to grow satisfactorily. *R. leptoclada* is a densely pyramidal plant of slow growth, with cheerful greyish green foliage. It is well suited for cultivation in pots or for winter bedding, as it will by no means outgrow its bounds. Among small or select shrubs, too, it well deserves a place. It has been contended that this *Retinospora* originated as a seedling from *Cupressus thyoides*, and certainly its appearance tends to bear out this supposition, another point of affinity being that both do well in dampish spots. *R. ericoides* is a dense, upright shrub, seldom more than a yard high, with long pointed leaves, green during the summer, but changing to a purplish brown in autumn, a colour which it retains throughout the winter. *R. tetragona aurea* is a little dwarf plant, with spreading branches and bright golden-coloured leaves. It is a very desirable subject for rockwork.

**PROPAGATION.**—*Retinosporas* constitute one of the easiest classes of Conifers to strike from cuttings, the quickest to root being *R. ericoides* and *R. squarrosa*, the two that bear only juvenile foliage; then come *R. pisifera*, *plumosa*, *leptoclada*, *squarrosa*, and *filifera*; while the slowest rooting, but still by no means difficult, are *R. obtusa*, *filicoides*, and *lycopodioides*. A.

#### THE FLOWERING OF THE PAULOWNIA.

It is unfortunate that the season at which the Paulownia blooms is so early that, in England, unless the conditions are exceptionally favourable, the flower-buds get destroyed by the frosts, which frequently prove so ruinous to newly set fruit. They are generally inclined to open rather earlier than the leaves, and it is often quite a pity to see how rapidly they advance, considering what we know from experience they have yet to encounter. If the wood of the previous year has been tolerably well matured; if the winter has been mild; if the spring of the current year be somewhat late, so that blooming is delayed till June, or even till midsummer; and, finally, if the weather be warm and dry when the time arrives for expansion—then the tree has a good chance, and a fine display of the glorious purple may be looked for, especially in sheltered situations near the sea. Otherwise the little brown knobs of fur detach themselves from the stalk, and drop away prematurely. A tree upon the lawn at Vellore, Bath, was covered with flowers in 1866, and another the same year at Messrs. Waterer's, Knap Hill, Woking, on which every point had its panicle of blossom. The tree last referred to was then about twenty-five years old, about 20 feet high, and had not flowered before. In the grounds of the Bishop of Exeter, Bishopstoke, near Torquay, and in many other places, the Paulownia has likewise blossomed well, though intermittently; but at Clevedon, where I have several times seen Pomegranates hanging upon the trees out-of-door sand quite ripe, and where the female of the *Garrya elliptica* ripens its curious grey-purple and downy berries every autumn, I believe it has still to disclose its charms. The buds make considerable way, but drop before expansion, as I have likewise observed at Clifton. But of

course trees may have bloomed both at Clevedon and in Clifton in gardens secluded from public view, or to which I have not had access. The tree is evidently one of rapid growth, and is a grandly decorative object in its foliage alone. When branches have been lopped off, it is apt to throw up stout, erect, and leafy shoots 6 feet in length, and considerably thicker than one's finger at the base. In 1873 the conditions for the blooming of the Paulownia were again highly favourable, and when at Arundel during the first week in July, I found not only the foliage well developed, but the flowers in the very pride and perfection of their splendour, though beginning to fall fast, and thickly sprinkling the turf below. The first I had the opportunity of observing was the tree in the grounds adjoining the castle. One of the finest of the Arundel trees was planted about forty years ago, very shortly after the tree had first become known in this country. In its tallest part it is now about 36 feet high, and the lateral spread is 17 yards or 18 yards. A little way above the ground, the circumference of the trunk is no less than 8 feet. Two feet higher, the circumference is 6 feet 1 inch; and at the height of another foot, say not much more than a yard from the surface of the soil, the circumference is still 6 feet. It will be interesting, when necessary to cut down some large Paulownia, to observe what is the texture of the wood and the nature of the annual rings. Probably they will not be unlike those of the Poplar. On measuring one of the largest of the leaves, an outline sketch of which now lies before me, it was found to be 24½ inches from base to apex; of course, not including the petiole, but taking the lamina alone, and at the part of the latter where the upper pair of angles gave greatest, though by no means over-predominant, width, it was no less than 22½ inches across. G.

**The Guelder Rose** (*Viburnum Opulus*) is another plant that when allowed to grow in its own way flowers more freely than when pruned, and is more effective when large than small; but that is no sufficient reason why it cannot be had in small gardens more generally than it now is, for it is as amenable to pruning, in order to keep its growth within certain limits, as any other shrub. As soon as the flowering season is over, the long growths should be headed back, and where the branches are too thick they should be thinned out to make space for young growth, for it is on the growth made during the current year that it flowers the next season.—C.

**Gordon's Dwarf Fir.**—This variety, *Abies Gordoni pumila*, which was raised by M. Molet, nurseryman, of Plessis-Piquet, forms a dwarf pyramidal shrub, with numerous erect branches, covered with a smooth bark of a light green or slightly yellow colour. The leaves are of a deep green on the upper surface, and are marked underneath with two glaucous bands. It forms a very handsome miniature shrub well suited for small lawns or gardens, while the leaves never turn brown under the sun, as those of the parent plant are liable to do. Another advantage which it possesses over the latter is, that cuttings from all the branches form vertical leading shoots as readily as if they were seedlings, a property which belongs to hardly any other species or variety of *Abies*.—W. M.

**Hydrangea paniculata.**—As an ornamental flowering shrub for the autumn decoration of the shrubbery this takes a high rank. It is perfectly hardy and very floriferous. A group isolated on the lawn makes a fine show, one unapproached by any other hardy shrub during August and September. The variety *grandiflora* is preferable to the type, as, in conjunction with the dwarf habit and free-flowering qualities of the latter, it produces large pyramidal panicles, sometimes quite a foot in length. Altogether this plant may be classed amongst the best of the very numerous excellent trees and shrubs which hail from that rich storehouse of horticultural novelties—Japan. Few ornamental shrubs are more easily managed.

**Hamamelis japonica.**—Botanically, the *H. arborea* is identical with this plant, though for garden purposes the two are thoroughly distinct; they flower

at the same time, and may be seen growing side by side at the present time in the arboretum at Kew. Whilst *H. arborea* has orange-yellow flowers, those of *H. japonica* are a pleasing, soft, almost lemon-yellow colour. Besides the difference in the colour of the flowers, there seems also a difference in the habit of the two plants, *H. arborea* apparently being a taller, stronger grower than *H. japonica*. All the Wych Hazels are most desirable, hardy, early-flowering shrubs, and well worthy a place in any garden. The American Wych Hazel (*H. virginica*) commences to flower in autumn, and sometimes continues to produce a succession of its fine yellow flowers almost until the following spring.—G.

**The White Cedar.**—In its native habitats—Essex County, Massachusetts; south to Florida, near the coast; and in Wisconsin—the White Cedar (*Chamaecyparis sphaeroides*) is a valuable timber tree. It always affects deep, cold swamps, and ranges in height from 40 feet to 80 feet, with a trunk often 2 feet to 3 feet in diameter. The wood is reddish, light, soft, fine-grained, easily split and worked, and is very durable; it is employed for shingles, in boat-building, cooperage, and largely for railway ties, posts, fencing, &c. In England, however, it is hardly likely to prove anything more than an ornamental tree. Although essentially a water-loving tree—and in its native homes always found where it has a constant supply of moisture—it by no means refuses to grow under widely different conditions. The growth, however, under such circumstances is very slow, but the graceful slender spray and the compact pyramidal habit render it a desirable object in the park or pleasure ground. In the "*Hortus Kewensis*" the species is said to have been introduced by Peter Collinson in 1736, and in all probability the following note, written by Peter Collinson himself, refers to the White Cedar: "Juniper, a new species raised from Peter Kalm's seeds that he gave me, which he collected in a journey from Philadelphia to Quebec, and so to the Falls of Niagara, and back to Pennsylvania; it has fine silver leaves."

**Evergreen trees in Scotland.**—Notwithstanding the fact that the climate of Scotland is not so well suited to deciduous trees as the districts south of the border, no one can deny that it ranks amongst the best in the world for evergreen shrubs, being neither too hot nor too cold for the generality of them. They are all to be met with in Scotland in as great a state of perfection as anywhere in England or Ireland; and, strange as it may appear, it is nevertheless true that certain exotic shrubs will thrive in Scotland, while the deciduous trees from the same countries are more or less injured from the want of climate. Great Britain (independently of Conifers) can perhaps boast of as many indigenous evergreen plants as almost any country, which naturally proves that it possesses a climate very suitable for them; the climate of Great Britain enables us to cultivate infinitely more species and varieties of hardy evergreen shrubs than any other civilised country in the world can at present boast of. Evergreens, indeed, are not cultivated anywhere in these islands to the extent they ought to be. No doubt they are a little more expensive than deciduous shrubs. This extra expense is, however, well repaid by the clothed appearance which they give to our gardens and pleasure grounds both for summer and winter effect. So much is this the case, that foreigners are always particularly struck with the quantity and size of the Evergreens cultivated in the northern portion of the British islands, such shrubs being particularly missed in France and Germany, and even America, which furnishes us with some good evergreen shrubs, such as *Kalmia latifolia*, *Rhododendron maximum*, and *R. catawbiense*; but they are generally found growing in a natural state in well-sheltered woods, where the severe winter frosts cannot reach them. The same remarks hold good with Evergreens from European countries where the summer climate is infinitely superior to that experienced in Great Britain.—J. M.

**The Golden Tree Ivy.**—A form of the Tree Ivy in which the leaves are suffused with gold, and not variegated in the ordinary sense of the term, presents one of the brightest bits of leafage to be found just now among outdoor shrubs. While the golden



Laburnum, Robinia, Spiræa opulifolia, and dwarf alpine Ribes have begun to pale, the sunshine has intensified the depth of colour in this Ivy as well as in the golden Weigela, Philadelphus, and Ptelea trifoliata. None of these latter three can, however, compete with the Ivy as regards richness of colouring, that is on the part fully exposed to the sun, for, where even in the least shaded, the colour is much paler. A specimen here that has taken possession of an old stump and crowned it as it were with a crown of gold, shows this variety under one of its happiest conditions. The Tree Ivy being but a fertile form of the common kind, it presents the same difficulty as might have been expected in the propagation thereof, that is to say, cuttings do not strike root so readily as those formed of the sterile shoots (a remark that applies to most plants). However, cuttings strike fairly well if kept in a close frame till rooted.—ALPHA.

**Raphiolepis japonica.**—This shrub is attractive just now. It forms a low-growing, freely-branched shrub, rather sparingly furnished with dark green, leathery leaves. The flowers are something like those of a Cratægus, about an inch in diameter, borne in loose, pyramidal-shaped clusters. They are pure white, except a pinkish stain at the base of the petals. It is a neat evergreen shrub, but not a rapid grower, so that it should not be planted in spots where more luxuriant-habited subjects might overpower their weaker neighbours. This *Raphiolepis*, in common with a great many of our flowering shrubs belonging to Japan, though at one time accounted tender, has proved itself at least as hardy as many others from the same country. It seems to withstand the atmosphere of London, but is not very effective, for the reason that the smoke makes the dark green foliage still deeper in tint. Propagation of the *Raphiolepis* is effected by means of cuttings, that may be taken at almost any season of the year except just as the plant is making new growth, but the best cuttings are the partially ripened shoots of the current year, taken during the summer and kept in a close frame till rooted. They should be put in pots of sandy soil, and though some time elapses before roots are produced, yet, as a rule, but few of the cuttings are lost.—ALPHA.

#### General distribution of American forests.

—It has been noticed that while there is a wide difference between the timber growth of the Atlantic and the Pacific coasts of the United States, there is a strong resemblance between the eastern coast of North America and the eastern coasts of Asia, including islands of Japan. These resemblances amongst the trees and shrubs include identical or representative species of the genera that include the Magnolia, Linden, Sumach, Buckeye, Box Elder, Yellow-wood, Honey Locust, Pear, Shad-bush, Dogwood, Rhododendron, Holly, Persimmon, Catalpa, Sassafras, Osage Orange, Planera, Walnut, Butternut, Hazel-nut, Birch, Alder, Yellow and White Pine, Hemlock, Arbor-vitæ, Bald Cypress, and Yew, besides an abundance of herbaceous genera; of these, none but some representatives of the Sumach, Box Elder, Pear, Shad-bush, and Dogwood appear in the flora of the Pacific coast. A careful comparison has also been made by the late Professor Agassiz between the vegetation of the northern shores of Lake Superior and the alpine regions of Europe, showing a close resemblance, and in a great number of instances an entire identity of species. It is found that the existing forest trees of America have a close relation to, and sometimes actual identity with, the fossil forms found in the Arctic region and in the tertiary formations of Europe. This is observed with regard to the two Redwoods of California, the Bald Cypress of the Atlantic region, the Hickory, and many other kinds. This has led to the conjecture that the special vegetation of the eastern borders of the two continents is in parts due to the neo-ancient character of their geological formation. The number of species of American trees is also very much greater than in Europe.

**Hypericum aureum** is one of the most distinct and desirable members of a genus which furnishes not a few highly ornamental plants for the decoration of the hardy shrubbery. It is a comparatively recent introduction to British gardens, having been first sent to this country a few years ago by Professor C. S. Sargent. The flowers are large, and the dense bush-

like tuft of golden yellow stamens gives this *St. John's Wort* a peculiar aspect. It is a native of the Southern United States.

**The Granby Oak.**—Amongst the almost innumerable varieties of our common Oak—that with sessile leaves and stalked acorns—the one which bears in gardens the varietal name of *Granbyana* is very distinct by reason of the decided purplish or bronzy tint of the leaves. It seems quite as good a grower as any other variety of the Oak, which it is found necessary to graft. Probably, however, it is hardly likely to attain the size of seedling trees. As it ripens acorns freely enough it might be worth while to raise seedlings, and if any came with the foliage characters of the parent to grow these in preference to grafted plants.

**Philadelphus microphyllus.**—A little Mock Orange, with foliage about as large as that of the Box and flowers the size of a shilling, will be sure to recommend itself to all lovers of miniature shrubs, as the ordinary large growing forms are so handsome just now. This kind is a native of California, and as far as our limited experience of it extends, is quite hardy in this country, but whether it would resist such winters as we experienced a few years ago remains to be seen. It forms a dwarf twiggly bush, which from its small size is more fitted for planting on rockwork than the shrubbery.—H. P.

**Pinus parviflora** is one of the most distinct of all the Cembra group of Pines. It was introduced from Japan in 1861 by the late Mr. J. G. Veitch, and is now not very uncommon in gardens. Amongst the Japanese it is a great favourite, and on account of its neat dwarf habit is more esteemed by them than any other Pine; they cultivate it assiduously, dwarf it to the smallest possible dimensions, and train it into all kinds of fanciful shapes. The short twisted leaves are green on one side and silvery grey on the other. As a single specimen on a lawn this is particularly suitable by reason of its small size and symmetrical habit.

**Paulownia imperialis.**—I noticed in THE GARDEN of the 13th ult. that this tree had flowered this season at Alton, Hants, and at Lewes, Sussex. It has also flowered most profusely here, but its period was of very short duration, only lasting from the 14th to the 20th ult. The tree, which is 30 feet high, was planted about 1862, and has only been known to produce a very few flowers on one occasion, some few years ago. The flowers possess a most delicious perfume; colour, a pale lavender, with a streak of orange underneath. It would be interesting to know how far north the *Paulownia* has flowered.—W. Fox, *Holker Gardens, North Lancashire.*

**Lonicera Maaeki.**—This is a shrubby species of Honeysuckle, and is described in the *Garten-flora* as being of a very ornamental character. It is a native of Mandchuria, where it forms bushes from 3 feet to 6 feet in height (the stems being of the thickness of a man's arm) and covered with flowers to the extent of almost hiding the foliage. The flowers, which are white, are marked outside with rosy red—i.e., when they first open; but in fading they assume a yellow tinge, and when quite dry become golden yellow. It flowered for the first time in the Botanic Garden of St. Petersburg, where it has been proved to be perfectly hardy.—J. CORNHILL.

**Origin of the Lombardy Poplar.**—Having just come from Italy, I am rather interested to know the origin of the Lombardy Poplar, which one sees planted everywhere in some districts. Is the tree indigenous to Italy, and is it a distinct species?—R. T. C.

\* According to M. Boissier, a botanist who has lately studied oriental botany, this Poplar is a distinct species which he calls *Populus pyramidalis*. It is believed by the best authorities to have originated in Persia; some writers, on the other hand, state that it is truly indigenous to Italy, but the evidence, however, we think is strongest in favour of Persia, from whence most probably it was introduced into Italy, where it is now a favourite tree and extensively grown. Lord Rockford has the credit of having imported this Poplar into England, by means of cuttings brought from Turin in the year 1758. The

original trees raised from those cuttings are supposed to have been planted at Blenheim, in Oxfordshire. Whether any of them are now in existence or not, we are unable to say; probably not, for it is by no means a long-lived tree, being liable to heart disease, from which cause it is not unfrequently blown down, after being in an advanced state of decay and rottenness at the core.—ED.

## GARDEN FLORA.

PLATE 499.

### DAPHNE INDICA.\*

THOUGH an old inhabitant of our green-houses, *Daphne indica*, or *odora* as it used to be called, has not of late years received the attention which it deserves, and the accompanying plate will serve to re-introduce it to those who have lost sight of this old friend or have not hitherto made its acquaintance. Its neglect is no doubt due chiefly to the fact that in the majority of cases when seen it is not always (like newly imported bulbs of *Lilium auratum*) "in the best possible condition," and so has come to be looked upon by many as a poor plant not worth growing. The red form is by far the commoner of the two, but it is to the white that special attention should be directed. As a flower for cutting in the middle of winter it is most valuable, and the delicious spicy fragrance is not the smallest point in its favour; it travels well and lasts well both in water and when worn as personal decoration, set off by its own glossy green leaves, and, moreover, it is but little trouble to grow. Its culture is simple enough—peat, loam, and coarse sand for soil, in a border in preference to a pot, and, what is really the secret of success, perfectly cool treatment at all times of the year, with a good deal of shade and an occasional syringing. If in pots, care should be taken that they rest on a cold bottom. Thus treated, *Daphne indica* will well repay the little attention it requires.

C. R. S. D.

### SEED SAVING.

CALCEOLARIAS, Cinerarias, and Primulas, in the hands of a few growers, have, by judicious crossing and careful selection, been so much improved that seed of a good strain may now be depended on to yield flowers alike unexceptionable in form and colour. The plants, too, are vigorous in habit, properties collectively that are in marked contrast to the weedy produce beyond which at one time little was to be expected. Amongst the most successful of those who have set themselves to improve the plants in question may be named Messrs. Hayes, of Edmonton, who for some thirty years have been engaged in the work, and the result is that each spring the number of long houses and pits which they devote to Calceolarias, Primulas, and Cinerarias, for the exclusive purpose of producing seed is a sight that to be realised must be seen.

THE CALCEOLARIAS are grown in long, low, light houses, well up the glass, so as to keep them strong and vigorous, upon which a good deal of their ability to seed freely depends. All the stock of these is grown in 4½-inch pots, and the unusual size the plants attain, with their large leaves and dense massive heads of flower as much in diameter as the height of the plants, shows the natural compact habit of the

\* Drawn at Coolhurst, near Horsham, February, 15, 1885.





DAPHNE INDICA AND WHITE VARIETY







strain, which has much more variety in the self-coloured forms, as well as in those that are blotched, flaked, or spotted, than I have before met with. The light-coloured selfs range from white to straw colour, and from sulphur to the deepest yellow; in some of the varieties the pouch has a broad band running round it of a distinct shade of colour from that of the centre. Of dark selfs there are some the nearest approach to scarlet, vermilion, red, crimson, purple, magenta, and others that are as near a dead black as possible. In the spotted and blotched kinds there is endless variety, and many that are quite unique in their marking, the spotting or flaking in some being evenly distributed over the whole of the pouch; in others a broad band of the ground colour is left round the margin; others again have solid blotches of colour in the centre, leaving the outer portion of ground colour as clearly defined as the belt in an exhibition Pansy. The dark marking in some cases is of one colour; in others the spotting consists of colours quite distinct. The flowers collectively are even and well shaped, and some are of large size.

**CINERARIAS.**—Of these a portion is located in houses; others occupy a long series of pits. Each colour and distinct shade of colour amongst the tipped varieties, as also the self kinds, are kept wholly by themselves. The selfs consist of pure white, with a bluish purple disc—a beautiful and distinct form. In pink there are several shades, pale red to deep red, crimson, purple, magenta, plum colour in different shades and some that are almost black. The blues begin with a shade little deeper than the sky colour, and range to others that are ultramarine. Amongst the tipped kinds there are some in which the marking of red, crimson, or blue is confined to the least bit of colour on the extremities of the pure white petals; others in which it is more or less broad, until in some the white ground colour is confined to a narrow circle round the disc; others, again, there are in which the white ground is only relieved by a margin round the petals no heavier than that of a light-edged Picotee. Messrs. Hayes look upon the black or bluish purple disc, which the florists used to insist on as essential to a good Cineraria and requisite, as a relief to whatever other colour there is in the flower, and in this they are correct. Any plant that comes with a grey or washy-coloured disc is discarded, as also any that have the least approach to coarseness in the flowers, as indicated by confused petals, or that recurve in a way not to show the full face of the flower. The strain is quite up to the full-sized standard, but size is looked on as a secondary consideration to form and distinction in the colours and shades, and to what is of equal importance in a good Cineraria—a dwarf vigorous habit of growth, with stout foliage that will all but cover the pots, and the individual flowers, of which the head is composed, even and regular, not some standing out in a straggling fashion above the others.

**PRIMULAS.**—Regarding these, it would be difficult to see what further improvement could be effected in them beyond that which Messrs. Hayes have already reached. In what is known as the Chiswick Red type, which here includes the most intense crimson and magenta shades, a size and general habit has been secured nearly equal to that of the purples and whites. The different shades of purple, from the darkest to light and bluish-lilac, are represented by flowers of immense size and substance, as also are the pure white and flesh-coloured forms. Selection has been carried out until the stock, plain and Fern-leaved alike, is remarkable for the strength and vigour of the leaves, the lower portions of which droop so as to almost hide the pots, the upper ones taking a horizontal position, which leaves the trusses of flowers standing clear above them. In the Primulas, as with the others named, each colour and distinct shade of colour is kept by itself, and every means are taken to keep each section so that the seed produced will come true. When any distinct break appears that is worth retaining, it is isolated until sufficient stock of seed for distribution is secured, a process that takes considerably more time than many would imagine. Fault is sometimes found with the retail price charged for good seeds. When the years of careful selection, and the time and house-room requisite to bring choice flowers like the things

mentioned up to the standard which the leading growers now have them, are taken into account, and the large number of plants required to produce a comparatively small amount of seed, it is evident that there can be no such thing as good cheap seed according to the ordinary acceptance of the term. The best are the cheapest. And to be able to obtain seeds of the flowers under notice so true that an indifferent variety is an exception, is a great boon to those who grow such things. A most tantalising matter that gardeners used to have to contend with when plants raised from seed had not been subjected to the improvement which they have now undergone was that four-fifths of the produce of a packet of seeds were worthless, a condition not to be discovered until all the trouble requisite to grow them up to a flowering state had been incurred. Messrs. Hayes, I believe, dispose of all their seeds wholesale.

T. BAINES.

## KITCHEN GARDEN.

### KIDNEY BEAN OR FRENCH BEAN.\*

(*PHASEOLUS VULGARIS* (L.). *LEGUMINOSÆ*.)

*French*, Haricot, Phaséole, Pois, *German*, Bohne, *Flemish* and *Dutch*, Boon, *Danish*, Havebonnen, *Italian*, Fagiolo, *Spanish*, Habichuela, *Judia*, Frijol, *Portuguese*, Feijao.

(Continued from p. 590, Vol. XXVII.)

#### II. DWARF VARIETIES OF TOUGH-PODDED KIDNEY BEANS.

**DWARF WHITE FLAGEOLET, OR WHITE CANTERBURY** (Haricot Flageolet Blanc).—This is the best known and most universally esteemed of the tough-podded Kidney Beans. Not only has its name been extended to different varieties which approach it more or less closely, but it has been also applied to the seeds in the condition in which they are generally eaten that is, when shelled just before they are ripe. It is a low-growing, thick-set variety, with a stout stem not more than 1 foot or 14 inches high; leaves smoothish or slightly pitted, of medium size and of a deep green colour; flowers white, with a faint tinge of nankeen yellow; pods numerous, rather flat and somewhat curved, and frequently irregular in breadth through the abortion of some of the seeds. These, usually four or five in a pod, are white, rather flat, and kidney-shaped, nearly three-quarters of an inch long, over one quarter of an inch broad, and less than a quarter of an inch thick. A litre of them weighs 770 grammes, and 100 grammes contain about 350 seeds. In cases where only one variety of Kidney Bean can be cultivated, a better selection cannot be made than this one, for the young pods may be gathered and used as green Haricots, and the seeds can also be used either dried or fresh from the pod; they are best, however, when fresh.

**DWARF WHITE LONG-POD KIDNEY BEAN** (Haricot Flageolet Blanc à Longue Cosse).—A remarkably vigorous variety, taller than the common Flageolet, with thick, straight, erect stems. The pods are longer and straighter than those of the preceding variety, and, instead of being pendent, grow erect, which prevents them from trailing on the ground, as is usually the case with Dwarf Kidney Beans. While young they are excellent as Haricots, and when ripe they yield a plentiful supply of Beans for table use. This Bean is nearly as early as the Extra Early Dwarf Etampes Bean (Haricot Flageolet très Hâtif d'Etampes), and grows a little taller than that variety. It is a highly useful Kidney Bean.

**EARLY DWARF WHITE DUTCH KIDNEY BEAN** (Haricot Nain Hâtif de Hollande, H. de Flandre).—This is, properly speaking, merely a sub-variety of the White Flageolet, from which it is only distinguished by being a little dwarfier, by the leaves being a little more wrinkled, and by being a day or two earlier. These peculiarities cause it to be generally preferred for forcing under a frame; but the differences are so trifling, that the two kinds are often taken one for the other. A litre of the seeds weighs 775 grammes, and 100 grammes contain about 350 seeds.

\* Extract from "The Vegetable Garden," the new English edition of Messrs. Vilmorin & Andrieux's "Plantes Potagères."

**BONNEMAIN DWARF KIDNEY BEAN** (Haricot Bonnemain).—This is quite a new variety, recently raised from seed by M. Bonnemain, secretary of the Etampes Horticultural Society, and we class it among the Flageolets because it resembles them in dwarfness, earliness, and the white colour of the seeds; but it is totally distinct from all the other varieties, and this is seen at a glance. It forms very low-growing, thick-set clumps, with leaves of a pale greyish green colour and white flowers; pods straight, almost cylindrical, comparatively short, and more slender than those of the Kidney Bean; seeds white, of an elongated egg-shape, thicker, and with less of the kidney outline than those of the White Flageolet. They are green until they ripen. The litre weighs 850 grammes, and 100 grammes contain about 480 seeds. The great merit of this variety consists in its unequalled earliness, the seeds being ripe for shelling five or six days sooner than those of the Early Etampes Flageolet, which hitherto was considered the earliest kind of all. We have obtained very satisfactory results from growing the Bonnemain



Bonnemain Dwarf Kidney Bean (plant, one-eighth; pods one quarter; and seed full natural size.)

Kidney Bean in the open air, while its dwarfness and remarkable earliness render it a most suitable subject for frame culture. It is certain to become one of the most esteemed varieties for producing an early crop.

**EXTRA EARLY DWARF ETAMPES KIDNEY BEAN** (Haricot Flageolet très Hâtif d'Etampes).—This new variety, which, like the preceding one, was raised by M. Bonnemain, is a decided improvement on the White Flageolet, and is distinguished from it in a marked degree by the appearance of its leaves, which are large, somewhat crimped, and of a deep green colour. The flowers, pods, and seeds do not perceptibly differ from those of the White Flageolet, but the plant is earlier by five or six days, and is a truly valuable variety, most probably destined to gradually supersede the other in cultivation. The seeds are white, even while the pods are green, and a litre of them weighs on an average about 820 grammes, 100 grammes containing about 350 seeds.

**NETTLE-LEAVED CANTERBURY KIDNEY BEAN** (Haricot Flageolet à Feuille Gauffrée).—This variety is very distinct from the common white Flageolet, and is a dwarf, hardy, early, and productive kind, easily recognised by its leaves, which are small, of a dark, almost blackish, green colour, and finely crimped on their entire surface. A litre of the seeds weighs 800 grammes, and 100 grammes contain about 240 seeds. The dwarfness of this plant renders it very suitable for frame culture, while its hardiness causes it to be equally well adapted for field cultivation, the manner in which it is usually grown about Paris. It ripens nearly at the same time as the White Flageolet, and its chief merit consists in its capacity of resisting disease and unfavourable weather, and in its being



easily distinguished by its foliage from all other varieties.

**LONG GREEN-SEEDED FLAGEOLET BEAN** (Haricot Flageolet à Grain Vert).—A sub-variety of the White Flageolet which has this peculiarity—that its seeds retain a green tinge even when ripe. Seeds which possess this tinge always command a somewhat higher market price than white ones, but the mode of gathering and drying has as much to do with the preservation of the colour as the selection of the variety grown for this purpose. A litre of the seeds weighs 770 grammes, and 100 grammes contain about 370 seeds. We may expect to see this variety superseded by the following one.



Extra Early Dwarf Etampes Kidney Bean ( $\frac{1}{2}$  natural size).

**CHEVRIER DWARF FLAGEOLET BEAN** (Haricot Chevrier).—This variety, which is as yet little known, evidently belongs to the Flageolet group, but it constitutes a very distinct and strikingly marked variety, from the intense green colour which the plant presents in all its parts. Even when ripe, the pods remain green exteriorly, the stems are of the same colour, and, what is more important, the seeds have a very pronounced green tinge. A litre of the seeds weighs 800 grammes, and 100 grammes contain about 380 seeds. In its habit of growth this kind differs but little from the White Flageolet, but the colour of its seeds renders it a most interesting new variety. Everyone knows how much importance is attached to greenness of colour in the various preparations of Haricots, and especially in the preserved seeds. In this respect, it is certain that the Chevrier Kidney



Nettle-leaved Canterbury Kidney Bean ( $\frac{1}{2}$  natural size).

Bean will be particularly valuable, for there is no doubt that its seeds remain very green when cooked, the colouring matter not being confined to the surface merely, but extending all through the interior of the seed.

**WONDER OF FRANCE DWARF HARICOT BEAN** (Haricot Merveille de France).—A truly dwarf, but very vigorous-growing and branching variety, remarkable for the size and robustness of its leaves. Flowers white, like those of the Flageolet Bean; pods very green, long, straight, and well filled; seeds or beans flat, slightly kidney-shaped, a little more

so than those of the Chevrier Haricot. They become white if allowed to ripen and dry completely on the growing plant, but it is easy to harvest them entirely green by a little management. A remarkable peculiarity of this variety is that the plant loses all its leaves as soon as the pods are well filled and begin to wither. If the plants are then pulled up and placed in heaps or stooks in the shade, the beans will ripen without becoming white, but will continue to preserve a very decided green colour, which does not disappear even when they are cooked. This excellent variety was raised by M. Bonnemain, to whom we are indebted for several other good varieties of vegetables, the Extra Early Etampes Flageolet Bean being amongst the number.

**LONG YELLOW, OR PALE DUN, FLAGEOLET BEAN** (Haricot Flageolet Jaune).—A vigorous-growing and very dwarf variety, about 18 inches high, with large broad leaves of a slightly greyish green colour, somewhat plaited, but not much crimped. Flowers white; pods large, long, straight, and broad, capable of being used as green Haricots, although they are of a rather pale colour; seeds oblong, very slightly kidney-shaped, about three-quarters of an inch long, a little over quarter of an inch broad, and about the same thickness, of a uniform chamois colour, with the exception of the



Wonder of France Dwarf Haricot Bean.

hilum, which is white, surrounded by a circle of a rather dark brown colour. A litre of the seeds weighs 775 grammes, and 100 grammes contain about 220 seeds. The seeds are most commonly eaten fresh before they are fully grown, and they ripen somewhat earlier than those of the white-seeded kind. The plant is also much more productive.

**DWARF CANADIAN WONDER KIDNEY BEAN** (Haricot Flageolet Rouge.—American, Red, or Scarlet Flageolet).—A vigorous-growing kind, about the same height as the preceding one, but of a much darker green colour, with long, narrow, pointed leaves and rosy white flowers. Pods long and straight, yielding very good green Haricots; seeds three-quarters of an inch or more long, over a quarter of an inch broad, and about a quarter of an inch thick, straight, or slightly kidney-shaped, nearly cylindrical, and of a wine-lees red colour. A litre of them weighs 775 grammes, and 100 grammes contain about 155 seeds. This variety is one of the hardiest and most productive. It is chiefly grown for the sake of its seeds, which are of a remarkably good

quality when dried. It also produces fine long straight pods, which make excellent green Haricots.

**NEGRO LONG-POD KIDNEY BEAN** (Haricot Flageolet Noir).—This is a very distinct variety, and one of the best for yielding green Haricots. Leaves large, not much crimped, of a deep green colour, usually spreading horizontally and not pendent; flowers lilac; pods slender, very straight, and nearly cylindrical. The plant is particularly remarkable for the length of the young pods. The seeds are of moderate size, being between half and three-quarters of an inch long and nearly a quarter of an inch broad and thick; they are entirely black, on which account they are not used in cookery, and the plant is only grown for the sake of the green pods. A litre of the seeds weighs 770 grammes, and 100 grammes contain about 280 seeds.

**DWARF BELGIAN KIDNEY BEAN** (Haricot Noir Hâtif de Belgique).—A very dwarf early kind, chiefly used for forcing under a frame. When grown true to name, it seldom exceeds 10 inches or 1 foot in height, and forms a small, close, compact tuft or clump. The leaves are of medium size, rather pointed, not much crimped, and of a pale wan green colour. Pods straight, very green while young, afterwards becoming slightly streaked with violet; seeds rather small, slightly kidney shaped, and not much flattened, seldom over about half an inch long, of a fine black colour, with a white hilum. A litre of them weighs 765 grammes, and 100 grammes



Dwarf Belgian Kidney Bean ( $\frac{1}{2}$  natural size).

contain about 430 seeds. Like the preceding variety, this, on account of the colour of its seeds, is only grown for the sake of the green pods.

**CHOCOLATE DWARF KIDNEY BEAN** (Haricot Chocolat).—Another very dwarf and early kind, with small elongated leaves, not much crimped, and of a light green colour. Flowers lilac; pods rather short, and curved to a remarkable degree, often to a semicircle; seeds flat, somewhat kidney shaped, half an inch or more long, varying from a chamois colour to a deep slaty grey, and often showing both colours together. A litre of them weighs 770 grammes, and 100 grammes contain about 330 seeds. This variety is chiefly remarkable for its earliness, and is well adapted for growing under a frame for an early crop of ripe seeds.

The Comte de Vougy Kidney Bean (Haricot Comte de Vougy), Mohawk (A. Mohawk), and the Dwarf Free-bearer (H. Nain d'Abondance), which are now seldom grown, are closely allied to the Chocolate Kidney Bean. They are, however, not so early, and, on that account, not so desirable.

**EARLY DWARF CHALINDREY KIDNEY BEAN.**—(Haricot Nain Jaune Hâtif de Chalindrey).—An exceedingly dwarf and early variety, forming a compact clump seldom over 10 inches high. Leaves small, elongated, and of a lively green colour; flowers rose coloured or pale lilac; pods slender, longish, and slightly curved; seeds small, almost cylindrical, with very little of the kidney shape, about half an inch long, and of a light mahogany-brown colour. A litre of them weighs 810 grammes, and 100 grammes contain about 330 seeds. This kind is almost as early as the Etampes Flageolet, and is especially well adapted for forcing. Both green Haricots and fresh seeds may be obtained from it.

**ROYAL DWARF WHITE KIDNEY BEAN** (Haricot Suisse Blanc).—Under the name of Swiss Kidney Beans (Haricots Suisses) are grouped a certain number of varieties which are almost identical in habit of



growth, and present hardly any difference except in the colour of the seed. In Italy these varieties are named Fagioli cannellini, and at Bordeaux they are known under the general name of Haricot Capucine. Almost all of them have a bad habit of sending out, above the leaves and flowers, a slender stem, of greater or less length, which never bears any pods, and never exhibits any tendency to twine itself round a support. The variety which we are now describing sometimes manifests this drawback, but, on the other hand, it possesses some very good qualities, especially great productiveness and hardness, which render it very suitable for field culture. It has large and very rough leaves, of a dark green colour, and sometimes finely crimped; flowers large and white; pods long and numerous, each containing five or six seeds, which are white, straight, almost cylindrical, often flattened at one end (whence the French name of Haricot Lingot). They are usually about three-quarters of an inch long, and something over quarter of an inch in breadth and thickness. They can be eaten in the dried state, but the skin is rather thick. A litre of them weighs 800 grammes, and 100 grammes contain about 225 seeds.

A few years since a variety was raised which is free from the objectionable habit of growth alluded to above, and which will, no doubt, in time completely supersede the old one.

(To be continued.)

**Telephone Pea.**—That the variety of Pea grown under the name of Telephone is nearly as early as William the First, I have proved beyond a doubt this season. My experience is as follows: We have a border here about 80 yards in length by 6 yards in breadth, in front of a wall about 7 feet high. The aspect is nearly south. On a part of this border twelve rows (6 feet apart) of Telephone and the same number of President Garfield were sown on the 8th November, 1884. I should have sown William the First and Kentish Invicta at the same time if I had had the seed, but our annual supply of seed not coming to hand till the beginning of the new year, I did not sow these two sorts till the 19th of January. On that date I sowed six rows of each of these sorts on the remaining portion of the border. All grew away well, without any serious check from bad weather. Now for results. On the 19th of June about 3 pecks of fairly filled pods were gathered from the six rows of William the First, while only 1 peck could be picked from Kentish Invicta. On the 20th of June, or the next day, about 3 pecks of well-filled pods were gathered from the twelve rows of Telephone. On the 29th we shall be able to pick a nice quantity from President Garfield. Considering, then, the superior flavour and size of Telephone over William the First and Kentish Invicta, and that it is fit to gather so close upon the heels of these two sorts, will it not be better to grow Telephone as an early Pea in preference to what are generally considered to be early kinds? I would not, however, wholly discard these early Peas; they are of good flavour, though small in pod. William the First is a greener Pea when cooked than Kentish Invicta and sweeter in flavour, and it is just a trifle earlier. President Garfield is a very fine Pea of medium height, with dark vigorous foliage, a heavy cropper, and excellent in flavour.—R. LLOYD, *Brookwood*.

**Pickling Onions.**—Can any reader of THE GARDEN say what difference there is between the Queen and the Silver-skinned beyond the names? I have grown them side by side from seed sown in July and they were both ready in May. Some of both now measure over 10 inches in circumference. I see no difference between them.—R. HALL, *Fox Warren, Cobham*.

\* \* It is by no means an unfrequent occurrence for seedsmen to take two or more so-called varieties out of the same bag, and in all probability that has happened in your case, or worse, as your Onions appear to be too large to be either one or the other of the sorts you name. Some local seedsmen supply any white-skinned Onion for the true Silver Skin. There are, moreover, two or more sorts of Silver Skins, and I find the Queen varies considerably, especially when obtained from different vendors. In my opinion it is

only a selection from Early White Naples, and a packet of this useful sort frequently yields a number of early maturing pretty little bulbs that strongly resemble the Queen. The principal recommendations of the Silver Skin and Queen Onions are their early maturing habit, smallness of bulbs, and mildness of flavour, but if large bulbs are required, it is better to buy larger sorts rather than attempt to grow any sort out of character. If you wanted bulbs for pickling purposes February would have been early enough to have sown the seed, and the preference should have been given to poor ground and a sunny position, no thinning out being attempted. According to my experience, the bulbs of the Queen are more flattened than those of the Silver Skin, but I have never seen either grown nearly so large as the size you name.—W. I.

**Early Peas.**—One of the best early Peas with which I am acquainted is Veitch's Selected Extra Early. Grown under the same conditions as William I., it is fully a week earlier than that well-known variety. It grows about 3 feet high, is a good cropper, and its pods contain from six to eight Peas each.—H. F.

## SOCIETIES.

### ROYAL BOTANIC EVENING FÊTE.

JULY 1.

FAVoured by delightful weather, the Royal Botanic Society's annual evening fête was a marked success. Never were the gardens so brilliantly illuminated before, and throughout the evening they were thronged with visitors. The exhibition of floral decorations was of the usual description. The most remarkable feature of the exhibition was two magnificent groups of orchard house trees in pots from the Sawbridge-worth Nurseries, every tree of which was quite up to Messrs. Rivers' style of orchard house culture. These groups were arranged in the great tent, and throughout the evening were the centre of attraction. There were about sixty trees in all, consisting of Peaches, Nectarines, Apples, Pears, Cherries, and Plums. They ranged in height from about 2 feet to 7 feet or 8 feet, and in every case were loaded with fruits. Conspicuous among the Cherries was the new Early Rivers, a black sort in the way of Black Circassian, but much earlier and extremely productive. Among new Nectarines were Dryden, a red-fruited sort, very handsome, and of the highest quality; Improved Downton, and Goldoni, the last a variety not yet in commerce. Its fruits are smallish, of a pretty orange tint like Pitmaston, and of fine flavour. On one tree of Pine-apple Nectarine, not more than 30 inches high, we counted thirteen fine fruits. The Peaches included the new Crimson Galandé, a very richly-coloured sort; Large Early Mignonne, Dr. Hogg, and Conkling. The last, an American variety, does not bear a good reputation, but as shown here it was a handsome fruit. Among Plums were some small bushes of the blue-black sort The Czar literally covered with fruits. Duchess of Oldenburgh Apple was ripe and very handsome; Belle Dubois Apple was also shown, and of Pears there were Pitmaston Duchess and Souvenir du Congrès. A silver medal was awarded to this fine group.

Other groups in the centre of the large tent included a marvellous array of flowering Orchids from Mr. Peacock, Sudbury House, Hammersmith. These occupied the whole of one of the central mounds, and had a charming effect. They consisted, for the most part, of *Odontoglossum vexillarium*, an Orchid in which Mr. Peacock's collection is remarkably rich. Varieties of this species alone were sufficient to create a beautiful effect, ranging as they did from a deep rose-purple to almost white, and some had very large blooms. The other sorts included *O. crispum*, *Pescatorei*, *Masdevallias*, *Sobralia macrantha*, and *Cattleyas*. Among the last was a specimen of *C. gigas Sanderiana*. Opposite this group was a fine display of cut flowers from Messrs. Barr & Son, Covent Garden, consisting of early Gladioli in great variety, Carnations, English and Spanish Irises, Lilies, and a host of other brilliant flowers. These were arranged in a charming way in groups with Ferns and Palms, and a silver medal was awarded. We never remember having seen such a beautifully arranged group from Messrs. Barr

before. Among the dinner-table decorations there was nothing unusual. The inverted trumpets still hold the sway, and they were filled with a jumbled mixture of about fifty sorts of flowers where ten would have been sufficient. Simplicity in dinner table decorations is *not* encouraged by the judges; consequently, exhibitors do not care about arranging tables that would not meet their approbation. It was the common remark among the visitors that the majority of the tables, particularly those to which prizes were awarded, were laboured arrangements such as would not be tolerated in private houses. There were, however, a few pleasing tables—those that had but few flowers arranged without being stilted unnaturally upon wires. Strange to say, there was not a table arranged with Roses, though now is the height of the Rose season. How charming a table would have been arranged, for instance, with Tea Roses, so delicate in odour and colour, ranging from the apricot-yellow of W. A. Richardson to the snowy Niphetos. The climbing Roses and the Polyantha varieties could be arranged so as to produce a delightful table. This is only one instance how dinner tables could be adorned with one class of flowers alone, and by this plan a different style could be adopted almost every day throughout the summer, whereas there is an insipid monotony about the usual trumpet mixtures. But so long as the judges encourage these, it is hopeless to expect any other style. The usual exhibits from the chinaware shops were there, and for the most part flowerless. This year prizes were offered for tables arranged entirely with Evergreens—a capital idea—and a few creditable tables were so arranged. Of course no one would think of bedecking their dinner tables with Evergreens in summer, but this style of decoration shows what may be done at Christmas time. Each of the three tables shown were commendable, but many preferred the second table to the first, which was too crowded and looked too laboured. The bouquets, epergnes, baskets, and recess decorations were, on the whole, of the ordinary stamp. We could not see the propriety of giving a prize for a ball-room bouquet composed entirely of *Heliotrope*; a dozen of such bouquets at a ball would look sombre enough. The only vase that pleased us was that which the judges singled out for the first prize. It consisted of a few bold flowers of double *Pæonies* tossed loosely in a plain vase of good form and mixed with a few Ferns and Grasses. This vase fascinated everybody, and the judges' choice was commended. The exhibitor was Mr. A. F. Youens, of Leigham Court, Streatham, whose other arrangements were characterised by simplicity and tastefulness. Some baskets arranged with Orchids and Ferns from Messrs. Gordon were much admired. There was a collection of flower paintings in the museum, the most remarkable being those from Mr. T. J. Gullick, of New Bond Street. His mirror pictures formed the centre of attraction. A list of the prizes awarded is given in our advertising columns.

### NOTES OF THE WEEK.

**Royal Horticultural Society.**—We understand that Mr. Henry R. Newport, late of the Board of Trade, has been appointed assistant secretary to the Royal Horticultural Society.

**The Pear crop** was never so good, we think, as about London during the present year. The fruit is not only abundant, but seems to be more advanced and more sturdy than is usually the case in Britain at this season.

**Primula imperialis.**—This much-talked-of *Primrose* is now in bloom in the Hale Farm Nursery, Tottenham, in company with another rarity of great botanical interest, *Euryangium Sumbul*, an eastern umbelliferous plant of medicinal value.

**Renanthera Storeyi.**—This wonderful Orchid, said to be the finest of the genus to which it belongs, and extremely rare, is now in bloom in Sir Nathaniel Rothschild's garden at Tring Park, where it has produced a branching spike furnished with eighteen flowers.

**Strawberry The Captain.**—Mr. Laxton has sent us a few fruits of this new early Strawberry. They are large, for the most part bluntly conical in shape, but sometimes Cockscomb-like. They are bright in colour, and rich and luscious in flavour. Of



its productiveness we cannot speak, nor of its earliness, seeing that Strawberries generally are in full bearing now.

**Gazania longiscapa.**—This plant is very graceful in its form of flower. It has unusual interest from being a hardy species of Gazania. We saw it growing well in Canon Ellacombe's garden last week (on alluvial soil), and have no doubt that it is equally hardy in many other places. It grew in a mixed border. It seems an excellent plant for a warm bank in the rock garden, being dwarf and distinct in all ways.

**Cattleyas from Southport.**—Mr. Percival sends us from his richly-stocked Orchid houses at Clewards, Birkdale, a gathering of splendid Cattleya blooms consisting of *C. Mossiae* and *C. gigas Sanderiana*, marvellous blooms some 8 inches across and of the richest colours imaginable. Of *C. Mendeli* there are also some uncommonly fine varieties; one spike bears no fewer than six flowers, a larger number than we have ever before seen or heard of on one spike of Mendel's Cattleya. The variety also is a superb one.

**Jamesia americana.**—Mr. Kingsmill brings us this plant in very nice condition. It has Sage-like leaves, the undersides of which are hoary, and its bunches of white flowers are slightly fragrant. It is a much better plant than it seemed to us when we first saw it, and has gained considerably in stature and robustness. It is really a pretty shrub, different from most others. Being neat in growth and a profuse flowerer, it should be planted in the choicest spots, where it could have plenty of sun and yet be sheltered from cold winds. It belongs to the Saxifrage family.

**Potentilla nitida.**—A beautiful little alpine under this name has been sent to us by Messrs. Backhouse, of York, who have introduced it from the Alps. It is quite a gem in its way. Its growth is low and tufted, the foliage silvery, and the flowers, which are about the size of a shilling, are large for the size of the plant. Sometimes they are of a rich rosy red; at others they are very pale rose. We can imagine how beautiful a large spreading mass of this little alpine plant would look in a rock garden, and we hope it will prove tractable in the hands of cultivators. Perhaps Messrs. Backhouse could tell us a little about its likes and dislikes. The plant sent is of the variety called *atro-rubens*, the deepest coloured of all.

**Campanula latifolia alba.**—This noble plant ranks amongst the finest of all the Campanulas, although the original is a tolerably common native species. Of the white variety some fine flower-stems have been brought to us by Mr. Stevens, of Byfleet. They are a counterpart of the type in form and size, and only differ from it in having pure white flowers, which, being large, bell-like, and numerous produced, have a fine effect either in a shady shrubbery or in the open border. This Campanula is partial to shade, and it never attains finer growth than when planted in good deep soil on the shady edge of a shrubbery.

**Campanula G. F. Wilson.**—Messrs. Backhouse, of York, have sent us a flowering plant of this new hybrid Campanula, raised, we believe, by the late Mr. J. Anderson-Henry between *C. pulla* and *C. turbinata*, and very beautiful—indeed, exactly intermediate between the two parents. The flowers are larger and opener than those of *C. pulla*, and the colour is much darker than typical *turbinata*, while the foliage partakes of the silvery gloss of the latter species. The growth is tufted, and, judging by the plant sent, the variety is extremely floriferous. It is a good addition to the rock garden, and one which no doubt will not be difficult to manage. We regard it as being amongst the best of the many hybrids raised by Mr. Anderson-Henry.

**Robinia macrophylla.**—The rosy coloured Robinias are again in the height of their flowering season, and after the majority of other early summer-flowering shrubs and trees are past they are especially welcome. Of these pink Robinias there are a great many varieties differing from each other more or less markedly, but from an ornamental point of view they may be regarded as much the same. All are low-

growing small trees with elegant pinnate leaves, and with flowers borne in lovely drooping racemes. Their clear rose colour renders them striking objects during the week or two they are in bloom. The catalogue names, such as *R. hispida*, *dubia*, *macrophylla*, *glabra*, *inermis*, *glutinosa*, and *hybrida*, all have reference to this group of pink-flowered Robinias. Some varieties are better than others, and one of the finest in Mr. Stevens' tree collection at Byfleet is *macrophylla*, of which a grand specimen was sent to us during the past week.

**Broughtonia sanguinea.**—This pretty West Indian Orchid, so seldom seen in bloom, flowers regularly every season in Dr. Soper's garden in the Clapham Road, where it is grown in a moderately warm stove with a general collection of Orchids and other plants. It is on a suspended block of wood, and receives no attention beyond that of syringing or dipping in water. The flowers are about 1½ inches across and of a rich reddish purple colour. They are borne in clusters on the ends of longish slender stems. Under the conditions it is grown here it receives abundance of light and heat, and this is the reason why it flowers so regularly and well. Dr. Soper is most successful in growing other Orchids, particularly the East Indian species, several of which are planted out on a rugged bank above a water tank. In this position they luxuriate, and at the present time some are producing flower-spikes a foot or more in length. Many Orchids thrive admirably thus planted out, and their beauty of growth and flower is seen to far greater advantage than when grown in pots on stages.

**Abutilon vitifolium at Bitton.**—One of the most interesting shrubs we have seen in flower of late is this in two forms—white and pale delicate blue, both very beautiful. It grows from 8 feet to 12 feet high and is full of large blooms, beautiful when closely examined, and producing distinct and good effects at a distance. Originally planted against walls at Bitton, they were allowed to grow from the wall of late, and the effect seems to us much better than when closely trained. It is quite distinct in every way from every other shrub, and a real gain in all districts where it will grow well. The climate and position (at Bitton) do not seem to us to be so peculiarly favourable as to indicate that it cannot be grown in many other districts. Though an uncommon bush, it is not a new one, as we remember to have seen it many years ago as a wall plant in Ireland near the sea. Probably it would not be hardy in midland and cold districts, but undoubtedly it is a most valuable bush for mild and sea-shore places. It is likely that other varieties can be had from seed, and no doubt the plant could be hybridised with the other Abutilons, but probably not to advantage. It is so distinct from its relatives, that it would be a doubtful gain to break down the barrier between them.

**Cambridge Botanic Garden.**—From the annual report of this garden just issued we learn that among the principal plants of interest that have flowered in the garden during the year are *Allium karataviense*, new species; *Antigonon leptopus*, which has flowered very rarely in this country; *Arctotis Leichtliniana*, new species; *Cochlostema Jacobianum*, possessing remarkable structure; *Gazania longiscapa*; *Impatiens episcopi*, a new and valuable plant; *I. Hookeriana*, a fine species rarely flowered; *Iris Bartoni*; *I. Bloudowi*, new and rare; *I. hexagona*, *Jasminum angulare*, a new introduction received from Mrs. Birks; *Narcissus pachybolbus*; *Nelumbium luteum*, difficult to grow and rarely flowered; *Nymphaea flava*; *Passiflora foetida* (pectinifera); *Salvia paniculata*, and *S. Greigi*. Among the species that have been of special interest as producing their fruit are *Pandanus furcatus*, *Thladiantha dubia*, and *Vitis pterophora* (*V. gongyloides*), flowered before, but now fruited for the first time. A specialty has been made of the genus *Salvia* by Mr. Lynch, the curator. As new plants of value introduced to the Cambridge Botanic Garden, *Porana paniculata*, a fine East Indian *Convolvulus*, and *Impatiens episcopi* may be mentioned.

**English Irises.**—A large gathering of these beautiful bulbous plants (*Xiphion latifolium* or *Iris anglica*, as the species is more commonly called) has

been sent to us by Messrs. Ant. Roozen, of Overveen, Haarlem. The collection includes some two dozen distinct varieties, all very beautiful, but some much better than others, the selfs being the finest. Mottled kinds are pretty, but they do not possess such a pleasing appearance as richly coloured selfs. With a wealth of English and Spanish Irises in the outdoor garden one need not wish for more flower beauty at this season, and the fact that they endure a long time in perfection when cut makes them all the more valuable. The following is a selection of the best sorts from among those sent to us—viz., *Mont Blanc*, a very fine pure white sort, the best of the collection; *Thomas Moore*, a very deep velvety purple flower, large and broad in the petal; *Nelly*, the darkest variety sent, the colour of which is a deep bluish purple; *Goliath*, deep blackish purple, with a conspicuous yellow stripe on the falls; *Mdme. Patti*, large sky blue, mottled with deep purple and white; *Fleur de Marie*, extremely pretty in form, colour delicate lilac; *Blanchard*, faintly mottled with blue; *Mary Stuart*, pale blue, mottled with purple; *Laurens Koster*, pale lilac, heavily blotched with reddish purple; *Leviathan*, a rich purple self, one of the best; *Princess of Wales*, outer petals white, sparingly spotted, inner petals mottled; *Mdme. V. A. Koop*, reddish purple self, falls pencilled with white; *Victor Hugo*, very deep velvety purple; *Queen of the Lilacs*, deep lilac blotched with reddish purple; *Lucinda*, pale lilac blotched with purple; and *Aurora*, the prettiest of the mottled varieties, white, distinctly mottled with plum-purple.

**The Strawberry crop.**—Messrs. Webber, of Covent Garden, tell us that the present Strawberry season is remarkable, inasmuch as the crops from the home counties have all come in at the same time; consequently there has been a glut of Strawberries in the market, which has tended to depreciate the sale of other fruits. Usually the first Strawberries come from Hampshire (Southampton fruit as they are called); then follow in succession Essex, Middlesex, and Kent. The cold weather a few weeks ago retarded the Hampshire crop, while the others came on at the usual time.

#### LATE NOTES.

**Pansy (Hickswood).**—Not uncommon—merely two flower-stems fused together.

**Roses (J. D.).**—*Rosa systyla* is a mere form of *R. stylosa* and for garden purposes hardly distinct.

**Monstrous Begonia (J. S.).**—A very singular occurrence and uncommon. The flowers are half petal and half leaf, and the tuft of stamens appears to be transforming into leafy buds.

**Double Fuchsia (F. B.).**—Apparently a very good variety, but we cannot say how it differs from others in a similar way, or whether it is superior to them without means of actual comparison.

**"No labourer** should be allowed to touch a flower-bed except to pull up a weed." This advice was given only to possessors of small gardens who require the help of a man occasionally. An intelligent labourer is a handy man, but many labourers are too handy; when one's seedling border Auriculas are taken to the rubbish heap in mistake for young Plantains, it makes one cautious as to trusting labourers amongst flowers. —J. D.

**Naming plants.** Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*G.*—*Hemerocallis flava*.—*F. H. S.* Next week.—*J. D. Lea Smith*.—1, *Hemerocallis flava*; 2, *Asphodelus albus*; 3, *Geranium phaeum*.—*C. Scott*.—1, species of *Galium* (name next week); 2, *Campanula rhomboidea*; 3, *Nepeta Mussini*; 4, *Lamium maculatum album*.—*E. F. C.*—3, *Genista tinctoria*; 4, *Gymnadenia Conopsea*; others next week. —*H. McG.*—1, *Valeriana Phu*; 2, *Cheiranthus alpinus*; 3, *Barbarea vulgaris* fl. pl. —*F.*—1, *Leontopodium alpinum* (Edelweiss); 2, *Arenaria pinifolia*; 3, new species of *Cotyledon* (will "F." kindly send his name and address?).—*Mrs. Saunders*.—*Orchis maculata*. —*H. H. Blair*.—*Thalictrum flavum*.—*R.*—1, *Crataegus coccinea*; 2, *Edwardsia grandiflora*; 3, a species of *Ribes*, probably *R. alpinum*.—*L. H. Dennis*.—*Orchis maculata superba*.—*S. H.*—The American Fringe tree (*Chionanthus virginica*).—*Sub., Brighton*.—We do not attempt to name Pinks or other sorts of florists' flowers. —*Anon.*—1, *Habenaria bifolia*; 2, *Listera ovata* (green); 3, *Henbane* (*Hyoscyamus niger*); others next week.

#### BOOKS RECEIVED.

"How to Make Land Pay," by Henry Dunster, M.A. Longmans, Green & Co., Paternoster Row.

"Wild Flowers Worth Notice," by Mrs. Lankester. W. H. Allen & Co., 13, Waterloo Place.

"Where to Find Ferns," by Francis George Heath. Society for Promoting Christian Knowledge.



## WOODS & FORESTS.

### RAISING FORESTS FROM SEED.

IT would almost look as if raising forests from seed was now a lost art, for that our forefathers succeeded in that way there can be no doubt, and I have faith that before this discussion is ended we shall perhaps be furnished with reliable information on the subject. Probably a large portion of our older woods have been raised from seed. At one time it appears that that portion of Nottingham called the "Dukeries" must have been a treeless waste, but it now abounds with woods of mature age and vast extent, which, if those who planted them are to be trusted, must have been largely raised from seed. If it is so, these must be the woods that exist there now—a living refutation of such theories and opinions as we have heard lately. A former Duke of Portland was the first to begin planting in that district at Welbeck. His example appears to have been followed on the great estates adjoining, viz., Clumber, Thoresby, Worksop Manor, Osberton, &c., which now constitute the "Dukeries," embracing those extensive forest lands where the traveller may wander for days without going over the same ground twice, and lose himself into the bargain if he has no guide, as the writer once did when attempting to cross the "Dukeries" from Worksop in the opposite direction. Speechly, the famous head gardener at Welbeck, superintended the planting of the woods there, and in a communication to Dr. Hunter, editor of "Evelyn's Sylva," furnishes many particulars concerning them. "Few noblemen," he writes, "plant more than his Grace the Duke of Portland, and I think none with greater success." Speaking of the system adopted, he says the trees were both planted and sown. Where Oak was finally to form the plantations, a mixture of species was first *planted*; then he writes, "After the planting is finished we *sow* the Acorns all over the plantations, except among the Beech and Larch. . . . We sow these Acorns in short drills about a foot in length, which work is done very rapidly by two men, one with the Acorns and another with a hoe for the purpose of making the drills and covering the seed. Speechly must have lived to see his trees grow up, for in one part of his letter, speaking of the progress of the Oaks, he describes "two of our plantations, one twenty-eight and the other of fifty years' growth;" and when he writes that "we are of opinion that the plants produced from these Acorns (referring to those sown in the plantations) will at last make the best trees," it is probable that he was stating his actual experience. "Oaks transplanted small," he adds, "grow equally well for a number of years, but it is probable that a tree with its tap-root undisturbed may in the end grow to a much larger size." No doubt the authorities at Welbeck at the present time could furnish more information on this head.

OPINIONS OF THE OLDER FORESTERS.—

Speechly was not alone in his opinions in favour of sowing forests, and I advert to the opinions of the older foresters; not because I think they were superior to their present successors, but because they practised certain methods, and must have left their work behind them, if we knew where to look for it. Marshall, who lived and wrote between 1785 and 1819, and was described by Loudon as a man of strong and steady mind, pursuing his work in the most consistent manner, spent a good deal of time at Scone Palace and Taymouth Castle, in Scotland, assisting, it is presumed, in laying out the woods there, now so famous, as well as at other places. In speaking of sowing *versus* planting, at page 507, of his "Planting and Ornamental Gardening," he says, "Sowing is beyond comparison the cheapest method," and that all things considered the preference is evidently beyond all dispute on the side of sowing. Miller, who was more of a writer than a worker, but who was a great authority in his time, and had good opportunities of learning, says, "When Oak trees are planted with a view to profit, Acorns should be sown where the trees are designed to grow; for those which are transplanted will never arrive at the size of those which stand where they are sown, nor will they last near so long. For in some places where these high trees have been transplanted with the greatest care, they have grown very fast for several years after, yet are now decaying; where those which remain in the places where they came up from the Acorns are still very thriving, and have not the least sign of decay. Therefore, whoever designs to cultivate these trees for timber, should never think of transplanting them, but sow the Acorns on the same ground where they are to grow." Sang says, "It is an opinion very generally entertained that planted timber can never, in any case, be equal in durability and value to that which is sown. . . ." The matter has not been so fully established from experiment as to amount to positive proof. But although we have not met with decided evidence to enable us to determine on the comparative excellence of timber raised from seeds without being replanted over that which has been raised from replanted trees, we are left in no doubt as to the preference, in respect of growth, of those trees which are sown over seeds that are planted. Sang particularly preferred raising extensive tracts of Scotch Pine and Larch from seed, and was decidedly of opinion that every kind of forest tree will succeed better by being reared from seeds in the place where it is to grow to maturity than by being raised in any nursery whatever, and from thence transplanted to the forest. Evelyn and other writers of the same period express similar views, so that there seems to have been a pretty general consensus of opinion among those who planted the tree crops that foresters of the present generation are now reaping. In case the opinions of the older generation of foresters should be pooh-poohed by those who conduct forestry now, it should be

pointed out that tree crops are not like farm and garden crops that are sown and reaped the same season, or the season after, but come to their harvest at the end, perhaps, of 100 or 150 or 200 years. Hence the opinions just quoted may be said to have been not yet more than tested in practice, for the crops are only now coming to maturity. Between Evelyn's time and the close of the last century or later arboriculture seems to have experienced a revival, or rather to have made a beginning, and a great impetus was given to planting both in England and Scotland, the results of which are now apparent in every part of the country in those fine woods and trees of which we hear from time to time.

WHERE THE LESSON IS TO BE LEARNT.—To learn a lesson in forestry, as in many other things in this world, we must look back instead of forward. We are all too much in the habit of drawing hasty conclusions from current practice, which, although sufficient in some cases, cannot possibly be so in regard to tree planting. So, then, this controversy concerning the raising forests from seed must be settled by appeal to past experience and practice where these are recorded and to be found. I beg to suggest, therefore, that it would be extremely useful to intending planters if some of those readers of *Woods and Forests* who are in a position to do so would kindly furnish particulars regarding the method adopted in forming plantations that have now reached maturity—whether sown or planted, present condition, &c. I find that such records are not always procurable on estates, and that the proprietor is himself generally the one most ignorant on such topics; but still, doubtless, information of the kind mentioned does exist on many estates if it could only be procured. I presume the royal forests preserve some record of the work that might be accessible, and it would, no doubt, be extremely interesting reading at the present time.

YORKSHIREMAN.

Rapid consumption of timber.—It is idle to think that the world can go on much longer being dependent upon Scandinavia and North America for timber. Both these countries are very likely soon to be compelled to prevent the further depletion of their forests. These resources of Nature are not inexhaustible, and the process of renewal is slow, and in most cases prevented by the settlement upon the land of emigrants from worn-out lands seeking a virgin soil. Moreover, the rapid colonisation of North-west America will create a demand for timber which must very soon affect our foreign supply. No one travelling through the west of England can view without impatience the indiscriminate destruction of valuable timber which the last few years have witnessed. How few of our great landowners conceive it to be any part of their duty to provide for posterity? The woods are cut down, and the cattle are let in to keep down the young undergrowth, and thus the beauty and the value of the estate are at once injured. What can be more selfish than a proprietor who, having derived a good round sum from a wood which the forethought of his grandfather provided for him, grudges the outlay of replanting it, because he will not live to see it come to maturity again? It also seems to me to savour of the worst form of unpatriotism. No one can tell to what straits our country may be driven years hence, or, perhaps, very soon, in case of war with a European power, when



we shall be dependent upon our own resources for the timber which we now receive in such abundance from abroad. - N. D.

#### PRICE OF OAK BARK.

THE price mentioned by "C. R. S. D." (about £5. 15s. per ton) I understand to be for bark chopped and delivered at the tannery. The price quoted (p. 581) is for bark in the wood and in long rind. If the "Perplexed Land Agent" were to sell direct to the tanners, who are almost invariably substantial, trustworthy men, I think he ought to be able to dispose of all his bark readily at tolerably fair prices. When bark is sold in the wood and in long rind, it is usually bought by bark merchants, who expect to make a profit on it. If the bark is chopped and put in buyers' bags and carted to a railway or wharf it suits the tanner better, as he knows then how much it costs him, and he has no trouble with it. Most tanners have enough to do to manage their tanning, and are quite at sea when they have to deal with long rind bark in the wood at some distance from a railway or wharf. I have experienced some difficulty connected with a lot in Hampshire. I know of no one whom I can employ to chop and cart it, and as I have not been able, so far, to get a small coasting vessel to fetch it to the Clyde, I may be obliged to leave it where it is, although I am quite willing to give the price asked for it. If it had been put on rail or on board ship I could soon have made up my mind regarding it. Proprietors in the north do better with their bark than those in the south. If the latter dealt with the user of the bark, and no trouble beyond that of arranging prices was incurred, I think they might find matters to go on more satisfactorily than they now do.—SCOTCH OAK TANNER.

—Perhaps there is no other commodity brought to market whose price is more influenced by quality than Oak bark; consequently no one need be surprised that prices fluctuate considerably in different parts of the country, as these are always regulated in a great measure by quality. As a rule, early bark that has been properly manipulated and saved in the course of some eight or ten days' time without being exposed to wet, ungenial weather is always the best and commands the highest price in the market. Some years ago I sold early bark at £5. 5s. per ton of 20 cwt., while a neighbour some five miles distant only realised £3 per ton, the difference in price being wholly owing to quality, the former being saved during a spell of fine dry weather, while the latter was considerably damaged by rain before it was secured. Sometimes Oak trees are covered to a certain extent by Moss and Lichen, and if these are not removed by the scraper (an implement used for that purpose) the bark will be found destitute of that clean thrifty appearance which is so conducive to effecting a sale when a sample is sent to market. In peeling Oak bark, hammering should also be avoided as much as possible; it is not only a waste of time, but it injures the quality and appearance of the bark, and if exposed to the least rain or damp it soon becomes discoloured and affected here and there with black inky spots which render it almost unsaleable at any price. These are all points of importance which tell their own tale as regards price. As soon as the bark is dry and in proper condition, it should either be delivered to the purchaser at once or be built into a stack to secure it against inclement weather.—J. B. W.

**Spruce Fir timber** (p. 610).—The isolated experiences of single individuals here and there is of no use in determining the value of any kind of timber for general market purposes. It matters very little what Brown said. I know the markets where he dealt, and he could not sell Spruce any better than his neighbours. That it will do for some fencing purposes, for lining temporary sheds, and other estate purposes, I know; but the quantity in demand for such work is not worth speaking about. The question is, Is Spruce worth planting as extensively as it has been planted as a profitable timber tree where other and better kinds will grow equally well? I say, no. The timber trades' journals hardly think it worth quoting it, except to state that it is a drug in the

market. As for ladder poles, that is not a very extensive industry, and, I would ask, are the tall and thick Spruces grown by the square mile on some estates intended for ladder poles? Spruce is not the only timber used for ladders, and when it is used for that purpose, in ninety-nine cases out of a hundred it is Norwegian poles that are used. These run from 30 feet to 40 feet in length, are from 4½ inches to 6 inches in girth, clean and straight, and are delivered in England at 1d. per foot or less. Mr. Webster says he has sold Spruce timber at 13s. per ton, or about 3d. per foot, after paying for felling, but will he state *when* he sold it even at that price? Here we certainly cannot get 2d. per cubic foot for Spruce of the best quality at present. It is also worth asking Mr. Webster how much Spruce he has been able to sell in one year at 1d. per foot, or 13s. per ton.—YORKSHIREMAN.

**Selecting Oak timber.**—"Yorkshireman's" latest remarks on this subject commence by stating I have further qualified my statements concerning the quality of quick *versus* slow-grown Oak. I fail to see where, or, indeed, that I have qualified them at all. I should be sorry to do so on the evidence "Yorkshireman" has adduced, Admiralty tests notwithstanding. The original paragraph (p. 486) is plain enough, and I am sure that on p. 556 only reiterates what I first stated. It is very well to quote theories, as they may be made to prove anything. What I state, however, is no theory, but the result of a large and varied experience with Oak timber. I therefore still adhere to my "fallacy."—D.

#### PRUNING CONIFEROUS TREES.

TREES of the coniferous tribe, planted and reared up as forest trees for utility, seldom require much pruning further than cutting off and reducing double leaders at the top when young. Hares and deer often cut over the leaders of such trees as well as Larch, and sometimes black game do considerable damage by picking out the terminal buds of the leaders and branches; the results produced by any of these causes induce the trees to produce a plurality of leaders at the top. These should be repressed when young by pinching them off with the finger and thumb, or by cutting them neatly off with a sharp knife, leaving the strongest and most central for the leader. When the trees, however, are established in the plantation, the thinning should always be regulated in such a way that the side branches gradually wither and die, and fall to the ground of their own accord. Trees, however, growing along the margin of plantations and in isolated positions, from exposure to the weather generally retain their side branches after they are dead, and in place of decaying and falling to the ground, as is the case with those in the interior, they become carbonised and as hard as a piece of bone, and as the trunk of the tree gradually increases in size, the concentric rings of wood form around these stumps, and when the trees are cut up for use into scantling or boarding, these dead branches form black knots in the deal, and in course of time, when the latter gets dry and seasoned, they get loose and fall out, thus leaving a hole in the wood. In order to prevent this, as soon as the branches lose their vitality they should be cut off with a saw or chisel, when the wound will then gradually heal up, by which means the trunk will then produce clean, solid timber, free of spot or blemish of any

kind. These dead stumps may be cut off any time when hands can be spared, as there is no risk of the tree bleeding after the operation; but care should be taken to leave a clean, smooth surface in order to prevent damp or wet from penetrating the trunk, and thus lay the foundation for disease. In cutting up trees of this class I have sometimes counted upwards of a hundred concentric rings of wood formed around these hard stumps, so that the loss in such cases is rather serious, and might have been prevented by timely and judicious pruning.

J. B. W.

#### HAY FROM WOODLANDS.

I THINK "Y.'s" suggestion (p. 558) to cut the Grass from under young trees is commendable, but to allow it to lie and rot on the surface to protect the roots of the trees is unnecessary and inconsistent with economy. Trees that are thoroughly established in the ground do not require mulching, and on such soils as naturally retain excess of moisture it would be injurious, by preventing the warm rays of the sun from lifting and dispersing the damp by evaporation, and thus increasing the fertility of the ground for the roots of the trees. Dry gravelly ground is an exception, but such a class of soil never produces a heavy rank crop of Grass; and, moreover, such a class of soil is only fit for the hardy Pine, as it delights in a loose open soil principally composed of inorganic matter. I have noticed that in young ornamental plantations, such portions as were within view of rides and drives, and had to be kept clean with the hoe and rake for the sake of appearance, grow much faster than such portions as were planted at the same time, and where the weeds and Grass were cut with a hook around the plants and the stuff allowed to lie on the ground. The difference in growth and healthy development of the trees where the ground was kept clean was such, that in the course of a short time they appeared to be at least a couple of years' growth ahead of the others. By cutting Grass on rides and drives and along the margins of plantations, and leaving it to lie and rot on the surface, the place would have a slovenly, neglected appearance; whereas by making it into hay and removing it, the ground has a fresh, green, tidy appearance, and, besides, the value of the hay thus saved will not only pay for the work, but leave a surplus in favour of the landlord, which, in these times of low rents and general depression, is a point of no mean consideration.

In the management of woodlands everything available should be turned into money, and to cut a crop of Grass suitable for hay and allow it to lie and rot for the sake of the manure thus obtained, I think would be bad economy. Ornamental trees planted in conspicuous places and suffering in health by poverty of soil may be renovated and renewed in health and vigour by applying a dressing of leaf-mould, decayed manure, or road scrap-



ings to the surface around the trees. I have found the latter very suitable for this purpose, as it generally contains a mixture of leaves and stuff which make a rich compost when decomposed and well mixed, and may be used beneficially for both deciduous and coniferous trees. In preparing the stuff my practice has been to collect and store it away in a heap and allow it to lie for a twelvemonth or so previous to being used, during which time it should be turned over once or twice, by which means it is rendered more active and its fertility increased. I have likewise occasionally mixed some lime with the stuff at the time of turning, and when prepared in this way it is not only invaluable for trees, but may likewise be used with advantage for top-dressing exhausted Grass lawns, or indeed any poor pasture land requiring renovation.

J. B. WEBSTER.

### TREE PLANTING FOR PROFIT.

I THINK the argument which would have most force with poor-spirited proprietors has hardly been put before the public in its full reality. I mean the absolute certainty that plantations properly managed bring a more than a moderate return for the money originally expended on them. On well-managed estates the custom is to plant so many acres yearly to supply the annual deficiencies in the timber thereon brought about by gales, age, and the estate requirements; but perhaps it is the agricultural depression which has induced many landowners to break through this excellent rule, and to realise at once, and so by wholesale cutting down to obtain the money requisite for expenses which they are unwilling to curtail. It can, I believe, be proved that plantations, under ordinary care, return no less than £1 per acre of rent from the date of planting onwards for fifty years. If this be so, and it is vouched for by high authorities, then the apathy of large proprietors, who are content to receive a few shillings per acre for the desolate moors and cheerless tracts of poor clay which they own, is unaccountable. The parish where I live, though seemingly barren enough to a stranger, is nevertheless better off for timber than any adjoining one. There are records of a family now extinct which point to there having formerly been a large and profitable account yearly for timber sold, whereas now £100 would purchase all the timber in the parish, and the purchaser would lose on the transaction. There can be no doubt that this region was once well-wooded, and enjoyed in consequence a better climate. There lies in my neighbourhood a small estate of about 450 acres, which some twenty-five years since was planted judiciously by the then owner. It would be no exaggeration to say that the plantations now sheltering the meadows and the arable lands have doubled their value, to say nothing of the intrinsic value of the timber which has been cut out in thinning them.

NORTH DEVON.

### DESTRUCTION OF OAK FOLIAGE.

IN South Essex the Oaks have suffered terribly this season from the attacks of the caterpillars of the leaf-roller moth. I cannot yet ascertain whether the occurrence extends beyond my own district or not. I have never before witnessed such destruction of leafage in any part of the county. Within view of my house large remnants of the late beautiful Hainault Forest still exist, and which usually clothe the southern sunny slopes of the distant hills with delightful green. This season, however, the Oak trees are, to the distant view, black, and becoming blacker daily. Having visited a portion of the infested parts to ascertain the actual cause, I find the leaves are being consumed wholesale by small caterpillars. These caterpillars are slightly more than half an inch in length, of an orange-green tint, and with a "hopper" movement when brought to the light and touched. They are not to be seen upon bending-down branches, nor upon portions broken off, being, as might be inferred, ensconced in the small percentage of leafage yet green and the *débris* of what was originally such, but which they have converted into dead, dried, brown particles.

From the extensive and severe destruction caused, and which seems likely to continue, whilst portions of green leaves remain, one imagines a mighty caterpillar host must exist upon the branches. Examination does not, however, show more than one upon each branchlet.

I believe it was during the summer of 1827 James Rennie discovered that the extensive range of Oak trees in Oak of Honor Wood, Kent, were (in the month of June) defoliated. Rennie gave the cause of the destruction at that time and place as being *Haemaphysalis tortrix*, one of the small solitary leaf-rollers, though I cannot verify the species which is now causing this destruction. Quoting from Mr. Rennie, the female moth only lays fifty to one hundred eggs and these are glued to the under sides of the Oak leaf in the autumn. This being so, it is highly probable that an unusual quantity of these moths last autumn is the cause of this great injury to these favourite trees in Hainault Forest.

The injury is more strange, however, when it is considered this moth only consumes habitually four or five leaves, and that it is solitary, not as caterpillars generally are—large colonies in thick encampment.

It will be interesting to watch the result upon all these trees. No doubt they will push forth fresh shoots, but growth must be limited and poor, and should physiologists in future ages examine the annular rings, I doubt not they will be puzzled at appearances touching upon the year 1885! Does this plague of Oak caterpillars exist in any other part of the country?

WILLIAM EARLEY.

Ilford.

**Pipe-stave Oak.**—Although, as stated (p. 556), this Oak is sometimes diverted from the hands of the cooper, the fact of the medullary rays being on the face, and also the absence of the brown wood, proves that the shippers understand their business. If the trees were cut in any degree parallel to the concentric circles it would be useless for staves, as they would not hold the liquor, and brown wood, from being in a state of incipient decay, would be equally unsuitable.

—D. J. Y.

**Wood of English Elm.**—No one can have a stronger aversion to pruning than I have when it is carried to the excess of making what would be really useful and ornamental trees into the ghastly mop-headed objects we so often see disfiguring the landscape in some counties; but, at the same time, I cannot understand what "B." (p. 557) means when he says that "the pruning of Elm trees is generally followed by rapid decay of the stumps," unless he means by this expression that portion of the tree where the branch has been amputated. If this is so, very much depends on the way in which the work is done. It was only the other day I was looking over some rows of Elms that have had some large branches removed within the last few years. This pruning was done by the men ordinarily employed on the estate for wood-cutting, and under no special supervision. The work, however, appears to have been carefully carried out, the branches being cut off

almost close to the body of the tree. What the result will be with regard to the timber when it comes to be felled I am unable to say; but, so far as soundness is concerned, the bark is fast closing over the surface of the wood, and there is no appearance whatever of decay. That this would have been the case with trees that have arrived at full growth I would not venture to say, as these trees, although of a good timber size, are still in vigorous health.—J.

### FUNGUS GROWTH ON TREES.

Trees are not only liable to suffer by the attacks of insects which prey upon the wood and foliage, but likewise often suffer irreparable damage from the attacks of a class of minute plants called Cryptogams, such as Fungi, Lichens, and Mosses, which in many cases are so sudden in their attacks that the tree trunk is either seriously injured or killed before the foliage has had time to decay or give the least indication of what was going on at the root. In marking trees to be felled in a mixed plantation some time ago, I came upon an old Scotch Fir which to all appearance was in perfect health, but on removing a piece of the bark with my marking knife, I was surprised to find that the stem of the tree was quite dead, and on removing the bark further down the stem, I found the latter completely enveloped by a fungus between the wood and bark for a distance of about 3 feet from the ground. This tree was growing near the margin of the plantation, and as there had been a wooden fence erected many years ago along the boundary line, and as a stump of one of the posts had been left in the ground, it was found that it had first to all appearance been affected by the spawn (mycelium) of the fungus, which in turn impregnated the roots of the tree. This instance shows the necessity of removing stumps and decayed timber when planting in old plantations, and as such work is now being carried out in many parts of the country, too much attention cannot be paid to this matter.

As the subject is of importance, I shall give another illustration. About twelve years ago we lost a fine young tree of *Thuja borealis* in a similar manner to the former, and which will give another instance of the sudden destructiveness of fungi upon trees that are in perfect health and in a vigorous state of growth previous to being attacked. This tree was a fine, thriving specimen about 18 feet high. The first indication of something being wrong was the drooping appearance of the terminal twigs of the shoots, although at the same time the foliage was quite green and had not lost its natural colour. On examining the stem and roots we found them quite dead and completely enveloped by the spawn of some kind of fungus, and on stubbing up the tree by the roots we made a careful examination in order, if possible, to find the origin of the disease. On exposing the larger roots we found that some of them had come in contact with a piece of an old plank that had been buried and left under the surface by mistake at the time of levelling and laying out the grounds, and as this piece of planking was almost completely covered by fungi, there cannot be much doubt but that it was the source from which the roots had been affected. Other examples might be quoted, but the foregoing will be sufficient to impress upon planters the necessity of removing dead wood from the soil at the time of planting trees.

J. B.

**Proper planting and thinning.**—The recent remarks on this subject in *Woods and Forests* are opportune, for there are, no doubt, well defined conditions under which trees grow to perfection, and the Larch and Scotch Pine are no exception to the rule. The first condition is to plant the trees only upon such ground as is suitable to them. The second condition is to thin them, so that at any stage of growth the trees may grow with a freedom and vigour adapted to their nature, constitution, and habit; and the third condition is to cut them at the proper stage of ripeness and at the proper season of the year. Beyond proper planting, which includes selection of the soil, situation, &c., the next most important thing to attend to is the thinning of the trees. It is much to be deplored that vast areas of



plantations are rendered less than half as valuable as they would otherwise be for want of timely thinning. —G.

### WISTMAN'S WOOD, DARTMOOR.

OF our many English woods there is perhaps none more remarkable than Wistman's Wood on Dartmoor. This moor is reputed to have been once clothed with forest. Be that as it may, the lonely Wistman's Wood is now the only relic. Occupying a sombre valley, bounded on the one side by Crocken Tor, on the other by Little and Great Bairdown, the slopes being strewn with grey blocks of granite, it looks, says a writer, as if the Titans had been at their cumbrous play. Starting from this chaos of rocks appears a wood or grove of dwarf weird-looking Oaks, interspersed with the Mountain Ash, and everywhere festooned about and garlanded with rock Ferns and parasitical plants. None of these trees exceed 12 feet in height, but at the top they spread far and wide, and branch and twist in a fantastic and tortuous manner. Their branches are literally covered with Ivy and creeping plants, and their trunks so thickly embedded in a coating of Moss, that at first sight one would imagine them to be of enormous thickness in proportion to their height, and their whole appearance conveys an idea of hoary age. The trees appear to be all of the same age, and to be growing on a singularly unfavourable site. Those who have seen these Oaks, says another writer, and are aware that the wood was described in a perambulation of the moor dated soon after the Conquest as having been much in the same state as it is now, will find no difficulty in believing it to be at least 2000 years old. The trees owe their preservation to an effectual defence, in the shape of a number of large stones which cover the site on which they grow, and amid which the venerable dwarfs lift their branches. The trunks of the trees are about the height of a common stool such as clerks sit upon, and anyone can sit on the crowns of the trees and lean upon the main limbs. The bole of one tree was about 3 feet high, and its total height to the topmost branches 15 feet. The trunk was hollow, but still full of life. Its circumference was 6 feet. It was at its prime probably about the time of the Norman Conquest, and it is still as tough a dwarf for a tree as the notorious Quilp was for a man. Time-worn as the stems and trunks are, they are well covered by their spreading and flattened heads. Seen at a distance in summer, a sheet of green seems to spread upon the hillside. Oaks more uniform in the character of their umbrella-like heads are seldom seen, or with foliage of a brighter green. Whether the trees were planted by man or by Nature, their security is due to the sheltering blocks of granite amid which they stand and to the Moss-covered props and slabs on which the branches rest. There is no apparent reason for concluding that this was a planted wood. It is true no Acorns are borne now, and even where the branches of youngest wood lie along flat stones embedded and sopped in Moss, under the most favourable circumstances for emitting roots, they fail in that common means of reproduction in consequence of the smallest branches even being too old, hard, and tough. When, therefore, the old trees crumble a thousand years hence they will leave no successors. With regard to the age and name of this mysterious wood, the name seems to be connected with the legend of the Black Huntsman, otherwise called Wistman, and descended from Woden, whose spectral pack of Wisthounds hunted here on wild nights, when they might be heard as they drifted over Dartmoor at full cry or passed among the branches of these weird Oaks. It would not appear unreasonable that a situation so congenial should have been selected by the famous Wistman or Wishman as one of his numerous hunting grounds.

Whatever surmise as to the origin of its name we may prefer, the age of the wood cannot be settled etymologically. Was it primeval or planted? An officer who was employed on Dartmoor making a reconnaissance previous to the autumn manoeuvres of 1873 stated that there is, high up the valley of the Erme, another small wood of scrubby Oak, named Pileswood, from the stakes or piles by which each tree was surrounded for its protection. Pileswood was

evidently a planted wood, as shown in an ancient map of Dartmoor of the year 1241. This gentleman believes that Wistman's Wood was also a planted wood, and attributes the planting to Scandinavian miners, who visited this part of England a thousand years before the Conquest, and even previous to the destruction of Tyre by Alexander, at a period when the ancient ports of Plymouth, Dartmouth, and Falmouth were frequented by Phœnician traders.

### SEASONABLE WORK.

YOUNG PLANTATIONS.—It is now necessary to go through recently formed plantations, and in cases where weeds, Grasses, or Brambles of any kind are growing up and choking the young trees, such should be cut away with a hook. A few boys with a man over them might be employed at this work with advantage; and, as the work proceeds, the man in charge should set up any plants that have been up-set by wind, and in cases where double leaders appear at the top, such should be suppressed by pinching off the weakest with the finger and thumb, or by cutting them neatly off with a sharp knife. In mixed plantations young hard-wood trees often produce suckers around the collar of the stem; these should likewise be cut neatly off. Examine and repair all fences and gates were necessary, in order to keep out sheep and cattle, as if such find ingress, even for a short space of time, they often commit very serious damage indeed. See that wire cages around recently planted young trees and shrubs in the park and elsewhere are in thorough repair; weed and dress the surface around the plants to encourage their healthy development, and see that they are properly staked and tied to prevent wind-waving. Examine such trees as are supported by stakes, and see that the ligatures are not getting too tight and cutting the bark, and if so, loosen them a little to admit a free circulation of the sap. Weeping trees that have been grafted and planted as standards often produce suckers from the roots, as well as at the top immediately below the graft, all of which should be cut neatly off with a sharp knife. See that recently planted ornamental trees are not suffering from drought, and if so, give an occasional good watering overhead, which will promote their growth and keep them in a healthy condition. Prune and trim ornamental hedges, hoe and rake the surface, and wheel the stuff to the rubbish heap to rot for manure. Hoe and clean young hedges generally to encourage their healthy development. Hoe and clean young ornamental plantations and shrubberies, which will not only promote the growth and vigour of the plants, but also impart to the different groups a clean, tidy appearance. Deep-rooting perennial weeds, such as Crowfoot, Dandelion, Dock, and Sorrel, should be dug up by the roots at once, which will prevent them from again springing up and giving further trouble. Clean roads, walks, and carriage drives, and see that the branches of trees in the immediate vicinity of the latter are not extending in such a way as to come in contact with passing vehicles, and if so, have them cut back at once to prevent collision.

NURSERY.—Assuming that the sowing of Elm seeds has been finished for the present, should dry weather set in the seed-beds will be benefited by an occasional watering, and in cases where a further supply of seeds may be wanted, such should be gathered and thoroughly dried in the sun to prevent fermentation, when they should be stored away in a dry place till spring, when they may be sown. Twigs protecting seed-beds may now be removed, and have all such carefully hand-weeded, and the alleys hoed and raked to keep down weeds. Hoe and rake between the lines of young trees and shrubs, which will promote their growth. Examine young Elms, Oaks, &c., that have been grafted, and any suckers that are springing from the collar of the stem below the graft should be neatly cut off with a sharp knife. Look over standard trees that have been grafted, and any undergrowth along the stem may be rubbed off with the hand. Keep down weeds everywhere, and on no account allow them to shed their seeds.

J. B. W.

Scotch timber trees.—The chief kinds of Scottish timber are about twenty-five in number,

viz., Alder, Apple, Ash, Ash (Mountain), Beech, Birch, Cherry, Elder, Elm, Hazel, Holly, Hornbeam, Horse Chestnut, Laburnum, Larch, Lime, Maple, Oak, Pear, Plane, Poplar, Scotch Fir, Spanish Chestnut, Spruce, Silver Fir, and various Willows, besides many other less common trees, which are grown more for ornament than profit.

### THE FORMATION OF "MOOR PAN."

THE impermeable layer of subsoil, commonly known as "moor pan," is often referred to by writers on tree planting, but I have never seen any attempt made to account for its existence. The elucidation of the subject would be a study full of interest, and as the following theory of the formation of a similar stratum, known as *alios*, underlying the soil of the Landes of Gascony seems to bear strongly on the point, I think it will throw considerable light on the formation of "moor pan." M. Faye, one of the directors of the Administration of Forests in France, says that about 3 feet below the surface of the Landes there lies everywhere an impermeable stratum called *alios*, a stony substance of a brown colour, variable in thickness, which is nowhere great, and covering an indefinite bed of sand, identical with that which lies above it. This invisible waterproof stratum has always had a great influence on the health of the inhabitants of the country. Retaining the products of vegetable decomposition from the upper soil where there was scarcely any slope, the *alios* has for centuries fixed intermittently fever in and around the Landes; but reclamation has driven away the fever, and the *alios* seems now to have no other effect than that of forcing the roots of the marine Pines to grow horizontally instead of vertically. The sand of the Landes is white, intermixed with a few black grains, containing peroxide of iron and oxide of manganesia. Washed, first by the water of the ocean and afterwards by rain, for centuries, it holds no soluble matter, and the *alios*, which is of a dark reddish brown colour, sufficiently compact to require a pickaxe to break it up, is a stratum of the same sand cemented together by some organic and slightly ferruginous substance. In summer a hole made in the soil down to the *alios* fills gradually by lateral infiltration with yellowish water not fit for drinking, but if the *alios* is pierced an abundant supply of perfectly limped water is obtained. The question is, How is this *alios* formed? It is evident that it was produced *in situ*, and the presence of the organic matter already mentioned leads to the supposition that the latter plays some part in the formation of this peculiar stratum. The *alios* is found everywhere in the Landes except in the marshes, on the banks of ponds, and on the downs, even when the latter, protected by old forests, have never been swept by the winds for centuries. Soundings and the knowledge of these exceptions led M. Faye to the discovery of the mode in which the *alios* was formed. In winter and early spring the nearly level surface of the Landes is covered with rain-water, but during summer the level of this water descends by evaporation to the depth of 1 inch or 2 inches, a level which also corresponds with that of the ponds which border the chain of downs. If now we take into consideration the decomposition of vegetable matter which takes place in the water, and the deposit which must be produced at the lower level, it is easy to see why an agglomeration of sand and organic matter should take place at the depth already mentioned. This operation being repeated annually during many centuries, an increasing stratum is naturally formed. It is not surprising then that no *alios* is to be found in the marshes which are always under water, nor in the downs which are not inundated, like the Landes, by a periodical sheet of water carried off regularly by evaporation, the rain as it falls being carried away by the slopes to the sea.

This, then, is M. Faye's explanation of the phenomenon on the Landes of Gascony, and that the formation of "moor pan" in our country may be traced to a similar cause I think is more than probable. If this supposition proved to be correct, the discovery would be of practical value, as the level and conformation of land with respect to the surrounding country would give a cue to the planter and a good indication of whether the pan was likely to be present or not.

D.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## FRUIT GARDEN.

### VINE CULTURE IN SUMMER.

I KNOW of no kind of glass house which gives more pleasure to its owner than a well-stocked vinery in summer. Those who possess many such houses may overlook the satisfaction which they afford, but the small grower with one house only will never tire in attending to its requirements at this season, especially if there is a good show of fruit. Men here to-day, elsewhere to-morrow, and often absent for ten days or a fortnight, are of little use as regards vinery work. They may profess to thin the fruit and do some cutting away of branches, but as a rule they are not there to do such work at the proper time. Once a fortnight is not often enough to attend to Vines at this season, and I would recommend all who have no regular gardener to learn to keep their Vines right. No harm might result from allowing a lawn to go an extra week without cutting, but let bunches of Grapes ready for thinning go another week after that stage is reached and they will be spoiled for the season; the same remark applies to watering and air-giving, &c. I am acquainted with several people who attend almost wholly to their vineries, and whose Grapes are annually excellent. In well-drained borders, Vines growing rapidly or swelling a heavy crop in summer will take a thorough drenching every fortnight. Inside borders especially require this, and those in the open should likewise be watered freely and often, particularly when there have been no heavy rains. Very often Vine borders are on a sharp incline. The water may be applied at the highest part and close to the Vines, but the greater part of it will run down and not penetrate to any great depth until near the farthest extremity of the border. This is very bad for the Vines, and should be avoided. The main feeders are generally near the stems or in that neighbourhood, and it is there that abundance of water ought to be constantly given. Indeed, if applied at the highest point it will find its way to the lowest, and if it percolates through to the roots on its way down, the lower part is not likely to suffer from want of water, whether put directly on there or not. Healthy, free-growing Vines will take great quantities of water in summer, and as a rule watering is oftener under than overdone. Manure water may be given to Vines with great benefit. In new borders or where the soil is very rich its absence will not be felt, but where the soil is old and exhausted or rooting space limited, liquid manure will work wonders. It should be given immediately

the fruit is formed and onwards until it is half ripe. Drainings from manure heaps are excellent. A small handful of guano to every four gallons of water is good, and so is the same quantity of Thomson's Vine manure or Clay's fertiliser. The whole of these should be made into a paste in a dish, and then there is no difficulty in dissolving the greater part of them in water. Some may be afraid to use manure water every time they water, but it may be safely applied at the time when the fruit is forming, after thinning, when half swelled, and as it begins to ripen. In top-dressing in summer no attempt should be made to dig up the surface of the border, as that ought to be full of young rootlets; the top-dressing may be a layer of rich manure on the surface, and all waterings should be poured over it. In very elevated borders, or borders composed of light soil, surface dressing is of great advantage, as it prevents the soil drying up too quickly or the roots near the surface from being burned up. A good plan is to sprinkle a quantity of Thomson's Vine manure over the border first, and then put a layer of cow or horse droppings to the depth of 3 or 4 inches over that, a plan which will not fail to be productive of good results.

**FIRE HEAT.**—Where there is no hurry to have Grapes ripe at a given time fire heat may be dispensed with from the end of June until the middle of September, or longer if the Grapes are very forward and the weather favourable. Vines started gently into growth in March or early in April will ripen their fruit by the end of August, and it is neither profitable nor an advantage to use much fire heat all through that time. Only Muscats would require it, and even they can generally be properly managed without it by attending well to giving air. Much fire-heat may be saved and a genial atmosphere maintained by attending well to this, but nothing is gained by keeping the house shut up on bright mornings until the thermometer indicates 90° or more, and then admitting cold air so freely as to quickly lower the temperature to 70° or lower, treatment which soon tells unfavourably on the Vines. Air should always be admitted to keep the temperature from rising above a certain point, but never with the object of lowering it quickly. On bright mornings we put the ventilators down a little as soon as the sun shines on the house, or from 6 a.m. to 7 a.m. It is increased about 8 a.m., again between 9 and 10 a.m., and all the air admitted is given by 11 a.m. When the Grapes are late and require forcing, the house is kept rather close, and the temperature is allowed to run up to 85° or 90° at mid-day, and the house is also closed early in the afternoon when the thermometer indicates 90° or more, and this keeps up well until the evening or throughout the night, which makes it unnecessary to use fire heat. Healthy clean Vines can never be produced in a dry atmosphere. When the surface of the border is damp this helps to keep the atmosphere moist, but

more than that is needed; on warm days the pathway, surface of the border, and, indeed, the whole interior floor of the house, should be made quite wet several times during the day, applying it through the rose of a watering-can. When the wood, leaves, and fruit are developing is the most particular time to attend to this; but as the fruit ripens and when matured, the atmosphere may be kept much drier than at other times. Syringing is another way of damping, but the mode above suggested should be practised apart from syringing. Some hold that it is an advantage to syringe, others that it is unnecessary. We approve of it from the time when the leaves begin to appear until the flowers open; then it is stopped, and very often begins again after the fruit has been thinned. Syringing rather spoils the bloom on the Grapes, but it keeps the foliage clean and healthy, and this ought to be the first consideration. It may be practised up to the time when the fruit begins to colour, but ripe fruit should never be syringed, as that would cause many of the berries to decay, especially late in summer. The best times in which to syringe is the morning, and again when the houses are shut up in the afternoon. Pure water only should be used. In places where there is any quantity of lime in the water it should never be used for syringing, as it will leave a deposit on the Grapes, which will appear white and unsightly so long as they last. Clean rain water is the best for syringing Grapes.

**THINNING THE BUNCHES.**—Healthy Vines always produce more bunches than are needed. Frequently there are two and three bunches on one shoot, but never more than one should remain for a permanent crop. The best bunch on each shoot should be left on first, and if it is seen that the crop is too heavy afterwards, a bunch here and there must be cut off. All this should be done almost as soon as the berries are formed and before any thinning out of the berries has taken place. It is a waste of labour to thin the berries and then cut away the bunches operated on. I should here say something about the weight of crop proper for each Vine to bear, but this is a difficult matter to deal with. A 20-foot Vine rod in Ireland might be quite capable of perfecting from 40 lb. to 50 lb. of fruit, while another the same size in Scotland might fail to mature 30 lb. properly. It is all a question of condition, and owners of Vines must be the best judges of this. It is better to crop too lightly than too heavily. I know of a vinery in which the Grapes are ready for cutting, but the crop is too heavy, and the Hamburgs have never become black, but remain foxy. In another, in which the crop is a good ordinary one, the berries are jet in colour. Were I the owner of the first, I would not forget their non-colouring, and would crop lighter next year. Thinning the berries is an important operation, and one which should begin when the berries are no



larger than Peas. A pair of long narrow scissors should be used for the purpose. The berries should be clipped very clean away. As a rule, two out of every three must come off. In the case of Vines in the best of health, the berries swell much larger than those on weak ones, and the former must be thinned more than the latter. Gros Colman and other very large berrying kinds require to be much thinned out. When gone over once the inexperienced may think they have thinned enough, but they will find that as the berries swell up and the bunches get closely packed, they will have to go over them again and thin out a good many more berries. These should be taken from the interior of the bunch and from parts where they are thickest. The most convenient sized bunches are not the extremely large ones or the very small ones, but those of medium size. I would rather have twenty 2-lb. bunches on a rod than six bunches weighing about 7 lb. each. The latter would not make more than seven dishes, and by the time they had been on the table a few times they would lose their fresh appearance. On the other hand, one or two small bunches would look equally well if properly formed and large in the berry, and they would stand more cutting. For packing, small bunches are decidedly the most convenient, and Gros Colman, Lady Downes, and others, which produce double bunches or bunches with large shoulders, should have these cut away when thinning, and ultimately they would form one neat bunch.

**STOPPING THE SHOOTS.**—The rule is to stop the side shoots as soon as it is seen where the best bunch will be produced, and each shoot should be stopped one joint beyond this. Another leader soon forms, and this should also be stopped after forming one or two leaves. A fresh start will again be made, and stopping must be resorted to as before, and the side shoots should never be allowed to go further than three leaves or joints beyond the bunch. I have sometimes allowed them to run much further out than that, but the fruit was no better than on shorter shoots. It is a mistake to allow the roof of the house to become crowded with small useless shoots, which indeed should never be allowed to form to any extent. It is mainly at this time that growth is rampant, and in a little while it will not be so necessary to stop the shoots. Training the branches should begin as soon as they are long enough to handle. They should be tied to the wires on each side of the main rod, and if too stiff or too short to tie down properly at first they should be gone over two or three times until all have been tied in position. It is very important that the last tie be strong and lasting, as there must be no breaking down of the branch with the bunch on it at a time when it is ripening or when it is hanging afterwards. Twine is not good for tying; being too sharp, it cuts the young wood; but strong raffia is excellent. Young leading shoots require the most

training. They grow very rapidly, and soon run out of position; but the point should be kept straight on the way until its destination has been reached. This part of the Vine often swells up to a considerable extent, and ought to be tied very loosely in order to be able to expand without check or hindrance. Some are in the habit of shading, but unless under some peculiar circumstances the shading is a bad plan. The wood, leaves, and fruit delight in sunshine, and can never have too much of it until perfect maturity has been reached. Spots on the leaves only occur through defective attention in ventilating, &c., and shading should never be used to compensate for this. If shading is an advantage at any time, it is after the fruit is ripe, the Black Hamburgh, for instance, being very apt to lose its jet colour when it hangs long in the sun; a slight shade, therefore, will help to preserve this. When fruit is desired to be ripe before it would be so in an ordinary way the temperature should be kept well up day and night, and a free circulation of dry air should be allowed to pass through the house constantly; but as soon as the fruit is ripe abundance of air should be admitted during the day, and the ventilators, especially at the top, should never be entirely closed. The atmosphere, too, should be kept dry and airy, especially in damp weather, and all kinds of Grapes will remain good for some months after being ripe. Fire-heat need not be used until well in autumn, or only during wet, dull weather.

**LATE GRAPES FOR EARLY USE.**—Black Alicante, Gros Colman, and other late varieties are sometimes grown to be ripe and used in July and August, but although none more acceptable could be produced from December onwards, they are not summer or early autumn Grapes by any means, and should never take the place of the Black Hamburgh, Buckland's Sweet-water, Duke of Buccleuch, Foster's Seedling, and others of this class. Those who grow late varieties for early use would, I am sure, find it much more satisfactory to work in early sorts and do away with the late ones for such a purpose as soon as possible. It takes all late Grapes from five to six months to ripen. Those not started into growth until May will not be ripe until the end of October or later, and unless under good management they may fail to ripen thoroughly then. Last year I knew of a fine crop which never finished. The Vines were young and vigorous and the bunches very large, but they had a green shade in October when they ought to have been quite black. They never did become black, however; they were too late in being set agoing in spring. This year they were started one month earlier, and I have no doubt maturity will be gained in good time in the autumn. It is always a good plan to begin with this class of Vines early in April, allowing them to have the full benefit of July, August, and September to ripen the fruit; there is then

no danger of their being too late in ripening or failing to keep well during the winter.

CAMBRIAN.

#### MELONS UNDER DIFFICULTIES.

FOR several years past I have watched with interest the efforts of an amateur to cultivate Melons in a brick pit without bottom-heat beyond what can be got out of short Grass from a small lawn and refuse from a kitchen garden, the latter consisting of the leaves of Broccoli and old, exhausted stumps and leaves of Scotch Kale and similar materials. All these he collects together during May into a heap, amounting to perhaps a good cartload, which is put into the pit about the end of that month. As regards soil, he has to rely principally upon that from his own garden in which he grows his vegetables. It is rather heavy, but taken altogether not bad material in which to grow Melons. The seeds he gets a neighbouring gardener to raise for him. Therefore, at the beginning of June he begins with plants well established in 5-inch pots. From the character of his fermenting materials, one may guess that he does not get a strong bottom-heat, but it is sufficient to slightly warm the soil and to give the plants a start. After being planted a week or so, they begin to grow steadily, but it is the after management on which his success depends. He prides himself on his garden, and spares no pains in giving everything suitable attention. He has thoroughly mastered all the details of Melon growing, but at the same time he is fully aware that he has to rely chiefly on the sun's warmth to mature his crop. It is this knowledge and the fact that he acts upon it with all the patience of a skilled gardener that has made him a successful cultivator. If he is asked to explain the secrets of his success, the answer is that he has none, and that if he is more particular in one portion of the details than another, it is in carefully ventilating so as to secure all the influence of the sun possible. By this means he is able to maintain a pretty regular temperature. The pit in which the Melons are grown is shut up in the afternoon frequently as early as three o'clock, and in the brightest weather never later than five o'clock. At seven o'clock he puts mats on the lights regularly all summer; therefore, he rarely finds the temperature below 60° in the morning. In the very hottest weather he shades with a thin piece of canvas, and when he shuts up in the afternoon he sprinkles the leaves with water from a can kept in the pit for that purpose. Little Heath is the variety of Melon grown. All points considered, I think this case worth recording.

J. C. C.

#### THE ALEXANDER PEACH.

I HAVE to-day (July 4) gathered ripe and large fruit of the Alexander Peach in a cool orchard house. The fruit is brilliant in colour, a freestone, and of very fine flavour. Grosse Mignonne, Royal George, and other mid-season Peaches in the same house are not larger than Walnuts. I have fruited the Alexander since 1878, and it has been constant to this period of ripening every year. The Early Beatrice in the same house will be ripe during this week; it is not so large as the Alexander, but a more abundant bearer. The Alexander has one fault, and very few distinguished fruits are free from a fault, and that is a lack of that fertility which is characteristic of the Peach; this, however, is compensated by its precocity. The Early Beatrice, on the other hand, although not so large, is a most abundant and constant bearer and is very hardy. It should by no means be made to give place to its American cousin. It is possible that some confusion may take place from the similarity of names of the Alexandra Noblesse and the Alexander Peach; the former had, however, been long in existence when the Alexander was sent to me by Messrs. Capps in 1876, and as I have invariably affixed the title Noblesse to the Alexandra, any confusion must be due to extreme carelessness. The merit of the Alexandra Noblesse consists in its freedom from mildew, to which the serrated-leaved Peaches such as the Noblesse and Royal George are liable. The Alexandra Noblesse has round glands and crenate leaves; the fruit does not differ materially from that



of its parent the Noblesse, but when well grown I think it is larger. The Amsden June, which I received in the same year as the Alexander, ripens at the same time, but it is a clingstone and often bitter. I have seen it praised, but in that case it is not impossible that the two sorts may have changed names.

Sawbridgeworth.

T. FRANCIS RIVERS.

### BELGIAN CHERRIES.

IN order, says M. Rodigas,\* to give an idea of the importance of the Cherry trade in the neighbourhood of St. Trond, one has only to mention the fact that the telegraphic staff has to be increased every season when gathering commences. An orchard entirely occupied with fine Cherry trees 10 acres in extent, with which we are acquainted, returns an average of £170 per annum, without reckoning the Grass, which the trees do not harm. Nothing can be more striking than a Cherry orchard when in full bloom, and later on, when the fruit ripens, one might be tempted to undertake a Cherry cure in the same way as it is now customary to do in the vineyards. This fruit centre also possesses Apple orchards as fine as those of Wurtemberg. We have there seen one, in the neighbourhood of Reutlingen, under the management of Dr. Lucas, which consisted of 1200 trees in two varieties in alternate rows, and remarkable for regularity of growth. There was also one at Mielen-sous-St. Trond, likewise composed of 1200 trees, which the winter of 1879-1880 decimated. Cherry gathering is done by men who from experience know how to gather the fruit, and are able to manage the long ladders without damaging the trees. The owner reserves the right of nominating those who are to gather the crops, and the buyer in all cases is obliged to employ them. The early kinds are packed in shallow boxes in the same way as Apricots; later on large baskets are employed. It is not the packing that presents any difficulties, but the preservation of the fruit in perfect condition. Thus it must not remain packed more than three days, or it loses its freshness—one of the great essentials to a quick sale. Gathered when the dew is on, or when moist with rain, it is liable to quickly rot; but gathered, on the contrary, in a hot time, it is just as likely to decay. Another danger to be avoided is that of sending it away quite ripe, as in this state it is worth nothing when it arrives at its destination. Experience alone can afford a sufficient guide in these matters. The fruit gathered before complete maturity, sufficiently dry and not heated by the sun, is packed in baskets containing from 24 lbs. to 30 lbs. We are unacquainted with the square baskets used in France, in shape like champagne baskets. In Limbourg the baskets are of Willow, are round and shallow, and are provided with a slightly rounded cover. At the bottom a little fine dry Grass is placed, on the top a little more Grass or green leaves, and that is all. The baskets are then loaded on rail and sent to Antwerp to be dispatched to London. Baskets containing the fine samples of Bigarreus and such as should be promptly unpacked receive a special mark. There is one custom connected with the St. Trond Cherry trade mentioned by M. Rodigas which seems rather curious. This consists in the purchase of the fruit when the trees are in bloom, the transactions taking place on Easter Monday, when half the purchase-money is paid down at once. It is the first time I have ever heard of a crop of fruit being bought when the trees were in flower; if such is really the case, the St. Trond fruit growers must be blessed indeed with an exceptionally genial climate. How happy would English growers be could they thus reckon on the Cherry crop as a certainty.

J. CORNHILL.

### GATHERING PEACHES.

PEACHES, whether grown under glass or on walls in the open air, should never, if possible, be allowed to fall from the trees. If permitted to hang until they fall, by reason of their weight, such fruits may be considered to be, to some extent, over ripe. It is not, of course, possible to always prevent Peaches from falling, but it is advisable during the ripening season to examine them daily, avoiding, at the same

time, anything in the shape of pressure; merely raise the fruit gently with the hand, and if it has reached the desired stage of maturity it will readily separate from the tree. The practised eye will soon see when this condition has been arrived at, and if daily inspections are made very few will drop. Fruit thus gathered, too, will improve in flavour rather than otherwise—i.e., if placed in a cool, dry fruit room for some forty-eight hours, more or less, but if this period is much exceeded the flavour will deteriorate, although Peaches are frequently kept tolerably good for a longer time—even for a week or ten days. Fruits allowed to remain upon the trees until they become so ripe as to fall should be used as soon afterwards as possible; such fruits should not be selected for travelling, although they may appear to be free from bruises. A very general practice is to suspend a net under Peach trees to catch the fallen fruit; but not infrequently it sustains serious injury by dropping into the net, where, if allowed to remain for any length of time, it forms by its weight a sort of pocket, in which other fruits continuing to fall roll and strike against each other with considerable force. Therefore, a thick layer of soft Rye or Oat straw is, perhaps, better even than a net.

P. G.

### Pear Bergamotte Hertrich and Docteur

Jules Guyot.—Both these Pears have been adopted by the French Pomological Society, the former principally on the recommendation of the Horticultural Society of Lyons and of Messrs. Baltet and Delaville, of Beauvais, who declare it to be one of the best of winter kinds, although somewhat wanting in size. Docteur Jules Guyot is, on the contrary, very large, flesh firm, and after being well tested declared to be of excellent quality. It comes to maturity in August.

—J. C. B.

**Cherry Bigarreau de Prie.**—This Cherry, which is extensively grown in the Pyrenees, has, after the customary trials, been adopted by the French Pomological Society. It is a handsome kind of a fine blackish red colour, and the skin being firm renders it very suitable for sending long distances. The flesh is crisp, sugary, juicy, perfumed, and of good flavour. This would appear to be a fruit of considerable commercial value, and should be looked to by Cherry growers for profit in this country.—J. CORNHILL.

**Diseased Grapes (S. G.).**—Your idea that the extensive damage to your Grapes has been caused by a bad attack of mildew is probably right. Mildew may even now be seen on the examples sent. The way in which mildew injures Grapes is as follows: An extremely fine web of white spawn at first grows upon the skin of the berry; at the time when this spawn produces its spores or seeds, it sends innumerable microscopic suckers through the skin, so that the growing fungus may subsist on the substance within the Grape. In bad cases, therefore, the skin of each mildewed berry is covered with a vast number of very minute perforations, each perforation causing damage to the berry, as if bit by an insect. The perforations of the fungus are of course much smaller, but what they lose in size they gain in number. Thin-skinned fruits and leaves always suffer more from the attacks of fungi than thick-skinned ones. Remove the diseased berries and apply sulphur freely.—W. G. S.

### SHORT NOTES—FRUIT.

**Peach leaves diseased (C. M. D., Galashields).**—The blistered and deformed Peach leaves are infested inside and out by a parasitic fungus named *Ascomyces deformans*. The fungus causes this form of Peach blister. To prevent future attacks, gather and burn, if possible, the diseased leaves.—W. G. S.

**Plums and Cherries not swelling.**—Do you consider that the non-swelling of the Plums and Cherries which I send is due to any other cause than imperfect fertilisation caused by the cold weather in spring? The trees are healthy and showed plenty of bloom; they were root-pruned two years ago; the ground is moderately high and well drained.—C. J. W.

\* We consider your explanation, viz., the action of spring frosts on the bloom, to be the correct one as regards the failure of your Cherries and Plums. Sometimes Plums are attacked by a fungus named *Ascomyces pruni*; this pest causes Plums to assume a somewhat similar, though not identical, appearance with yours.—W. G. S.

**Laxton's King of the Earlies** is a Strawberry without which no collection can be considered to be complete. From June 27 we have been gathering this excellent fruit. It belongs to the Black Prince class; in fact, I think it is a cross between Vicomtesse Héricart de Thury and Black Prince. Burghley President was the earliest before the advent of Laxton's seedling. King of the Earlies may be described as of middle size, deep red in colour, with a rich aroma most pleasant and refreshing.—R. GILBERT, Burghley.

**Fig Negro Largo.**—At Gunnersbury-park this Fig is grown finely in pots with its branches trained horizontally against the front of the Fig house. Planted out it produced an abundance of wood, but little or no fruit, owing to its not being under perfect control. From plants in pots Mr. Roberts is enabled to gather fruit in abundance, and he praises the variety highly. At Shipley Hall, near Derby, Mr. Elphinstone has it planted out in front of a glass-covered Peach wall and succeeds in getting excellent crops, the fruit being very freely produced at every joint, but twice a year a spade cut is made deep down, a foot or so from the main stems, which severs the roots in two and induces fruitfulness instead of growth. In these different ways both cultivators obtain excellent crops. It suits Mr. Roberts' purpose to grow in pots, for the back walls and roofs of his Fig houses are filled with Brown Turkey, White Marseilles, and other Figs, and he is thus enabled to also utilise the front of his range. What a fine Fig Negro Largo is; it is not as extensively grown as it deserves to be.—R. D.

**The Mango.**—This used to fruit freely at Chatsworth and was sent in regularly as a dessert dish when I was gardener there. I raised a quantity of seedlings from fruit ripened there, and also plants from cuttings in order to keep the variety true to its kind. Nothing is easier than to graft the best varieties on seedlings, which are very much like seedling Peach trees. Varieties of Mango doubtless vary like other fruits, but their fruits must be eaten when just ripe, or they are worthless. Mangoes were sold in the streets of New York last summer for a cent apiece, but being over-ripe I expect the buyer would not invest money in the same way a second time, for the dead ripe fruit tastes like hemp steeped in turpentine.—JAS. TAPLIN, Maywood, New Jersey.

**Whinham's Industry Gooseberry.**—Few Gooseberries have in so short a time become so popular as this, or so highly appreciated. It is vigorous in growth, a heavy cropper, and large in the berry. For gathering green few are superior to it, and when ripe it is a handsome red fruit. "Whinham's Industry," says a correspondent, "will prove valuable to market gardeners on account of its earliness and size of berry. From a plantation of two and a half years—say three summers' growth—I gathered from ten trees one pot, or 84 lb., of fruit. The growth is so good, that the trees planted 6 feet by 5 feet are nearly, and in some cases, touching each other." We send a few branches taken at random from a quantity of trees in full crop, and we think you will agree with us that, bearing in mind the number of berries on the branches, this variety is capable of yielding heavy crops of large and fine fruit.—RICHARD SMITH & Co., Worcester.

\* The fruits sent, as yet green, seem to be borne in great abundance. On a piece of shoot 4 inches in length we counted thirteen fruits, each of which measured 3 inches round one way and 3½ inches the other.—ED.

**Bladder Plums.**—I send a branch of a Damson tree on which you will find pods instead of Plums. There are only a few Damsons on the whole tree, but it is covered with pods. What is the cause of such a malformation?—GARDENER, Co. Wicklow.

\* The disease which has attacked your Damsons, often called the Bladder Plum disease, is caused by a parasitic fungus named *Ascomyces pruni*, a close ally of the fungus which causes one form of the familiar Peach blister. If possible you should remove the diseased fruits and burn them. We should esteem it a favour if you would first send a few examples to this office for preservation. As answers to correspondents are meant not only for the persons who ask the questions, but for all persons who

\* Bulletin d'Arboriculture Belge.



are likely to ask similar questions, a word or two may be said here as to the name of the fungus, viz., *Ascomyces*, especially as we now and then see the fungus printed as *Exoascus pruni*. The genus was described and named *Ascomyces* by the botanists Montagne and Desmazières, in the "Annales des Sciences Naturelles" in 1848, p. 344. A Continental botanist, possibly in ignorance of this well-known work (for which ignorance, if it existed, there was no excuse) named the same set of fungi *Exoascus* in 1861. Berkeley several times attempted to set the blunder right, but Professor De Bary, of Strasbourg, in ignorance not only of the writings of Montagne and Desmazières, but also in ignorance of those of Berkeley, repeated the many times exposed blunder of *Exoascus* in "Bieträge," 1864. The fungi described under the third name of *Exobasidium* are probably mere imperfect states of the old *Ascomyces*.  
—W. G. SMITH.

## FERNS.

### NEW BASKET FERN.

AMONG the several plants that were exhibited for certificates in Regent's Park on June 17 none were more remarkable than the new basket Fern shown under the name of *Cyathea divergens* by Messrs. J. Veitch, to whom we are also indebted for another grand basket Fern, *Davallia tenuifolia Veitchiana*, described and figured in *THE GARDEN* (Vol. XXVII., p. 504). The new-comer certainly deserves all the praise which on all sides was bestowed upon it, for it is in a high degree ornamental. Its lovely pinnate fronds, produced in great abundance, are particularly graceful, for in spite of their great length (some of them measure from 3 feet 6 inches to 4 feet), they arch over in a most elegant manner; their slender, yet wiry, rachis, black and shining like that of an *Adiantum*, possesses sufficient strength to uphold the foliage quite as efficiently as a thicker stalked *Woodwardia*, to which in general appearance this Fern bears a certain resemblance, though altogether much lighter in aspect. Although the plant, as a whole, is exceedingly ornamental, the rachis in question is one of its principal attractions, there being a vacant space of about an inch on each side between it and the pinnæ, which look as if suspended by mere threads. The colour of the foliage is a bright pleasing shade of green, and what also adds greatly to the charm of the plant is that its habit is symmetry itself, growing as it does alike regularly on all sides. Being, as we understand, a native of New Grenada, it doubtless delights in a certain amount of heat, and will, we may safely venture to say, form in the future one of the brightest ornaments of our stoves. To *Cyatheas* it bears no resemblance whatever, either as regards habit, outline, or mode of growth. It is thoroughly distinct in all respects from all known *Cyatheas*—a name which cannot fail at once to conjure up in the minds of our readers the aspect of a stately Tree Fern, with a stem more or less high and fronds of massive appearance, such as those of the well-known *C. dealbata* and *C. medullaris*, and we may reasonably suggest that, although doubtless it belongs, botanically speaking,

to that genus of giants peculiar to the Tasmanian and New Zealand forests, the habit and mode of growth of the new-comer will be, even after the above description, more or less mistaken by those who have not had the good fortune to see it.

### PLANTS UNTRUE TO NAME.

MR. FRANK MILES, in his article on this subject in *THE GARDEN* of May 30, makes a serious accusation against ourselves for not sending him (eight years ago) *Iris aurea* and *Iris cristata* true. He also applauds M. de Graaff for his correctness, and this is likewise our opinion of him. In this particular case, however, it so happens that at that time these two species of *Iris*, viz., *aurea* and *cristata*, were procured from M. de Graaff himself, and with his authority we make this statement. As we have never received any complaint from any of our customers who were supplied from the same stock, we can only attribute the accident in question to a very rare mistake, and we are always ready to refund any loss in that way in the most liberal manner. We may add that no English or foreign nurseryman can prevent occasional mistakes, none being infallible; but the fact that our complaints do not average one in a thousand in the case of bulbs despatched indicates the success of our arrangements to keep our bulb stocks true to name, and in every respect thoroughly reliable.

ANT. ROOZEN & SON.

Overveen, near Haarlem.

### NOTES FROM A SMALL GARDEN.

THE following commonplace experiences of the proprietor of a small garden on the north-east coast of Norfolk may perhaps not be unacceptable to your readers. Roses, especially Teas, flourish with me; while herbaceous plants cost much time and trouble, and, alas, often woe of disappointment. Climbing Roses have been truly gorgeous this year. Reine Marie Henriette, in a very dry hot corner, has been covered with charming cherry-coloured blooms, lovely in form and colour; its dark red, exquisitely-formed buds, when half expanded, have few equals. This Rose does not appear to me to be sufficiently appreciated. W. A. Richardson, a great favourite of mine, unique as regards colour, has produced some good sized blooms full and of fine form; it seems to enjoy a hot, dry situation. *Devoniensis*, often a shy bloomer, has this year surpassed itself, and I have had 20 feet of wall a mass of cream-coloured blooms almost all worthy of exhibition as regards form and size. Let us now speak of *Lamarque*, just expanding and contrasting with pale grey *Clematis*; of *Solfaterre*, *Homère*, burnt deep red by the sun; of *Céline Forestier*, of *Mme. Falcot*; and, lastly, *Margarita*, a *Noisette*, a kind which produces great bunches of small flowers, which, peeping through the fresh green of a Virginian Creeper, are not to be despised or easily forgotten. Herbaceous Peonies on a west border are in perfection. *Caroline Alain*, sulphury white; *Marie Houillon*, rose; *Souvenir de l'Exposition Universelle*, cerise and white; and *Paul Risbourg*, deep crimson, are specially fine. The garden is sweet with *Honeysuckle* and white and pink common *Pink*; also a single *Pink* with dark red eye, with an even stronger perfume. A bed of seedling *Carnations* promises well; by far the best way of growing *Carnations* in unfavourable soils such as this is to raise seedlings every year. Two large beds of single *Dahlias* are already beginning to flower, as are also climbing Musk Roses, a jar of which fill a room with an attar of rose-like perfume. *Stanwell Perpetual* is always in flower and deliciously scented; its blush flower and ornamental shoots and leaves are first rate for decorative purposes. I wonder *Sun* or *Rock* Roses are not more grown; a dry bank here is covered with them, their colours being orange of different shades, copper rose, white and yellow, scarlet and pink. Once established, they bloom for many months. I grow every shade of *Canterbury Bell* in reserve for picking, as well as in the herbaceous border; two large jars of them, intermixed with orange and scarlet *Lilies* and *Sweet Williams*, are most effective.

Lastly, may I recommend alpine *Strawberry Comtesse de Fretiakoff*, which, with sugar, is delicious? It is large for an alpine, and bears fruit from June till October.  
E. A. L.

## ROSE GARDEN.

### STRIKING LARGE CUTTINGS.

IN speaking of striking Roses from cuttings I have frequently urged the advantage of making the cuttings very much larger—say 10 inches or 12 inches long—than used to be practised, when littl: bits of the shoots were looked on as alone suitable for propagation. Those who have had any experience in cutting-striking will not have failed to notice that in propagating plants of almost all kinds that will strike from strong shoot cuttings, the rate of growth that follows the formation of roots is much greater in the case of large cuttings than in that of small ones. With Roses this is especially so; plants raised from large pieces of the shoots, such as advised, at the end of the second summer's growth will usually be found to be equal in size to others double the age struck from ordinary sized cuttings. Those who grow cut Roses for market are now adopting the large cutting practice on an extensive scale. Mr. Barnard Mitchell, of Enfield, has this year some eight or ten thousand, put in last autumn, which from present appearances look as if there would not be more than 6 or 7 per cent. of failures out of the whole number put in. They are in long rows in the open ground, 8 inches or 9 inches apart in the rows and 12 inches or 14 inches between the rows. The sorts are *General Jacqueminot*, *Gloire de Dijon*, *Souvenir de la Malmaison*, and *Cramoisis Supérieur*, the two first in much the largest numbers, there being the most demand in the market for these good old varieties. Of them possibly more flowers are sold in Covent Garden than all other sorts put together. Large as the cuttings under notice may seem to those who have been accustomed to strike Roses from the old-fashioned little bits, they are by no means so large as will root, or that can in some cases with advantage be used. Recently an instance was brought under my notice where strong shoots of *Maréchal Niel* and of *Gloire de Dijon*, 5 feet or 6 feet in length, were put in as cuttings in positions where they were to be grown, with the result that they rooted as readily as smaller pieces, the top growth being proportionate to the size and strength of the shoots used. To get the plants up so as to fill the space they are intended to occupy, and to produce plenty of flowers in the least possible time, naturally suggests itself as a desideratum. With the kinds of Roses that will strike freely the long cutting method is the course that most growers will find it to their advantage to adopt.  
T. BAINES.

### OLD-FASHIONED ROSES.

ONE feels a certain amount of satisfaction when looking over their stock to find a few old friends amongst it. I find that the once favourite *Baronne Prévost* is still well to the front as regards strength of constitution and freedom in flowering; indeed, there is not one that can surpass it in these two particulars, and if it was not for the flatness of the individual flowers, it would hold its own in its line of colour against all comers for general usefulness. We have plants of it in beds pegged down and trained on a wall with a north aspect; and in both cases no Rose could be better, although planted many years. *William Jesse* is another light coloured old Rose at one time in favour. In form and build the flowers are looser than those of *Baronne Prévost*, but as regards growth and freedom in flowering it is quite its equal. *Madame Vidot* is still as near perfection in form as it is possible for a Rose to be, but our plants of it are weak through age. *Madame Boll* has cherry-red coloured flowers that are freely produced and exquisite in form. We have *La Reine* still in our collection, but it is not happy, as the soil in which it is growing is not good. This Rose must have a rich deep soil in order to induce it to expand its blooms. Of other pale-coloured Roses, we have *Paul Ricaut*, *Coupe d'Hébe*, and *Charles Lawson*—three varieties which cannot even now be beaten as



far as general usefulness is concerned. Of dark-coloured old Roses we still admire *Senateur Vaisse* for its well-formed flowers and strong tone of colour; but if we like one amongst our old friends better than another, it is *General Jacqueminot*. This fine old Rose is certainly the most strikingly coloured kind which we possess. Although our collection includes many of the best-known Roses, I should be sorry to lose kinds such as these, which we have known and cherished for so long; because, although there may be (and are) many new in colour, all points considered, they do not supersede the old ones. J. C. C.

**A Rose wanted.**—Some years ago I saw and lifted suckers of a Rose in Devonshire which I have never seen elsewhere, and for which I have sought in vain since. My suckers died, so I will be grateful to anyone who can identify it from the following meagre description: Foliage smooth and leathery; flowers single, white, about the size of those of *R. rugosa*, but the petals of greater substance. The plant I saw grew in 1879 against the boathouse at Port Eliot, and was flowering in September.—SALMONICEPS.

**Rosa rugosa as a stock.**—"D." (p. 559) asks why I consider it desirable to try this Rose as a stock. I should have answered this question before, but have only just returned from the north. What first gave me the idea some years ago was the watching a *Rosa rugosa* grafted on a Dog Rose stock, a standard, and very beautiful; it is one of a new variety of standard Roses. The effect of the Rose on the stock has been to make it three times thicker than any other Rose stock in the row. This shows such vigour, that it seemed a pity that it should not be taken advantage of. M. Jean Sisley (p. 559) points out the disadvantage of *Rosa rugosa* producing suckers; it certainly with us does throw out many.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath*.

**Hybrid Perpetuals as climbers.**—In order to show the suitability of some of the Hybrid Perpetuals for covering walls of medium height, as recommended recently in THE GARDEN, I may mention that I have to-day measured the growth of several growing on their own roots and planted twelve months ago last November, and I find that Charles Rouillard, Dr. Hooker, Magna Charta, and Emily Laxton have already made shoots between 5 feet and 6 feet long, and, this being only the last day of June, we may reasonably hope that they will still keep on growing for a considerable time longer. No one, therefore, need despair of covering a wall 8 feet high in three or four years—i.e., if they plant vigorous-growing varieties in a good soil.—J. C. C.

**Rose Reine Marie Henriette.**—I should much like to learn from some one who is familiar with this richly-coloured Tea Rose how best to induce it to bloom freely. I have it worked on a cut-back Tea that is again worked on the Brier. The plant is inside a house, and trained up over wires under the roof as Vines are. It grows fairly well, but does not break so freely nor bloom so profusely as is desirable. It is to my mind one of the richest coloured of all the Teas, and with me, in any case, resembles a General Jacqueminot or a crimson Niphetos. If it were as free to bloom as *Maréchal Niel* it would be indeed a grand climber. The great desideratum in all these strong growers is to secure a fine lot of flowers without getting also coarse, rank growth, unless such growth would break into blooming wood.—A. D.

**Liquid manure for Roses.**—Is liquid manure essential for Roses, and is it well to give it before the flowering time or afterwards, and, as a rule, how often?—H. G.

\*\*\* Liquid manure is a great assistance to Roses, especially if the soil is naturally poor and there is any deficiency in the way of solid manure added to it. Under any circumstances its use has a beneficial effect all through the season of active growth, both before flowering and afterwards. Where the soil is naturally well suited to Roses and sufficient solid manure is used, liquid applications are not a necessity; but I prefer using less solid manure and giving liquid stimulants to make up the deficiency, as the latter, from their immediate action, can be given to assist

the plants just at the time when most required. As to how often manure water should be given depends upon the condition of the soil in which the roots are placed and on the vigorous, or otherwise, state of the plants. Through the height of the growing season once a fortnight for outside Roses and once a week for Roses in pots will probably meet their requirements.—T. B.

## KITCHEN GARDEN.

### KIDNEY BEAN OR FRENCH BEAN.\*

(*PHASEOLUS VULGARIS* (L.). LEGUMINOSÆ.)  
*French*, Haricot, Phaséole, Pois. *German*, Bohne, *Flemish* and *Dutch*, Boon, *Danish*, Havebonnen. *Italian*, Fagiolo. *Spanish*, Habichuela, Judia, Frijol. *Portuguese*, Feijao.

(Continued from p. 11.)

**BLACK-SPECKLED KIDNEY BEAN** (*Haricot Bagnolet*).—This kind is one of those which are most extensively grown about Paris for the production of green Haricots. As a general rule, it does not exhibit the objectionable habit of growth alluded to in the description of the preceding variety, and in this respect it is superior to most of the Swiss Kidney Beans. It grows 14 inches to 16 inches high, and has large, deep green leaves, not much crimped, and lilac flowers; pods straight, long, very green, and, when young, almost cylindrical; seeds straight, long,



Black-speckled Kidney Bean (one-eighth natural size).

rounded at both ends, nearly as thick as broad, of a blackish violet colour variegated with nankeen yellow streaks on about one-third of their surface, these markings being sometimes reduced to a few light coloured spots on a nearly black ground. A litre of them weighs 755 grammes, and 100 grammes contain about 235 seeds. There is also a white-seeded variety, which is identical in all other respects.

**DWARF RED-SPECKLED KIDNEY BEAN** (*Haricot Suisse Rouge*).—A vigorous growing, branching variety, which does not usually produce the objectionable stem before mentioned. Leaves stiff, not very large or numerous, smooth, and of a slightly greyish green colour; flowers lilac or rose coloured; seeds elongated, nearly straight, marbled with spots of a wine-lees red colour, which are sometimes elongated and form longitudinal streaks on a pale red ground. A litre of them weighs 780 grammes, and 100 grammes contain about 200 seeds. This is a very productive kind, and the dried seeds are much esteemed.

**DWARF BLOOD-SPECKLED KIDNEY BEAN** (*Haricot Suisse Sang de Bœuf*).—This variety bears a most striking resemblance to the preceding one, both in habit and foliage. The flowers are of a pale rose colour; seeds similar in shape to those of the Black-speckled Kidney Bean, but of a deep red colour, dotted with white or salmon colour. A litre of them weighs 780 grammes, and 100 grammes contain

\* Extract from "The Vegetable Garden," the new English edition of Messrs. Vilmorin & Andrieux's "Plantes Potagères."

about 180 seeds. For some years past this variety has often been called the Indian Kidney Bean (*Haricot Indien*). Its dried seeds are sent in very considerable quantities to the Central Market at Paris.

**DWARF LIGHT DUN-COLOURED KIDNEY BEAN** (*Haricot Suisse Ventre de Biche*).—A vigorous growing variety, forming strong clumps, and not producing the objectionable stem of the Swiss Kidney Beans, but sometimes bearing clusters of pods above the foliage. The leaves are large, slightly crimped, and of a somewhat greyish green colour; pods long, straight, nearly cylindrical, each containing five or six seeds, which are over three-quarters of an inch long, about one-third of an inch broad, and over a quarter of an inch thick, of a light chamois colour, becoming darker with age, and quite brown around the hilum, which is surrounded by a circle of still deeper brown, as in the Yellow Flageolet or Pale Dun Kidney Bean. A litre of them weighs 755 grammes, and 100 grammes contain about 220 seeds. This kind is much employed for field culture, and its dried seeds are of some value.

Besides the varieties of Swiss Kidney Beans which we have just described, the following also are in cultivation: The large Grey Swiss (*H. Suisse Gros Gris*), the seed of which is yellowish white, streaked with black; the Bourvalais Swiss (*H. Suisse Bourvalais*), with white seed marbled with light violet; the Red Ingot (*H. Lingot Rouge*), the seed of which is paler than that of the long spotted French Bean, and not marbled. Among the Swiss Kidney Beans may also be included the variety named the Giant Dwarf (*H. Nain Gigantesque*), which is remarkable for the width of its leaves and the length of its pods; but in cultivation it is now superseded by the improved variety of the Royal Dwarf White Kidney Bean (*H. Suisse Blanc*).

**SION HOUSE DWARF KIDNEY BEAN** (*Haricot Turc*).—This is a variety for field culture, and is hardy, early, and productive. Leaves numerous, of medium size, slightly puckered, and of a rather deep green colour; flowers rose coloured or lilac; pods long and straight. The shape of the seed resembles that of the Swiss Kidney Beans, but the colour is similar to that of the Cranberry Bean (*H. de Prague Marbré*), namely, flesh colour finely dotted with light red or lilac. A litre of them weighs 740 grammes, and 100 grammes contain about 245 seeds. Although true enough to its dwarf character, this kind forms less compact clumps than the Swiss Kidney Beans, and the stems are usually elongated and semi-trailing. It is not very particular about the quality of the soil in which it is grown, and requires very little attention, on which account it is one of the kinds which are most frequently sown in vineyards or amongst other crops.

**SOLITARY PROLIFIC KIDNEY BEAN, OR BUSH HARICOT** (*Haricot Solitaire*).—A very branching plant which forms a strong clump, does not produce the objectionable stem of the Swiss Kidney Beans, and attains a height of 16 inches to 20 inches. Leaves rather small, very numerous, long, pointed, and of a deep green colour; flowers pale lilac. The seed somewhat resembles that of the Black-speckled Kidney Bean, but is much smaller, being seldom more than half an inch long, or a little longer, and is of a more pronounced violet colour. A litre of them weighs 775 grammes, and 100 grammes contain about 315 seeds. The chief merit of this variety is that it forms a strong clump and branches very much, in consequence of which some cultivators sow each seed separately, instead of putting several into the same hole or pocket; hence its French name—*Haricot Solitaire*.

**RUSSIAN DWARF KIDNEY BEAN** (*Haricot Russe*).—A very good dwarf variety, equal to any other for producing green Haricots. The plant is a very vigorous grower, with exceedingly broad leaves, finely crimped, and of a dark and rather dull green colour. Flowers lilac; pods very straight and remarkably long and handsome. The seed, which in shape and colour has some resemblance to that of the dwarf light dun-coloured Kidney Bean, exhibits a peculiarity by which it is easily distinguished from all other kinds, namely, the dull appearance of the skin, which is totally devoid of the glistening and varnished-like



aspect presented by the seeds of all other varieties of Kidney Beans. A litre of them weighs 770 grammes, and 100 grammes contain about 200 seeds. There is a sub-variety of this plant which has small black seeds, and produces pods that are perhaps longer and more cylindrical than those of the ordinary kind. There are often six or even seven seeds in a pod, and as each seed is nearly three-quarters of an inch long, and lies in the pod at some distance from the seed which is next to it, the length of the pods is easily accounted for.

**SPREAD EAGLE, OR DOVE, KIDNEY BEAN** (Haricot Saint Esprit, H. à la Religieuse, H. à l'Aigle).—Another dwarf tough-podded variety, which appears to belong to the section of the Swiss Kidney Beans, and grows to the height of 16 inches or more. Leaves of a clear green colour, broad, elongated, and finely crimped; flowers white and rather large; pods straight and longish; seed very full, moderately kidney-shaped, and pure white, except near the hilum, where it is marked with a black or brown blotch, the outline of which has some resemblance to that of a bird with extended wings. Some have thought this most like an eagle, others a dove; hence its most common name of Spread Eagle and Dove Kidney Beans.

**DWARF SOISSONS KIDNEY BEAN** (Haricot de Soissons Nain).—A variety which is true to its dwarf character, and also early, but only a moderate bearer. Plant low-growing and thick-set. Leaves rather broad, smooth, and of a dark glistening green colour. It does not produce the objectionable stem of the Swiss Kidney Beans, but clusters of pods are sometimes borne above the foliage. Pods usually curved and of irregular width, owing to the unequal growth of the seeds, which are much smaller than those of the Large White Runner, and are more like those of the Liancourt Kidney Bean, being white, rather flat, and moderately kidney-shaped. A litre of them weighs 740 grammes, and 100 grammes contain about 260 seeds.

**DWARF EARLY WHITE SCIMITAR KIDNEY BEAN** (Haricot Sabre Nain Hâtif de Hollande).—This very distinctive and valuable variety differs completely from the old Dwarf Case-knife (H. Sabre Nain), which is now no longer cultivated. It is a low-growing and very thick-set plant, with broad leaves, slightly crimped, and of a dark lustrous green colour. Flowers white; pods long, broad, straight, and well filled. The plant comes into flower almost about the same time as the White Flageolet, and its earliness, and also the fineness of its seeds, render it a valuable kind for forcing under a frame. The seeds are broad and well filled, nearly three-quarters of an inch long, over one-third of an inch broad, and one-quarter of an inch thick, of a pure white colour, and with the skin sometimes slightly wrinkled. A litre of them weighs 750 grammes, and 100 grammes contain about 225 seeds.

**COMMON FLAT WHITE KIDNEY BEAN** (Haricot Blanc Plat Commun).—An old variety, which is still employed in some districts for field culture, and might almost be classed among the tall-growing kinds; for although the stems do not climb or twine very well, they grow to a considerable length, trailing along the ground. Leaves numerous, slightly crimped, rather small, and of a darkish green colour; flowers white; pods rather short, each containing four or five medium-sized seeds of nearly the same shape as those of the Liancourt Kidney Bean, and of a fine glistening white colour. A litre of them weighs 780 grammes, and 100 grammes contain about 250 seeds.

**DWARF WHITE RICE KIDNEY BEAN** (Haricot Comtesse de Chambord).—A dwarf, but remarkably branching kind, forming clumps over 2½ feet wide. Leaves very numerous, rather pointed, medium-sized or small, and of a clear green colour; pods short, but very numerous, each containing five or six seeds; seeds white, egg-shaped, nearly three-quarters of an inch long, quarter of an inch broad, and about the same thickness, with an exceedingly thin skin, and of remarkably good quality. They are, consequently, very much used in the dried state. A litre of them weighs 825 grammes, and 100 grammes contain about 650 seeds. Although the seeds of this variety are small, it is very productive; but it has the disadvantage of being somewhat late, in consequence

of which the seeds are sometimes spotted and blemished when the autumn turns out cold and damp. There is a very small-seeded variety of this plant, which produces vast numbers of pods, and is known as the Dwarf Hungarian Kidney Bean (Haricot Nain de Hongrie), or the Hungarian Rice Kidney Bean.

**DWARF YELLOW HUNDREDFOLD KIDNEY BEAN** (Haricot Jaune Cent pour Un).—A dwarf and very hardy variety, of compact growth, with medium-sized slightly puckered leaves, of a deep green colour tinged with grey. Flowers white, passing into yellow; pods rather short, numerous, each containing four or five straight, almost cylindrical seeds, which are sometimes square at the ends, and are of a dark yellow colour verging on brown. A litre of them weighs 815 grammes, and 100 grammes contain about 475 seeds. This is a very productive kind, and is mostly cultivated in the east of France, where it is often grown in the vineyards.

**ROUND YELLOW OR SIX-WEEKS DWARF KIDNEY BEAN** (Haricot Jaune Hâtif de Six Semaines).—A low-growing thick-set kind, with slightly greyish and elongated leaves. Flowers pale lilac or rose coloured; pods rather broad and short, each containing four or five egg-shaped seeds, about half an inch long, and of a uniform deep yellow colour, except about the hilum, where they are of a darker shade, closely approaching brown. A litre of them weighs 800 grammes, and 100 grammes contain about 340 seeds. A remarkably early and very productive variety.

**MEXICAN DWARF KIDNEY BEAN** (Haricot Saumon du Mexique).—One of the earliest of all the tough-podded Kidney Beans, of low and scantily



Dwarf Early White Scimitar Kidney Bean (½ natural size).

branching growth, with medium-sized leaves, of a deep green colour tinged with grey. Flowers very pale lilac; pods short and rather broad, each containing four or five egg-shaped, slightly flattened seeds, of a salmon-rose colour, with a brownish circle around the hilum. A litre of them weighs, on an average, 800 grammes, and 100 grammes contain about 225 seeds.

**DWARF RED ORLEANS KIDNEY BEAN** (Haricot Nain Rouge d'Orléans).—A variety which is usually true to its dwarf character, but occasionally runs at the top. Stems thick and short, forming a rather broad, compact clump; leaves stiff, medium sized, crimped, and of a glistening green colour; flowers violet; pods rather numerous, short and slightly curved, each containing four or five rather small egg-shaped seeds, which are less than half an inch long, of a deep, somewhat brownish, red colour, and with a black circle around the hilum. A litre of them weighs 800 grammes, and 100 grammes contain about 225 seeds. This variety is cultivated in the vineyards of Orléannais, just as the Yellow Hundredfold and the Turkish Kidney Bean are in the vineyards of Burgundy. It is sometimes erroneously confounded with the Chartres Red Kidney Bean, which is a tall-growing kind, with seeds of a flatter shape and more squared at the ends.

The following varieties of dwarf tough-podded Kidney Beans are still occasionally to be met with in cultivation:—

**DWARF WHITE BAGNOLET** (Bagnolet Blanc).—A handsome, vigorous-growing, and hardy kind, which in its habit of growth is rather like the Black Speckled Kidney Bean, but differs from it entirely in the colour of its seed, which is white, rather flat, and kidney-shaped, and is good for use either when dried or in the green state.

**DWARF BARBES** (H. Barbès Nain).—This kind very much resembles the Yellow Hundredfold, but is distinguished from it by its lighter-coloured seeds, which are also marked with a small brown circle around the hilum.

**HARICOT IMPERATRICE** (H. Religieuse, H. Isabelle).—In its general appearance and foliage this kind resembles the Swiss Kidney Beans, but it has broader and slightly curved pods. Seed large, full, kidney-shaped, and of a remarkable colour, a large deep red blotch encircling the hilum, and extending over about one-third of the surface of the seed, the remainder of which is of a pure white, thickly dotted with small red specks, which appear in bold relief on the white ground.

**NEAPOLITAN KIDNEY BEAN** (H. de Naples).—Under this name are grouped several varieties with white, egg-shaped seeds, like those which are imported in large quantities from the south of Italy and from Sicily; but it is more a commercial name than that of any special variety.

**HARICOT PLEIN DE LA FLECHE**.—A good variety, of vigorous, thick-set growth, and resembling both the Black Speckled (H. Bagnolet) and the Bush Kidney Bean (H. Solitaire); the former in its habit of growth and the latter in its seed.

The following varieties are of English or American origin:—

**EARLY LIGHT DUN AND EARLY DARK DUN**.—These two kinds bear some resemblance to the Yellow Flageolet (H. Flageolet Jaune), but their seed is of a uniform colour, without any circle around the hilum. The seeds of the two kinds are distinguished by those of the first being of a lighter brown or dun colour than those of the second.

**EARLY RACHEL**.—A dwarf and productive kind, with dark brown, elongated seeds, slightly spotted with pale brown or yellow. It has some resemblance to the Chocolate Kidney Bean.

**MACMILLAN'S AMERICAN PROLIFIC**.—Somewhat resembles the Sion House Kidney Bean in its general appearance and in the colour of its seed, but is more compact in growth, forming denser clumps.

**THE MONSTER**.—A dwarf and exceedingly vigorous-growing variety, with enormous leaves, resembling in their amplitude those of the most highly developed Swiss Kidney Beans. Pods of medium size, straight; seeds black, longer, and more curved than those of the Belgian Negro Bean. A tolerably productive, half-early kind.

**NEW MAMMOTH NEGRO**.—The pods and seeds of this kind are rather like those of the Negro Long-pod (H. Flageolet Noir), but in its mode of growth and the colour of its leaves it bears a greater resemblance to the Belgian Negro. It is not so good a kind for green Haricots as the Negro Long-pod.

**NEWINGTON WONDER**.—This dwarf variety can hardly be recommended for any other purpose than frame culture for the production of seeds, as its pods are too short for green Haricots. The seed is of a light yellow colour and remarkably small.

**OSBORN'S EARLY FORCING**.—A good dwarf kind of dense branching growth, producing large numbers of medium-sized pods, each containing four or five short, bulging seeds, of a deep brown colour, with some spots of light yellow.

**REFUGEE, OR THOUSAND TO ONE**.—A rather compact-growing variety, with remarkably long, straight, smooth, dark coloured leaves and violet flowers. Pods straight and rounded; seed hardly kidney-shaped, almost cylindrical, of a light yellow colour, variegated with wine-lees red markings.

**SIR JOSEPH PAXTON**.—A small-sized, very early, dwarf kind, with rather short pods. The seed is almost exactly like that of the Yellow Hundredfold (H. Jaune Cent pour Un), but is of a deeper, and nearly brown, colour.



**WILLIAMS' NEW EARLY.**—A very early and rather productive kind, the seeds and pods of which are marbled with violet colour. This colouring of the pods, added to their flat shape, diminishes their value for use as green Haricots.

**YELLOW CANTERBURY.**—A dwarf variety, with small, yellow, bulging, straight seeds, very much resembling the Yellow Hundredfold.

The variety known as Haricot Nain Panaché d'Inselbourg, of German origin, is a kind of Swiss Kidney Bean of medium height, and yielding an abundance of long, straight, green pods. The seed very much resembles that of the Haricot Plein de la Flèche. It is a good half late variety.

(To be continued.)

### TOMATOES WITHOUT MANURE.

In recent times the demand for Tomatoes has increased to an unprecedented extent, and this has naturally awakened consideration as to the best methods of cultivating them. Grown as Tomatoes mostly used to be, against any bit of spare wall with a south aspect that happened to be available, there was not much time after they were planted out to get them into a fruiting condition so as to have the crop ripe before cold weather set in. The treatment then usually followed, with a view to get them quickly into flower and a crop set, was to confine them to poor soil and to keep the roots drier than most things. Growing Tomatoes in this way out-of-doors was, however, very different from the manner in which they are now managed where they are kept under glass. The plants are generally required to produce fruit early and to keep on bearing as long as possible; therefore, the semi-starvation treatment, by growing them in poor soil, is not the way to give the best results either in weight within a given time, or in duration in a free-bearing condition—at least such has been the result of my own practice, which is further confirmed by that of those of the large market growers with whose treatment I have had an opportunity of becoming acquainted. Starving and cramming Tomato plants, by confining their roots to a spadeful or two of poor soil, may be all very well to induce them to produce a little fruit a trifle earlier than they would do under more liberal management, but so treated they will neither yield weight enough within a given time nor keep on bearing as they should do to the end of the season.

An extensive Tomato grower, Mr. Ladds, of Bexley, plants his Tomatoes in beds as full of manure as for Rhubarb, so as to get the plants in the least possible time strong enough to support the greatest weight of fruit possible. When the requisite strength is attained, water is withheld to an extent that I have not before seen with Tomatoes, common as it ever has been to keep them dry at the roots in order to induce fruiting. Throughout the acres of houses that he annually occupies with Tomatoes, in addition to the highly manured soil in which the plants are turned out, there is no restriction; the beds cover the whole of the enclosed space within the houses except a path down the centre. The plants previous to being turned out are in 8-inch or 9-inch pots, and have up to that time been kept on growing freely

in order that they may not suffer any check until they reach the required size. Whatever is needed in the shape of thinning out the shoots is done gradually and regularly; there is no waste of strength or loss of time by letting the shoots get too crowded and then cutting a lot away. Tomatoes are by no means particular as to what sort of material their roots are in. I know one grower who gets excellent crops in houses that through the winter and early spring are occupied by Calceolarias, Pelargoniums, Marguerites, and similar plants used for filling window boxes; these are set on beds of ashes in the usual way. When the flowering plants are cleared out, which is about the middle of May, the Tomatoes previously prepared are planted in the ash beds, and nothing more is done except forking in a good dressing of Clay's manure, of which enough is given to push them on freely.

Under the keen competition with which market growers have to contend and low prices, their wits are naturally set to work to get the best returns they can in the shape of heavy crops. With many of them Tomatoes are a speciality, and they find that poor soil and cramped roots do not answer. Where the tops of the plants have to be confined within a small space, or it is necessary to throw them prematurely into bearing with a view to have fruit ready by a given time, regardless of a sacrifice in quantity, poor soil and cramped root treatment may answer. But that is not the best practice. The way now generally acknowledged by leading growers of them to be best is to first grow the plants in a manner that will enable them to support a crop worth the name, and to afterwards regulate the setting and the growth of the fruit by the water supply. T. B.

### THE EARLIEST PEAS.

EVERY season one or more additions are made to the list of so-called novelties in the way of very early Peas, but unfortunately none of them long retain the high character with which they are ushered into notice, and for the future I shall not attempt to name the very best sort for the earliest crops. I think I have at various times grown all the presumably new early or extra early Peas, and I must confess that I have arrived at the conclusion that some of them are really greatly superior to the older ones, and that, too, in spite of a very suspicious resemblance to them. William I., though not the earliest by about a week, is yet really the most profitable early variety we have, but even of this the stocks supplied by different seedsmen vary considerably, some being stronger growers than others, and I am only surprised that we have not heard of some firm having tacked their name on to an improved form of it—not that I think they ought to do so; quite the reverse; and I only wish they had let the early round, white-seeded, Dillistone's Early and Sangster's No. 1 alone; then there would have been much less confusion. Even the Americans are "improving" these good old sorts, two of their novelties, Alaska and Rural New Yorker, being, however, very doubtful advances. When first introduced these extra early sorts do seem to possess more vigour and are somewhat earlier than usual, but they soon lose their precocity, and become neither better nor worse than those from which they were selected. They are discarded in some cases, perhaps in favour of older or newer sorts, but they retain their places in the catalogues and only serve to create confusion. Thus, instead of Dillistone's Early being still catalogued as the very

earliest sort in cultivation, we have substituted Sutton's Ringleader, Carter's First Crop, Veitch's Extra Early, Alaska, Rural New Yorker, as well as wonderful selections by nearly every seedsman in the country. If there is any difference amongst them, it is trifling and almost imperceptible when grown side by side. Then, instead of the good old Sangster's No. 1 which is also round and white-seeded, more sturdy in habit, and producing larger pods than Dillistone's, we now are or have been at different times offered Daniel O'Rourke, Caractacus, Dickson's First and Best, Taber's Perfection, and many other sorts differing in name only. Earliest of All much resembles Harbinger, but is about a week earlier, and these again differ from the majority of the above mentioned sorts in one respect only—they are blue-seeded. This season we grew Alaska for the first time, and it certainly proved to be nearly a week earlier than Veitch's Extra Early, which in its turn was closely followed by William I., the latter being superior to the others both as regards heavy cropping, appearance, and quality. Of the very dwarf sorts, American Wonder was the earliest and best in quality, and will not yet be superseded for frame-work by the taller-growing, larger-podded Chelsea Gem.

Local seedsmen are apt to take their descriptions of varieties of vegetables from the lists of the more noted firms, but if they wish to make their catalogues reliable guides to their customers, they will do well to imitate the plan adopted by some of the Bath seedsmen, *i.e.*, devote a space of ground every season to a trial of vegetables. This year early Peas received particular attention, the result being most instructive. What I saw of them only confirmed much that I have advanced above, as, in addition to the varieties included in most catalogues, several local sorts of good reputation were sown, and nearly all gave the impression that the seed was taken out of one bag. The Ringleader, First Crop, Extra Early section were the first fit to pick, about five days separating them from Harbinger, Rural New Yorker (a good cropper), and a few others. Earliest of All was not sown till the others were up; consequently it did not receive a fair trial; but, judging from the progress which it made, growers of it felt justified in placing it amongst the very earliest sorts. Kentish Invicta and William I. were ready for use at the same time and in close succession to the foregoing, William I. being much the better of the two. Little Gem and American Wonder, growing side by side, proved to be perfectly distinct, but the former was certainly surpassed by American Wonder, and may safely be crossed out of all lists.

Of second early sorts, I still consider Telephone or Telegraph, whichever may be preferred, the best; and we now have no need for either Dickson's Favourite, Essex Rival, or Alpha. This season both Criterion and Huntingdonian follow very closely on Telephone, there being only four days' difference in favour of the latter; and as they are better croppers and quite as good in quality, we were fully justified in making two sowings of them and only one of Telephone. Criterion is particularly good this season, and is a great favourite at the table. I observe that Mr. Lloyd, of Brookwood, is inclined to class Telephone as an early variety, but his experience is very much at variance with mine, and in all probability the nature of his soil has much to do with the unusual precocity alluded to in THE GARDEN (p. 11). On our heavy soil, under precisely the same treatment as William I., it was fully ten days later than that variety, and it has always been so with me; besides, the seeds, if sown early, invariably perish, and have, therefore, to be sown later than the round-seeded sorts. W. I. M.

### LATE PEAS.

IN the latter part of June and throughout July and August, Peas from the March and April sowings are plentiful in most gardens, but abundance of good Peas are not always to be had in September, while in October full crops are few and far between. This is alone the fault of cultivation and the result of not sowing late crops. If as many Peas were sown during the latter part of June and the forepart of July as are put in throughout April, Green Peas would be generally abundant in October. Experienced culti-



vators have mostly their favourite sorts for late crops. Some prefer *Ne Plus Ultra* to all others, while many like *Omega* and *Sutton's Latest of All*. Early varieties are also sown frequently for the latest crops, as they are supposed to pod sooner than late kinds; this they do, but they are not so hardy as the real late sorts, and for this reason should not be wholly depended on. Those who have surplus seed may make a sowing of various kinds, while others, without enough of any one kind to make a row, may mix up their odds and ends and sow them together. We have seen some good rows composed of early and late kinds mixed in this way. The soil in which they are sown just now should be deep and rich and the position warm and sheltered. As a rule the best site in the garden is selected for early Peas, and the same rule should be followed in the case of very late ones. One thing is certain—they will not do well in odd corners, and the chances of securing heavy and good crops will all be thrown away by selecting a bad position for them or dealing with them carelessly. Moderately thick sowing of the seed may do, but placing the rows so close to each other as to prevent sun and air from reaching all sides of them is almost sure to end in failure. If a row can be put in here and there widely apart, with no tall crops on either side, a decided advantage will have been gained.

J. MUIR.

### POTATO BLOOM.

POTATOES of most sorts are blooming freely this season, and many usually deficient of pollen are now comparatively productive of that important element in Potato progenitiveness, and those interested in the raising of new kinds will this season find an excellent opportunity to give effect to their fancies. Without doubt seasons have much to do with results of this description, just as in some other years not only is Potato bloom thin, but exceedingly difficult to fertilise; hence seed sometimes is scarce. Possibly some may think this to be no great harm, as kinds are now so abundant, but then it happens that such a season as the present enables sorts to be dealt with that would not otherwise be available; hence some results may be obtained of undoubted value and usefulness. Some kinds, especially first early sorts, are always difficult to set bloom. I have had to make several trials this season with them, and am not yet sure that any good has been accomplished. Should the blooms hang long enough to change into seed-pods, then all will be safe. Whilst some kinds give out from the pollen cases, when manipulated, quite a cloud of dust, with others it is needful to operate upon a score of blooms ere enough pollen is obtained to fertilise a couple of other blooms, and in such case success cannot be ensured. There is no connection between free blooming or even free seeding (though the latter is even more rare) and robustness, for many of our most robust sorts seldom or never set a flower so as to produce a seed-pod unless first fertilised. Insects do not seem to favour Potato bloom. Such well-known early kinds as *Early Rose* and *Beauty of Hebron* are blooming in some places most profusely, forming quite a sheet of white. The very darkest-hued flower I have yet seen is on a new American kind, called *Wall's Orange*, the blooms being almost violet in hue. One of the prettiest, because a delicate mauve is found in the flowers, is *The Dean*, but the greater portion of Potato blossom is of an uninteresting intermediate hue.

A. D.

### TOMATO CULTURE.

THE freedom with which the Tomato grows under glass makes its culture so simple, that it will succeed in almost any situation, provided it gets a fair proportion of light; in fact, it fills any spare corner or back wall in a fruit house that is useless almost for anything else, and it will grow and fruit well in any sort of compost, provided proper attention is given to watering and stopping the laterals. Where a house is devoted to its culture the plants should be put in 14 inches apart, and as soon as growth commences every lateral as it appears should be rubbed off. This may be done when air or water is given, and need not take up much time. Under good management the main shoot will soon reach

the top of the house, and will be furnished with a fine bunch of bloom at every joint and large vigorous foliage, which is the principal factor in the production of large, well-coloured fruit. Watering must receive due attention; never allow the roots to become dry. As soon as the earliest bunches have fairly begun swelling, supply them freely with weak manure water. It is better than a strong dose now and then. If this is attended to the bunches will set regularly the whole length of the shoot, but if neglected most of the bloom on the upper part of the shoot will drop, leaving half a crop instead of a full one. Treated as above we get fine fruit, well coloured, and plenty of it.

Waterdale.

JAMES SMITH.

**Gilbert's Champion Broccoli** proves to be one of our best mid-season sorts. The stock appears to be remarkably true and the growth vigorous, large heads being the result. It is not a bad example of the Self-protecting class of Broccoli, but in that respect perhaps hardly equal to *Veitch's Model*; it is, nevertheless, a valuable sort.—J. C. C.

**The Potato crop** is late in this part of the west of England. The bulk of what has been already sent to market is much smaller than usual for the time of year, and growers say that there is a greater number of tubers to the roots than is desirable, being always small when the number is great. *Myatt's Prolific* is the favourite sort grown hereabouts for early market purposes. Very few grow the old form of *Ashleaf*. Round sorts do not find much favour, either with buyers or growers until later in the season. TAUNTON.

**White Elephant Onion.**—Last season I had a number of kinds of *Tripoli Onions*, but none of any great merit. Onions being always useful, it is imperatively necessary that I should grow the best variety. Happening last season to judge the cottagers' and amateurs' collections at the Stamford show, I noticed a dish of a variety called *White Elephant*, grown by our townsman, Mr. Pepper. This I at once noted and procured seed of it, and I am happy to say that it has given me the highest satisfaction, the bulbs being large, clear white, and there being very few runners. I shall grow it extensively next season.—R. GILBERT, *Burghley*.

**Potatoes.**—These are blooming abundantly this season, even sorts not usually classed as bloomers. A good field is therefore open to the hybridist. Intending raisers should, however, consider before they start what special aim they should work for, and, having that well thought out, they should select and cross-fertilise kinds which are likely to give the results desired. Not a few of our finest sorts are so reluctant as regards the production of pollen, that they rarely or never set their own blooms. All such kinds should be selected as seed parents, the pollen being obtained from kinds which produce it freely. Having utilised what blooms are needed, the rest should all be plucked off, otherwise this fertile season the plants will set seed-pods or apples by bushels, and thus weaken the plants. The earlier fertilisation is accomplished the greater certainty there is of inducing the seed apples to fully mature.—OXONIAN.

**Telephone Pea.**—I have this Pea growing in the open field here under very diverse conditions from those related by Mr. Lloyd, but I find it to be even there quite early, as he also finds it. There is this difference, however, that whilst he sowed seed so early as November 8 last year, I did not sow until the first week in March, some four months later. Mr. Lloyd gathered from his warm border on June 20 (or 21st, though Sunday). I could have gathered bushels of finely filled pods on July 3, only thirteen days later, and yet my seed was not sown till March and in cold soil in an open field. I think, therefore, my proof of the earliness of *Telephone* is more emphatic than Mr. Lloyd's. It is also worthy of record that all about this district at the time named, July 3, *White Peas* were still being gathered, and that very inferior dwarf blue kind, *Harrison's Glory*, so largely grown as a market second early, was only just in and pods by no means full. *Telephone* seems to have a few days' start of *Telegraph* growing beside

it, and is a good way ahead of the dwarf kinds, *Pride of the Market* and *Stratagem*. If some enterprising hybridist could engraft the early and fine podding qualities of *Telephone* upon *William I.* or some similar kind, we should perhaps obtain a first-class early market Pea.—A. D.

**Summer Lettuces.**—It is often difficult to get a really good crisp Lettuce during the hottest weather in summer, when they are most appreciated; yet Lettuces are plants of the easiest culture, and those who adopt the simplest of all methods, viz., that of sowing the seed where it is intended to remain, doing away with transplanting altogether, get the best results. I find that, except for the earliest crops out of doors, the plants for which have been protected under glass, it is best to treat Lettuces like Onions, Carrots, and similar crops, viz., sow thinly in drills at widths proportionate to the size of the variety, and thin out as soon as the young plants are large enough to handle. If anyone who has been accustomed to transplant Lettuces will only give this plan a trial, they will not need further evidence in order to see the folly of transplanting a crop that to be good must be grown quickly. Market growers never transplant, and their modes of culture are not easily beaten. The soil should be well enriched with manure, and be dug over sufficiently long to allow of its getting into nice friable condition before sowing. Sowing Lettuces on poor loose soil that has just been cleared of an exhausting crop would only be courting failure, and bringing a good system of management into disrepute. The *Brown Cos* for winter and spring, and the *Paris White Cos* for summer are kinds not easily surpassed.—J. G., *Hants*.

**The best early Potato.**—Notwithstanding the numerous additions made to our early Potatoes, for private gardens there is no sort to equal the true old *Ashleaf*, and this fact cannot be too often repeated. Very few seedsmen are able to supply it, and comparatively few gardeners are acquainted with its merits. I recently asked a well-known seedsman why he did not include the old *Ashleaf* in his catalogue, and he said there is no demand for it among the rising generation of gardeners, and that only a few of the "old school" appreciated it. In reality I have no doubt that he and others prefer to sell the newer sorts, for which they get better prices. The old *Ashleaf* is not a heavy cropper, but having but little haulm it may be planted almost as thickly as the drills can be drawn. It is fit for use when about half grown, and at the present time (June 27) its tubers are remarkably good in quality. Unlike other *Ashleafs*, it is not good after being kept for a time, and we depend upon it only for the earliest supplies or till such time as *Veitch's Improved Ashleaf* is plentiful and good. We commenced lifting from a warm border during the second week in June, and the remainder of the crop is now fully ripe enough for storing. On the whole, therefore, I think I may safely venture to name the old *Ashleaf* as being the very best early sort we have, either for frame or open-air culture.—W. I.

**Tall stakes for Runner Beans.**—"W. I." (p. 449) is in error as regards the height of the stakes used in the gardens at Longford for supporting the haulms of *Scarlet Runners* and "climbing" Canadian *Wonder Beans*. The haulm of the latter, though furnished with stakes from 5 feet to 6 feet high above ground and heavily laden with long, handsomely shaped pods, depended a couple of feet from the tops of the stakes. From two long rows of "climbing" Canadian *Wonder Bean* thus staked and having a good mulching of rotten manure, applied on either side of the rows and kept well supplied with water at the roots, we gathered good supplies of Beans from the third week in July until cut down by frost towards the end of October. If "W. I." gives the treatment indicated above to the Bean in question as soon as the few seeds which I gave him for trial have appeared a few inches above ground, he will, I have no doubt, be in a position to testify as to the correctness of the foregoing remarks. As regards *Scarlet Runner* stakes being only 9 feet above ground, I may say that there are more over than under 20 feet; we grow two rows of *Runner Beans*, 64 yards long each and 8 feet asunder. The first row was sown about the 20th of April (a few days earlier or later is of no consequence



and the second two months later, and on the south side of the first row, which runs east and west. The stakes—Ash poles—previously sharpened and trimmed, are stuck firmly into the ground, 1 foot apart, on either side of the rows of Beans, after they have had a little soil drawn up to them; they are then braced together by a line of Bean stakes fastened longitudinally on either side of the upright stakes, at 6 feet or 7 feet from the ground, and by means of cross-ties made of tarred strings the rows of stakes are made quite secure for the season. The situation on which we grow our Runner Beans every year is exposed in every side except the east and south. The first row of Beans being on the north side of the second, as already stated, protects the latter effectively from being injured by autumn frosts, by which time, moreover, the supply on the front row is exhausted.—H. W. WARD, *Longford Castle*.

**Pickling Onions.**—I must thank "W. I." for his reply to my question respecting the Queen and Silver-skinned Onions. I may add that I sowed them side by side, and fully intended to get them as fine as possible, but not for pickling. I should not sow for next year's pickles in July or in February. I have been suspicious about the two varieties in question before the present season, but let me ask, if my Onions are too large to be true Queens, what about Mr. Muir's (p. 599)? his would be about the same size as mine. I have also grown these two varieties sown thickly in May for pickling. They were not thinned, and yet I failed to see any difference between them. My object in experimenting with Silver-skinned varieties is to get something that will take the place of our summer main crop. I manage to get a very fair summer crop, but with great difficulty on account of the maggots. But if the Queen will keep sound until she comes in again next year, why then I consider that our Onion difficulty will be solved. Hitherto I have been unable to effect this, although many times told that the Queen is the Onion to grow for such a purpose, as it will keep sound until Onions come again. With me, however, it has not kept so long from autumn-sown seed.—R. HALL, *Fax Warren, Cobham*.

—I should think that it is most probable that the large white Onion which Mr. Hall has grown for Silver Skin and Queen is either White Tripoli or White Lisbon, though probably there is not much difference between even these. The Silver Skin is so commonly grown for pickling, that it is rare to see it fully developed. It is naturally a small Onion, as is also the Queen even at its best, and both ripen off early. My own impression is that the skin of the Queen Onion is a trifle thinner and more transparent than is even that of the Silver Skin, but that difference may not be discernible when grown widely apart and well.—A. D.

#### WEEDS AND SLUGS.

PROBABLY it does not occur to many that the act of destroying weeds not unfrequently proves very destructive to slugs. Such, however, is really the case. The Dutch hoe should be kept going among all sorts of crops, with the exception of Potatoes, not only for the sake of keeping down weeds, but also for the purpose of checking the increase of slugs. If we wish also to prevent the soil from cracking we must preserve a loose surface by means of the hoe, thus preventing rapid evaporation and injurious cracking. Labourers (some of them little better than mere machines) seem to think that they have only to chop up all plainly visible weeds; whereas we want the whole of the surface thoroughly stirred, thus destroying many weeds on the point of coming through the ground. Such stirring also disturbs the haunts of slugs, if it does not actually kill a good many of them. All cannot get hoeing done just when it should be, but those who are most deficient in the way of manual labour have the greatest need to persevere with the early extermination of weeds. If hoeing is done on a sunny day and before the weeds have made much progress, it is astonishing how quickly a large space may be cleared of them; but if delayed for a time, many of them will seed before they are cleared off, and another crop then quickly follows. Thus, if the weeds are large, they have to be raked up and wheeled away to be burnt—necessarily a very tedious job.

One season's neglect will, I too well know, stock a garden with seeds of various kinds of weeds, some of which will germinate whenever the ground is broken up. In the garden under my care common Groundsel is our greatest pest. I am beginning to despair of being able to exterminate it. It is really worse than Twitch and Bearbind, as these may eventually be destroyed by decapitation. No roots will exist without top-growth, and if we frequently hoe off the tops of these coarse-rooted fast-spreading weeds we in time destroy the plants. The hoe, therefore, should be the implement most in the hands of gardeners at this time of year, and fewer slugs and weeds and better crops will, as a rule, be the result.

GRAVEL WALKS cannot, however, well be hoed without disfiguring and otherwise injuring them, and hand-weeding these and pavements is a tedious as well as an expensive undertaking. For this we have tried various substitutes, including arsenic and hot water, hot water only, carbolic acid, and salt, with varying success, but none of these in point of effectiveness, simplicity, and cheapness at all equals the mixture known as Smith's Weed-killer. It was strongly recommended to me by a friend who had tried it; last season I therefore purchased a 40-gallon cask of it and gave it a good trial. Sunny weather following a showery time was chosen for distributing it over the walks, as if done when the walks are very dry more of the mixture is required to moisten the gravel. We mixed it according to the instructions received with it—i.e., at the rate of one gallon to twenty-five gallons of cold water, or about one pint to three gallons of water. It was applied by means of a coarse-rosed watering-pot, and just enough was given to well wet the weeds. We were told that it should reach the roots, but in many cases it could not have done so, and I think I am justified in asserting that it is unnecessary for this to happen. We were also cautioned to keep it from reaching the turf or other live edgings, and for a time, or while I was with the men, they used boards to prevent this, sliding them along as the mixture was being spread. But because the weeds did not immediately shrivel up they lost faith in the mixture and got careless, the consequence being browned edges for several months as well as several tracks across the turf where they carried some of the diluted mixture. In about a week after its application scarcely any trace of weeds was left on the walks experimented on, nor are there any to be seen this season. It even destroys such coarse-rooted weeds as Docks, Plantains, and Dandelions, and completely exterminates Moss. Arsenic and hot water is perhaps rather cheaper and quite as effective, but when we take into consideration the bother attending boiling and carrying so much water, perhaps to a long distance, its value as a weed-killer from an economic point of view is considerably minimised. W. I. M.

#### NOTES ON RECENT NUMBERS.

**Fortune's Yellow Rose** (p. 559).—Can anyone tell the secret, if there be one, how to induce this Rose not to part with its leaves just as the flower-buds begin to open, thereby spoiling its value to a great extent? This seems to be its usual practice when planted out-of-doors; its behaviour under glass may be different, but such a bad habit should be stopped if possible. Being somewhat tender, it would not be safe to plant it in a very shady place, and one is almost reduced to the expedient of letting it grow in company with something close to supply some green when it comes into bloom. With cut Roses a very good substitute for foliage is a point or two off the tips of common Beech boughs, and a few sprays of Copper Beech added make a very good and ready imitation of the young growth. Often one does not like to cut much of the green from Roses in pots, and many of the Teas, which flower in clusters when not disbudded, can be made use of for wearing, picked off singly as they open.

**Aristolochia Siphon** (p. 596) one hears of occasionally and sees but rarely, considering how often it deserves to be planted. Its great green leaves, lapping one over the other, look as if they were intended on purpose to keep a wall cool in hot weather. On the fronts of the houses along some parts of the banks of the Thames and on the islands it may be met with in

great luxuriance, and most of the strangers who pass by are struck with the beauty of what is to them in many cases quite a novelty. How many "villa residences" with bare walls are there not that would be the more enjoyable for a covering of it; and, as it is a quick grower, would it not be planted much more if it were more popularly known? I doubt if there are many of the nurserymen who have it in stock; probably one-half, if shown a leaf, could not tell you what it was. I believe it grows pretty readily from seed when that can be obtained fresh. For a boat-house, cottage, &c., usually visited only during the summer, *Aristolochia Siphon* may be confidently recommended.

**Labels** (p. 2).—Having "half-pinned" my faith to zinc labels, I was somewhat disconcerted the other day to find that in the case of some which I had used last December to mark some bulbs then planted where the labels had been pressed too far into the ground, the [reading] (as a schoolboy would say) where in contact with the soil had become so much corroded as to be rendered illegible. This was in Ireland, but whether the effect of the peat or of the sea air I cannot say. The crook in Col. Stuart-Wortley's pattern would perhaps obviate this, for otherwise they seem in most cases to answer well. I have found the common zinc labels such as are sold for fruit trees most useful for marking wine in cellars where the vintage, price, quantity, or any small particulars of its family history are thought worthy of being recorded. The best pen for writing with the acid seems to be a bit of bamboo or cane sharpened to a point without nibs; being harder than ordinary wood, it does not get soft or thick in using, and for the same reason is not so liable to make blots from taking up too much "ink" at a time. C. R. S. D.

*Sussex.*

#### NOTES OF THE WEEK.

**The Colchic Lily.**—I send you two blooms of *Lilium Scavitzianum* from a single-stem which carries forty-two more blooms. It is circular near the ground, but flattened towards the top. The Dalmatian Martagon Lily has a stem 7 feet 6 inches high, with more than forty blooms on it. There is nothing abnormal about this stem, but I had no idea it would reach such a height. The bulb has been planted two years.—A. C. BARTHOLOMEW, *Park House, Reading*.

**Iceland Poppies.**—Among a collection of varieties of *Papaver nudicaule* from Mr. Ware there is one that we do not remember having seen before. The colour is a pale straw tint inclined to buff. It is a sort of connecting link between the white and orange-scarlet sorts, all of which have been sent from the Tottenham Nursery.

**Milla biflora.**—This Mexican bulb is now in flower, and we think it one of the loveliest plants that has been sent to us for a long time. The large, wax white blooms, so wax-like in texture and so fragrant, are quite out of the ordinary run of flowers. Mr. Ware, who is highly successful in importing and growing it, has sent us several fine flower-stems of it.

**Spiraea hypericifolia.**—Of this lovely *Spiraea*, perhaps the finest of the group of species to which it belongs, Mr. Stevens sends us some flowering branches. These are long, slender, and gracefully arched. Along the upper parts the tiny white flowers are arranged in dense clusters set on stalks about 4 inches in length. There are several forms of this species, the best, so far as we know being that called *flagelliformis*, which is the one Mr. Stevens sends.

**Seedling Begonias.**—A gathering of seedling tuberous *Begonias* from Messrs. Forgeot & Co., of Paris, shows that our neighbours are not behind ourselves in the production of improved new varieties of these showy flowers. Some of the sorts sent are erect-flowered, and these belong to a race which we think ought to be improved. A large double salmon-pink kind, called *Clémence Denizard*, we thought very fine.

**Iris juncea.**—A lovelier Iris than this could not be; it has flowers as large as those of the common waterside Flag and of the same rich, clear yellow colour. It grows only about a foot high and has slender stems and leaves, several flowers being produced on each stem. The New Plant and Bulb Company, Colchester, send us numerous gatherings of



flowers of it, together with the handsome *Iris ochroleuca*, also known as *I. gigantea*.

**The Forestry Question.**—On the motion of Sir John Lubbock, the following were nominated to serve on the Select Committee on Forestry: Mr. William Corbet, Dr. Farquharson, Mr. Fremantle, Mr. William Henry Gladstone, Sir George Macpherson Grant, Sir John Kennaway, Sir Edmund Lechmere, Sir John Lubbock, Dr. Lyons, Sir Herbert Maxwell, Colonel Nolan, Mr. Parnell, Mr. Plunket, Mr. Portman, Mr. Round, Mr. Seely, jun., Mr. Moore Stevens, Mr. Villiers Stuart, and Mr. Northcote.

**Gladioli from Guernsey.** Among a fine collection of early flowering sorts of Gladiolus sent to us by Messrs. Hubert & Manger from their Hoyle-road Nursery, Guernsey, the finest was *Ardens*, a splendid deep cardinal-crimson blotched with white. It is the brightest of all, though larger both in flower and spike was another called *Insignis*, of a vivid crimson without spots. Among the paler coloured kinds were some extremely delicate in tint, while the purest was *The Bride* and the pure white form of *G. Colvillei*.

**Periploca græca.**—This really handsome climber is now in full blossom in the south of England. Its peculiar purple flowers, the petals of which are tipped with green, are stellate in form and very interesting. It is a vigorous grower, but deciduous, and therefore only adapted for covering walls in summer. A plant of it which I saw during the week was some 20 feet in height, and festooned some first floor windows in a most graceful manner. A rich loam mixed with leaf mould seems to be the best kind of soil for this useful climber.—C. D.

**Californian Lilies.**—A series of the finest Californian Lilies come to us from the Tottenham Nursery, where they are grown to perfection in shady peat beds. The kinds include several forms of the Panther Lily (*L. pardalinum*), the best of which are *Bourgei*, with the sepals half covered with deep red; *californicum*, one of the finest of all the forms; and *pallidifolium*, with paler flowers profusely spotted. There are also varieties of *L. canadense* and a new form of *L. columbianum*, later flowering and more robust in growth than the original. It has, moreover, smaller and deeper green leaves.

**Lilium candidum speciosum.**—Mr. Ware sends us a spike of this variety which he considers superior in many respects to the ordinary form. It is not so tall in growth; its flowers are smaller and more numerous, there being some thirteen flowers and buds on the spike sent. Mr. Ware also sends specimens of other beautiful Lilies, such as *L. concolor* and *Coridion*, both with pretty small scarlet flowers; *L. elegans Wilsoni*, deep red; *Van Houtte*, deep blood-red; and *L. testaceum*, the delicate buff-coloured variety, now so beautiful in many gardens.

**Iris Kämpferi.**—This most beautiful Japanese Iris is now blooming grandly at Oakwood; its great size and many varieties of colouring make it I think the most beautiful of its family. In one of Mr. Barr's catalogues is a request that I would state our mode of culture. Perhaps, therefore, you will allow me to say that given loam in a moist place this Iris grows well and flowers freely. A great authority considers damp in winter injurious; another good authority says that though this may be the case in cold districts it is not so in warmer ones. Our experience agrees with the last; we, however, have never had the plants exposed to the very severe frosts of old days. Our seedlings are coming into bloom, and I hope to have the banks and margins of our ponds clothed with these Irises in place of Sedges.—GEORGE F. WILSON, *Uxbridge, Weybridge*.

**Calochorti.**—A beautiful gathering of these delicate Californian bulbs has been sent to us by the New Plant and Bulb Company, Colchester, who seem to be particularly successful in their culture in the open air. There are nine distinct kinds. Of the true *Calochorti* with broad, open flowers, as represented by *venustus*, there are of this species the varieties *roseus*, *oculatus*, and *citrinus*, while of the same section there are *C. luteus* and the new *Gunni-*

*soni*, a large, handsome, yellow-flowered species, and *splendens*, lilac. Of the *Cyclobothra* or globose flowered section there are *pulchellus*, the handsomest and hardest of all, the flowers being of a rich clear yellow, and *C. albus grandiflorus*, a large-flowered form of the common *Cyclobothra alba*. The large-flowered form has tall branching spikes beset with several large white flowers. We should like to know the conditions under which these fine specimens have been grown.

## TREES AND SHRUBS.

### GOOD WEeping TREES.

AMONGST weeping trees are some of the most charming examples of ornamental trees. Graceful in outline and growth, they possess all those characteristics which render them especially valuable for the embellishment of landscape, park, or lawn. This peculiarity of form among weeping trees is a precious one, inasmuch as the contrast between the rigid upper portion of the tree and the pendulous outer and lower parts forms a very striking and attractive feature, quite distinct from the aspects usually presented by other trees. But for all this they require to be employed discreetly, or the good effect which they are capable of producing is destroyed. They should be planted sparingly and not near one another, and carefully selected and suitable sites must be chosen for them, or half their charms will be lost; when met at every turn or too often repeated their interest and attraction are greatly diminished. They should never form large groups or masses, nor be mixed up with other trees in belts or borders. In the hands of a skilful planter they are capable of producing the most charming results, and are more effective in giving character and expression to a landscape than any other trees.

Some of the weeping trees, however, with which we are familiar are truly formal and avowedly artificial, and should be sparingly introduced—in some instances not at all, and nothing but a vitiated taste would sanction their use in well-kept places. The main fault with most of these trees is that the branches all droop from a given point, and only one; whereas, in such trees as the old Weeping Willow the falling tresses of spray are broken and diversified, like water in a mountain cascade. Their only position seems to be in association with architectural terraces, statuary, fountains, &c., for a tree with its branches all growing downwards is just about as natural as jets of water thrown upwards.

The following are some of the best trees of a weeping habit of growth that are now available for ornamental planting:—

**THE WEeping BIRCH** is admirably adapted for lawns. Owing to the slenderness of its branches, which in the original plant were so weak as to creep along the surface, great difficulty was experienced in propagating it. To the graceful elegance peculiar to the Birch family it adds the odd singular erratic habit of the Weeping Beech. It has long, slender, thread-like branchlets, which fall from the main branches like spray. Grafted upon stems 6 feet to 7 feet high, it can be grown into a rounded, regular

head, like the Kilmarnock Willow, or, left to itself, it will send up a leading shoot with side-branches like the cut-leaved, only more spreading. In this tree we have gracefulness and picturesqueness combined.

**THE WEeping WHITE BIRCH** (*Betula alba pendula elegans*) is another charming variety, which originated with the Messrs. Bonamy, at Toulouse, France. Its habit of growth is graceful. Grafted on stems 6 feet to 8 feet high, the branches grow directly downwards, parallel with the stem. Its decidedly pendulous habit, rich, handsome, delicately foliated branches render it particularly showy and attractive on the lawn. Among ornamental trees of recent introduction, this and Young's Weeping may be considered the most valuable acquisitions of many years. In the old variety of Weeping Birch, the branches fall with so perceptible a curve as to give a rounded appearance to the upper part of the tree; but in this new Weeping Birch each branch hangs down almost perpendicular, forming an acute angle with the trunk. This peculiarity gives to the tree a veritable weeping aspect, which is enhanced by the flexibility of its swaying limbs and the varied tints of its foliage.

**THE KILMARNOCK WEeping WILLOW** is so well known as to need no description, being one of the most popular and widely disseminated of weeping trees. It was discovered growing wild in a sequestered corner of Monkwood estate, near Ayr, in Scotland. The name, Kilmarnock Weeping Willow, was given to distinguish it from the common Weeping Willow and the American Weeping Willow. Of all weeping trees it is one of the best, particularly for small lawns. Very handsome plants may be obtained, grafted on stems from 6 feet to 8 feet high, for training into umbrella heads. Grafted low, say 3 feet or 4 feet high, with the head nicely kept and the branches trailing on the ground, it becomes a novel and interesting object on the lawn.

**THE AMERICAN FOUNTAIN WILLOW** is a well-known pendulous variety, which forms a very handsome specimen when budded standard high. While it can be trained in umbrella form like the Kilmarnock Willow, it is a much stronger grower, and requires more space. On account of its vigorous growth it is much more difficult to keep in shape than the Kilmarnock, and, all things considered, hardly equal to that variety for ornamental planting. It is a trailing species of American Willow grafted standard high, and was introduced from France about 1852.

**THE WEeping WILLOW** is *Salix babylonica*, with which everyone is familiar, and which is so well adapted for choice positions in gardens, cemeteries, or water margins. It is invariably grown from cuttings. *S. babylonica annularis* or *crispa* is generally known as the Ringlet-leaved Willow, and is one of the most picturesque objects to be found in our gardens. It thrives best near water, where it attains the dimensions of a small tree with drooping branches, not, however, like those of ordinary Weeping Willows, but more after the style of those of a little Lime tree. There are some fine specimens of the Ringlet-leaved Willow in the arboretum at Syon House. *S. fuscata* is an American Willow which has more of a creeping than erect-growing character; it has been lately tried worked as a weeper, being grafted from 4 feet to 6 feet high. The effect has been excellent; thus circumstanced it thrives admirably, grows strongly, weeps gracefully, and in spring is one of the most showy and free-flowering of Willows.

**THE WEeping BEECH** is undoubtedly one of the most remarkable of drooping trees. Its habit of growth is somewhat odd, but at the same time picturesque and beautiful. In a young state it is perhaps less attractive than other weeping trees, and it is too often grafted on a short stem, on which its true pendent habit is not seen to the best advantage, but when worked on a tall clean stem and has attained mature age, a Weeping Beech is an object of great beauty, particularly so when in suitable positions and associated with trees of a light, airy habit, such as the Birch and Willow. A Weeping Beech is one of the most persistent of weepers;



its branches and even spray hang vertically one over the other in massive flakes or layers, giving it a distinct and singular appearance; and whether viewed in spring, when clothed with luxuriant pale green foliage, or in autumn, when it has assumed a warm brown colour, it forms a noble and picturesque object in the landscape. It is, perhaps, seen to the best advantage when planted on the verge of a stream, pond, or lake; but on a steep, sloping bank in pleasure grounds, where ample room is given it, or on a rocky eminence in a wild ornamental wood, it forms a telling feature of great interest. One of the noblest specimens exists in Mr. Anthony Waterer's nurseries, at Woking, where there is also a new Weeping Copper Beech, which will eventually prove one of the most valuable of ornamental trees.

THE WEEPING ASH is a well-known weeping tree of vigorous habit, its branches spreading, at first horizontally, but gradually drooping towards the ground. Its strong, stiff growth does not render it as graceful and ornamental as many of the trees of this class, but planted singly on a large lawn it forms an interesting object. It is one of the best trees for forming an arbour. *Fraxinus excelsior aurea pendula* is a variety of the preceding, but scarcely quite so strong-growing, and it is characterised by the yellowish bark of the young branches, which gives the tree a peculiar appearance. *F. lenticifolia pendula* is a pendulous variety of the *Lentiscus-leaved Ash*, and forms a fine ornament in a sheltered situation. It requires to be grafted some 6 feet in height, in order to show off its true character to advantage, as its branches are very slender and Willow-like compared with those of *F. excelsior*. They are, however, produced in great abundance, this variety of Ash making an excellent pendulous umbrella-headed tree.

THE WHITE-LEAVED WEEPING LINDEN (*Tilia argentea pendula*) is a handsome drooping variety with large, round leaves, of a greyish green colour above and silvery grey beneath. Worked upon stocks standard high, the branches shoot out almost horizontally, and as they increase in length bend gracefully towards the ground, giving to the tree a decidedly pendulous character. Being a strong grower, it requires to be vigorously pruned to keep it in shape. In this way it can be trained into a round symmetrical head, and will always be found a desirable addition to any collection, on account of its distinct silvery foliage, which contrasts effectively with the deep green of other trees.

OF WEEPING ELMS there are several which deserve attention. The American Elm is one of the most noble and stately of weeping trees. It is so well known, that any notice of it here would be superfluous, but it may be proper to remark that it is not admissible on small lawns. The most popular of Weeping Elms is the Camperdown, a very picturesque and elegant tree, which can be employed with the most satisfactory results in extensive grounds as well as in small garden plots. It is of rank growth, the shoots often making a zigzag growth outward and downward of several feet in a single season. The leaves are large, dark green, and glossy, and cover the tree with a luxuriant mass of verdure. By a judicious use of the knife it can be kept very

regular and symmetrical in form, and a handsome specimen isolated on the lawn will always arrest attention and elicit admiration. The Scotch Weeping Elm (*montana pendula*) is a drooping variety, resembling the Camperdown, but not so good. The rough-leaved Weeping Elm (*rugosa pendula*) is a pendulous variety with large, rough leaves, and *Ulmus viminalis* is a distinct slender-branched variety, very ornamental in habit and foliage.

THE WEEPING MOUNTAIN ASH has probably received as much attention as any weeping tree, on account of its distinct and curious habit. A careful examination of its mode of growth cannot fail to excite wonder. If worked 2 feet or 3 feet from the ground and allowed to grow wild, it soon becomes as odd a piece of framework as it is possible to imagine. Grafted 6 feet to 8 feet high, it becomes a very desirable lawn tree, and in the autumn, laden with large clusters of bright red fruit, it produces a brilliant effect.



The Weeping Sophora.

THE WEEPING POPLAR (*Populus grandidentata pendula*), although not so elegant and graceful as some of the drooping trees we have mentioned, has many desirable qualities which commend it to the admirers of fine trees. Its character is decidedly pendulous, and its branches spread and droop gracefully towards the ground. But the knife must be used unsparingly to preserve the symmetry. It is the most rapid grower of any in this class, and those who desire a weeper which will produce immediate effect will find their wants amply requited by planting this tree. The Black-barked Weeping Poplar and the Parasol de St. Julien are almost similar to the above.

POPULUS CANESCENS PENDULA, a variety of the White Poplar, forms a beautiful and graceful object, which, at a distance, resembles a Weeping Birch. It is grafted pretty high on the Lombardy Poplar, and prefers a rich and moderately moist soil to one dry and poor. *P. tremula pendula*, a weeping variety of the Aspen, is a desirable and graceful tree for planting near water, but its roots must only be in a moderately moist medium, as continuous saturation would soon kill them.

WEeping HONEY LOCUST (*Gleditsia triacanthos pendula*) is a most remarkable and beautiful tree. It has every characteristic of habit and foliage to recommend it, but in severe winters it is liable to injury from frost. Its propagation is somewhat difficult, which will always make it expensive and rare. Those who love and admire fine trees sufficiently to give them the necessary protection will feel themselves amply repaid for any trouble or expense they may incur in securing a specimen and giving it the protection it requires.

THE WEEPING JAPAN SOPHORA (*Sophora japonica pendula*), one of the most beautiful trees, loves a warm free loam and all the sun it can get with us, and it does not fear drought. It is a capital tree for a lawn, and being of comparatively small size, it is well suited for planting in the neighbourhood of dwellings. Its branches curve gently and gracefully to the ground, like those of a Weeping Ash, but

much closer and thicker, and when fully clothed with leaves nearly rain-proof. As an arbour, therefore, or covering for a rustic seat, few weeping trees are better fitted. It is usually budded on seedlings of the common Sophora about 6 feet or 8 feet high, an elevation from which the branches hang down like those of an Ash, and on reaching the ground their points spread out or turn up. If grafted or budded close to the ground they send forth shoots like trailers, but, unless for banks and rockeries, this habit of growth is undesirable. Loudon speaks of this variety as follows: "The pendulous variety is well deserving of culture as an object of singularity and beauty; and where it is desired to cover a surface with intense green foliage during summer—for example, a dry hillock—a plant of this variety placed on the centre will accomplish the purpose effectually. When grafted on the common form at a height of 8 feet or 10 feet or more, the branches fall gracefully on all sides of the stock, and form what one might designate as a leafy cascade of darkest green. I have been unable to trace the history or origin of this variety. Considering its peculiar aspects

and good qualities, perfect hardiness, and vigorous growth, it seems strange so charming a tree should not be more frequently planted." Our illustration shows a small specimen of the Weeping Sophora as a shade tree on a rocky lawn.

WEeping WALNUT (*Juglans regia pendula*), which forms an extremely handsome tree of vigorous growth, the slender branches growing about 6 feet in length in a season, is quite as fertile as the ordinary kind, and so combines usefulness with ornament. A similar remark is applicable to the

WEeping FILBERT (*Corylus Avellana pendula*), whose long, slender, and drooping branches form a fine ornament for lawns and shrubberies, or even for the kitchen garden, for its habit of growth in no degree detracts from its productiveness.

THE WEEPING HOLLY (*Ilex Aquifolium pendula*) has a truly pendulous character, and is a robust grower, and makes a fine tree for an arbour when grafted about 6 feet high. There is also a beautiful variegated-leaved form of it, and both grow freely when grafted on seedlings of the common Holly.



**PLANERA RICHARDI PENDULA.**—This is the weeping variety of the Zelkova tree; it produces glon-pendent, slender branches, which are pretty well clothed with leaves. It is grafted, several feet above the ground, on the erect-growing variety. It forms a handsome ornament either for lawns, pleasure-grounds, or parks.

**THE WEEPING OAK** (*Quercus Robur pendula*) is a truly pendulous variety of our common British Oak; it grows rapidly and forms a conspicuous object in the landscape when grafted on the common *Quercus pedunculata*, on which it does well. It is by no means a common tree.

**THE WEEPING FALSE ACACIA** (*Robinia Pseud-acacia pendula*) possesses great merit as an ornamental tree, as it is of rapid growth; the branches soon droop to the ground, and the characteristic graceful foliage of the Acacia adds greatly to its effectiveness. A golden-leaved form of this also promises to become a useful plant. The Weeping Cherries are all pretty lawn trees, but not sufficiently known to be appreciated.

**THE WEEPING CHINESE CHERRY** (*Cerasus pendula fl. rosea*) is a singularly beautiful small weeping tree, with slender drooping branches clad with delicate rosy flowers.

#### NOTES ON HARDY SHRUBS.

PROBABLY it is to a larger use of flowering and foliage shrubs that we may look for some of the best effects in the flower gardens of the future. That thorough success in the cultivation of hardy perennials can be attained without constant care and, in most cases, high culture, is a delusion which must lead to disappointment, and has often produced beds and borders of hardy plants which compare unfavourably enough with even the most hackneyed and formal of bedding-plant arrangements, thus giving as false an idea as it is possible to give of the beauty to be found in hardy-plant gardening. There are plants, such as some of the Irises, Lilies, Daffodils, and hosts of others, which do all the better for being let alone for years (except, perhaps, for an occasional top-dressing) after being supplied at starting with all that they are likely to require. But the garden would be poor indeed from which the hardy plants were excluded which require division and renovation of the soil every year or two.

Carnations, Pinks, Delphiniums, Pansies, and hundreds of the best hardy plants must have this constant care to do them justice, and probably everyone who grows them successfully will grant that they are well worth it. It is work full of satisfaction as compared to the constant doing and undoing of the old bedding system, when each season's work wound up with deaths by thousands and tens of thousands, as tender plants succumbed to the first hard autumn frost. With hardy plants winter is but a rest, full of promise for next year's beauty. But to carry out this kind of gardening more should not be attempted in each garden than can be kept well in hand, as it were, whether it be on a large or small scale, for plants requiring high culture bitterly resent neglect; and as in most country gardens there is far more available space than is required for this somewhat troublesome herbaceous plant culture, there are endless possibilities of permanent beauty to be found in the culture of hardy shrubs. Once thoroughly well treated to begin with, they take care of themselves with but little further attention beyond thinning out where there is any fear of overcrowding. If grown in groups and single specimens as well as in borders, their distinctive beauties will be all the better shown. But few kinds can be fairly judged till they have become well established. Two or three years at least should be allowed before condemning any shrub, especially a flowering shrub the habit of which is not previously well known to the grower.

I enclose a few specimens of flowering shrubs now in blossom which are worth growing, either for their beauty or for their botanical interest. Amongst the latter may be reckoned the quaint flowers of *Grevillea rosmarinifolia*, which has been in blossom out of doors for many months; also of *Hakea microcarpa* and *Colletia spinosa*, which had but few blossoms till this year. *Eurybia Gunnii* is covered as thickly

with its snow-white flowers as any plant could well be. Amongst Cistuses, few are prettier than *C. formosus*, of which a coloured plate was given in THE GARDEN last year. *Teucrium fruticans* is effective from its very silvery foliage, and, as a dwarf shrub, *Rhododendron myrtifolium* is one of the best of the "Alpine Rose" section. The leathery-leaved *Raphiolepis ovata* had not flowered here before, and, till this year, *Veronica ligustrifolia* seemed to be a kind not worth growing. *Veronica Haasti* was given to us by its introducer, the late Mr. Anderson-Henry; but *V. Colensoi*, which we got from the Edinburgh Botanic Gardens, seems to be much the same both in habit and flower, and is probably merely a synonym. *V. Girdwoodiana* is also inclosed. All these Veronicas seem to be quite hardy. *Swammerdamia antennaria* is hardly worth growing, though possibly if it blossomed in great profusion it might be effective. The old Apple Rose, *R. pomifera*, if allowed to grow into a large shrub, is worth a place in any collection from the beautiful pink colour of its semi-double blossoms. It seems now to be somewhat rare. Many of the more common shrubs, such as double and single Thorns, Genistas, &c., are more effective than some of the inclosed specimens; but greater variety in shrub culture than is usually to be met with would add much to both the beauty and interest of many gardens. C. M. OWEN.

**The variegated Elder.**—This is a very accommodating plant. It will grow in almost any kind of soil or position, and, what surprises me most is, it does not object to the dust in summer of a public highway where the traffic is continuous. I have marked the behaviour of two of these shrubs for the past four years. They are planted on each side of the entrance gate of a villa residence, and form a bower over it, their variegated foliage forming an agreeable contrast with surrounding objects. A useful property belonging to this plant is that it will bear cutting into any form; but what pruning it requires should be done some time before the end of January, as summer pruning would disfigure its appearance.—J. C. C.

**Corylopsis spicata.**—This is a near ally of the Wych Hazels, and, like the Japanese representatives of that class, it flowers very early in the season, before the leaves unfold. It forms a bush 4 feet or 5 feet in height, with long, stalked, heart-shaped leaves of a light green colour, and bears flowers in drooping racemes 2 inches or 3 inches long. Owing to each raceme being composed of several blossoms of a pale yellow colour, with conspicuous red anthers and yellowish green bracts, a well-grown bush of this *Corylopsis*, when studied with blossoms in early spring, is very conspicuous. It was introduced about twenty years ago, but seems to be but little known, though, as far as my experience goes, it is quite hardy.

**Weigela candida.**—This is, I should say, destined to be a very popular Weigela. It is good in habit and vigorous in growth, and the flowers are pure white. *W. hortensis nivea* is an older white-flowered kind, from which *candida* differs in having a more erect and compact habit, in being earlier flowering, and easier to propagate. Cuttings of *candida* strike root as easily as those of any of the Weigelas, which is not the case with *hortensis nivea*. The latter is a native of Japan, but *candida* is, I believe, a seedling of continental origin. Like the rose-coloured kind, this Weigela stands in the front rank amongst spring flowering shrubs. This season it has been unusually floriferous, and is still in bloom.—A.

**Viburnum dahuricum.**—This is a charming hardy shrub, which in May and June is covered with numerous umbels of beautiful white flowers. It is a plant, too, which is easily multiplied by means of cuttings made of tolerably firm wood, and inserted in peat soil under a cloche or hand-glass, or the young soft shoots may be taken off early in the season and struck indoors. As soon as they are rooted they should be repotted; and when they have become established, they may be placed outside in some shady spot, taking care to plunge

the pots; young plants thus raised will be sufficiently hard and woody to be wintered outside without shelter. This *Viburnum* is not particular as to soil, but those that are light and damp and rich in organic matter suit it best. It forms a somewhat spreading bush, from 6 feet to 8 feet high, and has grey downy branches. The berries are oval-oblong, five-seeded, at first red, but when fully ripe in September black and somewhat sweet scented. It is a native of the Dahurian Mountains, and was introduced as long ago as 1785.

**Spiræa Douglasi.**—This handsome shrub, which is now in flower, is also called *S. tomentosa*. It forms a somewhat erect bush, from 3 feet to 4 feet high, which flowers more or less from July to October, but is in greatest perfection in July and August. It is a native of Canada (on mountains) and of the north-west coast of America about the Columbia, and was first introduced in 1814. This handsome shrub thrives best in a light rich soil and fully exposed situation, and deserves a place in every collection. The leaves are of various shapes, some being ovate or elliptic, and unequally or coarsely serrated, while others are oblong-lanceolate, nearly entire, or with only a few serratures towards the apex, but all are furnished with very short tomentum and light green on the upper surface, while the underside is densely coated and quite white in appearance. The flowers are small, deep red, and densely crowded together in compound terminal, oblong, blunt, erect racemes or panicles, with the stamens twice the length of the corolla. The racemes and young shoots are coated with a short dense tomentum of a reddish brown colour; the lobes of the calyx are triangular and deflexed, with the carpels spreading in different directions.—G.

## FLOWER GARDEN.

### THE LOST HELLEBORE.

(H. LIVIDUS.)

THE discussion which was commenced in THE GARDEN January 31 (p. 82), and continued by Mr. Archer-Hind in several subsequent numbers, has proved interesting to a large circle of botanists, and although it has not yet been concluded by the re-discovery of the lost Hellebore, has led to some practical results already. A brief summary may therefore be of interest at this time, when tourists are about to visit the shores of the Mediterranean, and when the Hellebores are in leaf.

1. The Corsican Hellebore is no longer to be called *lividus*, as it has been most clearly proved that it never was entitled to that name. By Mr. Baker's decree it is in future to be called *H. trifolius* (*argutifolius* and *corsicus*).

The only plate of this interesting Hellebore with which I am acquainted is in the *Botanical Register* for 1838 (vol. xlv., pl. 54), where it is beautifully figured under the names *H. lividus* and *argutifolius*. This is the well-known Corsican plant now common in our gardens, but it bears a very slight resemblance indeed to the *H. lividus* of the *Botanical Magazine* (pl. 72) and to Sweet's *H. lividus* (vol. v., pl. 190). It had been introduced to the English botanists many years later, and its three-lobed leaf was the only peculiarity in which it agreed with the true *lividus*. The name became affixed to it in error, without sufficient investigation. All this has been fully set forth in your columns during this discussion, and the fact is admitted. In future, therefore, the plate in Edwards' *Botanical Register* will be taken to represent *H. trifolius*, and not *H. lividus*.

2. It has further been established, as an undoubted fact, that there was in existence at that time in English gardens the *H. lividus* as figured by Curtis and Sweet, and described by Aiton and Don, and that it was a beautiful garden plant.

It forms the subject of the last plate in vol. ii. *Botanical Magazine*, published in 1788, and it is now believed that the very specimen from which the illustration was drawn is in the Kew herbarium. It was again figured by Sweet in 1833, forty-five years later (vol. v., pl. 190), in a very beautiful plate, which shows it to have been a very handsome garden



Hellebore. The lower leaves were three-lobed, like the Corsican variety, but much smaller, and the flowers green, but tinged with purple at the backs of the sepals, and their margins purple-tinged in the insides. The centre was also nearly white and the veining was clearly defined in greenish white. There are very few prettier Hellebores in cultivation now, judging by this illustration. The description here is by D. Don, and the subject was from a plant grown in the Chelsea Botanic Gardens, where it had flowered "in February last." Don describes it as a very old inhabitant in our gardens, and he says he was led to suspect that the plant might be of hybrid origin, but the discovery of its native country, which had remained long unknown, had dispelled these conjectures, and fully established its claim to specific distinction, *being perhaps the most remarkable of the whole genus*. He then adds, "It now turns out to be a native of Corsica, where it was found by Labillardiere."

In this sentence I think we have a clue to the way in which the name *lividus* became transferred to the Corsican Hellebore thus newly discovered, and which probably Don had not yet seen. Five years later it was figured in the *Botanical Register*, and under the name *H. lividus*.

3. There are in the Kew herbarium three examples of the true *H. lividus*—one in the Forsyth herbarium and two in that of Bishop Goodenough, after whom the genus *Goodenia* was named. Mr. Baker, who gave me this information, says he was a well-known botanist and the author of a monograph on the British Carices. Late in life he was made Bishop of Carlisle and his herbarium was presented by the Corporation of Carlisle to Kew. Neither of these specimens of *H. lividus* has any wild station assigned to it. Mr. Baker thinks that a large proportion of his specimens were from English gardens, between 1780 and 1790. For many years he lived at Ealing and was intimate with Aiton, so that in all probability they were obtained in that locality, probably through the help of Aiton.

On comparing these specimens with the drawings in Curtis and Sweet, they prove to be the very plants that form the subject of those illustrations, and they are altogether different from the Corsican Hellebore. It will thus be seen that for fifty years at least *H. lividus* was a well-known plant in English gardens, and there can be no doubt at all about its appearance and identity.

4. We, therefore, come again to the query, Can the plant be refound? It has long been an intricate botanical puzzle, and now we have it clearly before us and know exactly what to look for, and it is also clear that it has become lost through the mistake in transposing its name to a new comer.

Forsyth's specimen at Kew was from the neighbourhood of Nice. I therefore asked Messrs. Froebel if they could help to find it again through their botanical collectors. They replied that there could not be any unknown Hellebore in Europe, the whole family was so well known to European botanists. I take leave to differ, and I hope that some of your readers in the Riviera will look for the plant in that locality.

Mr. Baker suggested that it might be a variety of the Corsican Hellebore. I therefore corresponded with Miss Campbell, of Ajaccio, an accomplished botanist, who kindly had careful search made, but without success, no varieties being found of that Hellebore. Hearing that the eminent Danish botanist, Dr. Petit, of Copenhagen, had been on a botanical tour in Corsica, I wrote to him on the subject, and received an exceedingly interesting letter in reply, from which a few quotations may be useful to your readers. He says: "I don't doubt that you must have seen specimens of the Corsican Hellebore, and therefore are aware of the fact that the plant has nothing to do with tab. 72 of Curtis, and has no likeness whatever to any other of the genus. I found the plant as a very common and very characteristic landscape feature of the district, in the region of the Chestnut, 1000 feet to 3300 feet above the sea, in Corsica; in Sardinia it is more rare. It forms a vigorous bush, 2 feet to 3 feet, sometimes 3 feet to 4 feet high, with leathern, evergreen, pointed leaves starting to all sides, and with large clusters of from ten to twenty flowers, which I never observed otherwise than wholly greenish (no whitish centres, no

purple tints on the edges, only on the bridges a little reddish tint). Exceptionally, I gathered one already flowering the first week in November, but the end of January is the common time when it begins to flower. In my opinion, the name *H. lividus* must be abolished if the original plant of Curtis is not to be found." Dr. Petit was also of opinion that *H. corsicus* was not to be found at Nice, or anywhere on the Continent, and that he doubted if any variety of it would be found to exist.

A few weeks ago I was told that the lost *H. lividus* was found, and was growing in Mr. Maw's rich garden at Benthall Hall. Of course I at once addressed myself to Mr. Maw, who replied that he had *H. lividus*, collected by himself in Corsica nine years ago. He kindly sent me leaves of his plant, but they proved to be the new, and not the old *lividus*, and perhaps Mr. Maw will re-name his plant *H. trifolius* if he agrees with the above conclusions.

I hope, therefore, that your botanical readers who may be visiting the shores of the Mediterranean will try to solve this puzzle by finding the lost Hellebore. The plants will now be wearing the new foliage, and a three-lobed leaf will always be noticeable.

Mr. Baker thinks it most probable that it may be found in the Balearic Islands. It is a curious problem, and its solution will be watched for with much interest.

Wm. BROCKBANK.  
Brockhurst, Didsbury.

### SIDALCEA CANDIDA.

THE *Sidalceas* which are now in flower have only within the past few years been heard of



*Sidalcea candida.*

in this country, and even now some of the species are not much known, although the London nurserymen are growing large quantities of two or three of the best species. As far as we are able to determine, there are four distinct species now in gardens, viz., *S. malvæflora*, *S. oregana*, *S. humilis*, and *S. candida*, of which we give a woodcut illustration. They are all of a similar stamp as regards habit of growth and flowering, and all of them seem to be somewhat variable. *S. malvæflora* and *oregana* are botanically considered to be only forms of one species, but, be this as it may, they are distinct enough for garden purposes. Both have

purplish pink flowers, but the flower-spike of *malvæflora* is much denser than that of *oregana*, which is altogether of stouter growth, and has a more branching and somewhat straggling habit. *S. humilis*, as its name implies, is of dwarf growth, the stems being long and trailing. *S. candida* has erect stems varying from 1½ feet to 3 feet high. Its flowers are not so large as those of *S. malvæflora*. They are pure white and are borne abundantly; in fact, it is really a pretty plant, and one which might well be included in a select list of hardy perennials. All of them flower from the end of June till the end of August. The two best are *malvæflora* and *candida*, both of which when well grown make really attractive objects in the hardy plant border. As regards culture, there is but little to say. Their requirements are very moderate; they like a good soil and an open situation, not too dry in summer. The genus is essentially a Californian one, the only outlying member being *S. candida*, which occurs in the Rocky Mountains; but it does not go far enough westward to fall into the Californian flora. There are a few annual species in California, but none appear to be worth introduction.

**Hyacinthus candicans** is sent to our local markets grown in pots ready to come into flower every year about the middle of June, and it appears to sell pretty freely. It is by no means an uninteresting plant in a pot if grown so that the foliage is not drawn, for the flowers begin to open when the stem is about 18 inches above the pot. The fact that they last some time in perfection no doubt makes them more valued.—J. C. C.

**Delphinium sports.**—I send you a curious sport in *Delphinium*. The plant is from French seed of the formosum type, and has a tendency to produce these peculiar double Anemone-shaped flowers. Several others are showing at the present time. *Delphiniums* are coming out well this year, many growing very tall. Belladonna stated in catalogues to grow 2½ feet high is 7 feet here and furnished with about thirty spikes of bloom.—J. T.

\* \* A singular occurrence resembling that often seen in Foxgloves at this season. Several flowers appear to be fused together on the tops of the spikes.—Ed.

**Double-flowered Potentillas** are certainly rich and varied in colour, but the flowers do not last long compared with the majority of double flowers. It is clear that the plants require a rich and deep soil and plenty of space; in fact, they appear to be suitable for conspicuous positions on large rockeries, as they look best when the growth is allowed to grow without being encumbered with either sticks or ties. Ours are in mixed beds with many other good plants, but too much crowded; we do not, therefore, see them to advantage. They must have a better position another year, for they are much too handsome to be neglected.—J. C. C.

**Poppies.**—It is the time of Poppies, and how supreme is their reign, making each spot to glow with their fiery presence! No blossoms are more radiant than those of oriental Poppies, and when one peeps within, how beautiful are the deep blotches, more happily spoken of as "dark eyes," that lie at the base of each petal, and how lovely the soft anthers that shed their blue-grey powder on the pistil, with its velvet stripes. Grown in a mass, these Poppies are magnificent and so dazzling to the eye, as to need some more restful blossoms by their side. These are found just now in the cool lavender tints of the Dalmatian Irises, that rising up some 4 feet high reach the level of the flaming Poppies, or in the pearl-grey of soft Rosemary branches, against which they can flaunt all their brilliance. These Poppies measure



from 10 inches to 12 inches across, have all green bracts on their flower-stems and from one to three under each blossom. They are easily grown from seed, and vary in tint from orange-scarlet to crimson.—L.

### TREE CARNATIONS.

LOUDON's account of the origin of these is as follows: "Dianthus Caryophyllus var. fruticosus, the shrubby Clove Pink or Tree Carnation, in its wild state is a native of the south of France, of the Alps of Switzerland, and in England it is found on old ruinous walls near towns, particularly on Rochester Castle, on the old walls of Norwich, and on ruins adjoining several other old English towns. It has been cultivated in gardens from time immemorial, and is highly valuable no less for the brilliancy of its colours than from the aromatic fragrance of its flowers. The tree variety is one which has been originated in all probability by training the plant against a wall, and thus keeping it continually in a growing state without permitting it to rest, and afterwards continuing this habit by propagating it by layers or cuttings. The flowers of the Tree Carnation are not so varied and beautiful as those of the common dwarf Carnation, but they are still objects of great beauty, and are universally admired for their symmetry of form, rich colours, and grateful odour. Planted against an east or west wall in calcareous loam and carefully trained, a plant will grow at the rate of a foot a year, and if protected during very severe winters, it will attain a height of from 6 feet to 8 feet. In Scotland, in the neighbourhood of Edinburgh, in Dabroy's nursery, in 1800, a plant against the west wall of a greenhouse covered in five years a space of 8 feet wide and 6 feet high, and flowered beautifully every year."

Hollywood. WALTER SMYTH.

### THE RANUNCULUS.

WHY is this lovely flower not more extensively grown than it is? I know no flower that, for variety of colouring and exquisite shape, can vie with it, and a bed on which I have been looking for the last three weeks from my study window has been a real pleasure, recalling as it does—ah, me!—fifty-five years ago when, as a lad, I was taken by a school-fellow to see some beds of them in his uncle's garden—a memorable visit, for it drew out (I will not say created, for perhaps I derived it from my Huguenot ancestors) my love for flowers. I have grown Ranunculuses throughout a long series of years. When Mr. Lightbody relinquished their growth I bought his collection, which, however, I unfortunately, owing to a mishap almost entirely lost; and I had almost despaired of ever having a good bed again, for I had tried collections from two or three of our English bulb merchants, only to find them composed of semi-double flowers, such as those now called giant French Ranunculuses, showy enough, but not at all satisfying the requirements of an old-fashioned florist like myself. Last autumn, however, brought me, through an unknown friend in the north of England, into correspondence with Messrs. Ant. Roozen, of Haarlem, and from them I obtained a collection of 100 varieties, and it is this collection which has given me so much real pleasure; for, although I have had fine beds of the Scotch varieties, which, perhaps, as regards refinement and delicacy of marking excel the Dutch, yet there is not amongst them the same variety of colour—the dark purples, such as Laxaca, Eil Noir, Condorcet, the olives, such as Jaune en Pompadour, or indeed in the self-coloured flowers as a whole; so that it has more resemblance to the bed I recollect in my boyhood than any that I have ever grown, and has been the admiration of all who have seen it; the varieties are true to name and the roots strong and very floriferous.

But let me reiterate the question: Why are they not more grown than they are? The answer is not far to seek. One is, the supposed difficulty of their culture; that they require care both in planting and lifting is undoubted, but care is required in the case of all florists' flowers. Ranunculuses are not so particular as to soil as many flowers are provided it is not too stiff, but they are very impatient of water stagnating about them. They require, however, care as to the depth

at which they are planted, as in no case ought they to be deeper than an inch and a quarter. My plan is to have a board marked to that depth and bevelled off to the edge; with this the drills are made and the tubers planted in them and covered over. After this they require but little attention, save in watering. I should say I generally plant as near as possible to February 12. If the season is very dry, I give them a watering now and then; old Mr. Lightbody and Mr. Tyso used to insist on the necessity of not watering the foliage, but I do not think that this makes much difference. The other time at which care is needed is in the lifting; if wet weather sets in when the tubers are ripe they are apt to start again, and this is fatal to them; it is better, indeed, to take them up too early than too late.

The second reason is that to which I have already alluded—the supposed difficulty of obtaining them good and true; but this need no longer deter anyone from attempting their growth. If anyone wishes to begin, they cannot do better than place themselves in the hands of Messrs. Ant. Roozen; say how much they wish to spend on them, and ask them to supply them accordingly; and if they follow the simple directions given above, preparing the bed in autumn and allowing it to remain exposed to frost during the winter, I venture to say that they will have a treat, which, unless I am a Dutchman, they will say nothing in their garden has given them more pleasure; and they will, I am quite sure, thank me for urging them to essay their growth. DELTA.

### IRIS SUSIANA.

I CANNOT agree with "S." (p. 568) in thinking that my note respecting this plant (p. 541) was misleading. It was certainly intended to be the reverse. Some had made it appear that this Iris was difficult to grow, or at least required peculiar treatment, an announcement which I thought might deter those who had no glass from attempting its cultivation. I admit that in some parts of the country and in some soils it does not succeed so well as it seems to do in this neighbourhood. I have not, as "S." says, forgotten that last summer was a hot one. As regards the bed to which I alluded, which this season bore upwards of 300 blooms, it has occupied the same spot for very many years—how many I cannot say; its owner is not a young man, and he cannot remember its being planted, but knows that it has flowered more or less freely every season as long as he can remember, and has never had the slightest protection of any kind. Two years ago he took up the plants, which had grown very large, divided them, and replanted them upon the same spot, which he enriched by digging into it some well rotted stable manure. Some seven or eight years since a bed of this plant was formed in the gardens at Culford, near Bury St. Edmunds, and I believe the plants have flowered freely in it every season since, though they never had any protection, nor more baking than other plants get which have the misfortune to be planted in very light soils during hot summers. In the gardens at Hengrave, also near Bury St. Edmunds, in heavier soil and in a damper situation, it also flowers freely and gets no protection. In the gardens of Mr. Powell, Tunbridge Wells, it also blooms freely, and I believe receives no protection of any kind. If I am wrong in making the latter assertion, Mr. Powell, who I believe reads THE GARDEN, will kindly correct me. And, lastly, in my own small town garden the plant has bloomed every season since it was planted, and has never had the slightest protection of any kind. "S." does not say from what part of the country he writes, so that the use of glass and the "baking process" may be necessary in his locality, though not in this part of the eastern counties.

Bury St. Edmunds.

P. GRIEVE.

**Native Orchids.**—I lately received a boxful of these from the neighbourhood of Southampton, where they grow freely and in great variety; their flower-spikes were larger than I have ever before seen them and the colours of the flowers were extremely varied, the markings in many of them being very beautiful. It is surprising that these pretty flowers are not more sought after for naturalising in woodland gardens than they are. There they would

be quite at home. I feel sure that if some one would take these native Orchids in hand and let the public see what floral treasures they are when well grown, they would be amply rewarded.—JAMES GROOM, Gosport.

## GARDEN FLORA.

PLATE 500.

### SAXIFRAGA CÆSIA.\*

To the Aizoon section of old authors most or all of the true crusted Saxifrages belong, from the tall-growing *Saxifraga pyramidalis* and *longifolia* to the small and mossy look-



*Saxifraga Aizoon.*

ing *S. squarrosa*. *S. Aizoon* itself has been most prolific in varieties, probably from the fact of its being in some of its forms the most generally cultivated in gardens of all Saxifrages. All the forms, too, have received names, some having been christened several times, and the consequent confusion is only



*Saxifraga Hosti.*

known to those who have attempted to unravel them. *Cotyledon* has given rise to *pyramidalis*, *nepalensis*, and numerous less significant varieties. *Hosti*, which is the Pyrenean *longifolia*, has also given rise to a few, and there is no doubt whatever that *S. Macnabiana* is a sport or garden form of *S. Hosti*, the latter being the one extreme, *Macnabiana* the other, with *altissima* and others intervening. Then we have *S. lingulata* with its varieties pul-

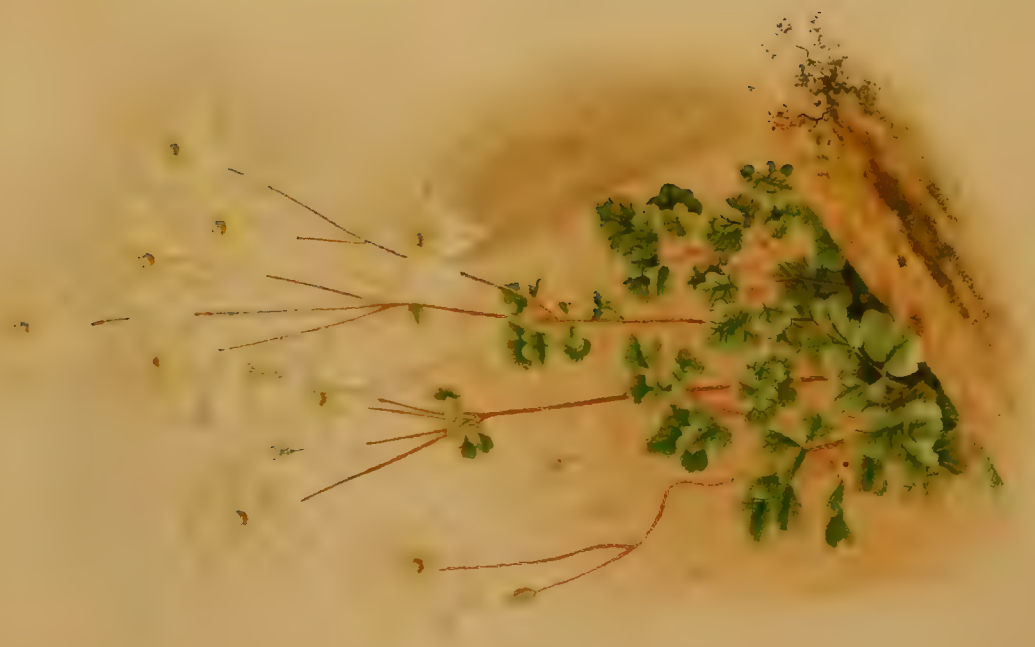
\* Drawn in Messrs. Backhouse's nursery, York, by the late Mr. Noel Humphreys.



ST. JOHN'S WORT



ST. JOHN'S WORT









-chella, cautalonica, lantoskana, and hybrida, all of which are well worth attention. *S. media*, which is also known under the name of *S. calyciflora*, with its rare and beautiful purple flowers, is a veritable gem for the rockery, forming as it does handsome conical tufts of tri-coloured leaves. *S. luteo-purpurea*, or *Lapeyrousi*, a hybrid with citron-coloured flowers, is also a pretty dwarf species. *S. squarrosa* is near to *cæsia* and *Vandelli* is close to *Burseriana* in habit and appearance. *S. valdensis*, typical from Mont Cenis, is a small, very slightly spatulate-leaved lime-crusted plant, very distinct from the one generally cultivated under that name, and which is no doubt a garden hybrid. All those enumerated are comparatively easy to cultivate, the larger ones succeeding even without the aid of a rockery, and the smaller ones may be kept an indefinite time in pots. A very effective mode of culture, which is becoming fashionable not only in the case of *Saxifrages*, but also in that of other plants

the two which flowers earlier than either; they bloom May and June.

*S. CÆSIA*, of which a coloured illustration is given on the accompanying plate, furnishes one among many instances of the similarity which many plants bear to each other when the flowers are removed. Both in its habit of growth, form of leaves, and rosettes, *S. cæsia* comes extremely near to some of the high mountain *Androsaces* on the one hand, and is only a shade removed from a few of the dwarf-growing *Sedums* on the other. With the exception of *Rocheliana* and its variety *coriophylla*, this is perhaps the easiest to establish in the rock garden of the whole section to which it belongs. In fully exposed positions, slightly shaded from the afternoon sun, and where its roots can run coolly along the sides of large stones, this little gem will be found to do well. It requires plenty of water all through the summer season. It should, if possible, be planted on limestone, or, in lieu of that, should have small pieces of lime placed round and underneath the rosettes. It also makes a pretty pot plant, and it is surprising that more is not done with it in that way in cases in which there are no rockeries. An old collector is reported to have said that the sight of these alps in full blow in their native habitats is enough to stimulate one to try their cultivation even on our house-tops. The whole plant is greenish except when grown in plenty of lime, when it attains a



*Saxifraga Burseriana*.

from high mountainous regions, is to grow them on slopes, the angle of which is about 45°. Intermixed with the soil should be plenty of small pieces of limestone, or other suitable material, as experience dictates. Thus situated, however, they require plenty of water in summer, and in winter water is not allowed to stagnate, as it otherwise would do if the plants were grown on the level. Under this plan it is wonderful to see the increase made by them, even in a single year.

*S. ARETIOIDES*.—This is a fine encrusted species, found commonly on the calcareous rocks of the Pyrenees, and one of the easiest of this set to grow in our gardens wedged in between stones in almost perpendicular positions or on gentle slopes surrounded by small pieces of limestone, and even on the flat provided the drainage is good. It gives little or no trouble even in the smoky neighbourhood of London. It forms little tufts or cushions of narrow leaves closely set together in rosette fashion; the leaves, which are sharp-pointed, are often quite glaucous, keeled underneath, and very slightly toothed at the base. The flowers of the type, which are dull yellow, are borne three or more in a head, only rising an inch or so above the leaves. The variety *primulina* has bright shiny primrose-coloured flowers, produced rather more freely than in the type, and altogether a finer plant. There is also a form between

glaucous or silvery tint. The leaves are narrow, oblong in shape, prettily and regularly dotted or pitted along their whole margins. It flowers in large, handsome bunches for the size of the plant, one stem issuing from almost every rosette. Its blossoms are produced in May and June. It is a native of the Alps of Switzerland, Austria, and the Pyrenees, where it is found at high elevations.

*S. DIAPENSIODES*.—This ranks amongst the smallest *Saxifrages* in cultivation. It does extremely well and increases rapidly on the almost perpendicular sides of old brick walls, &c. It should, however, be planted or established on the shady side except plenty of water can be given it all through the summer. It seems closely allied to *S. imbricata*, a dwarf encrusted Himalayan species of singular beauty, and differs from it to all appearance only in the latter having distinct pits at the points of the leaves. *S. diapsioides* forms small glaucous tufts of pretty narrow, erect, silvery or grey leaves. The flowers, which are borne on shortish stalks, are pure white, and large for the size of the plant. It is a native of the Alps of Switzerland and Piedmont, and flowers in April and May.

*S. MARGINATA*, though belonging to the *cæsia* set in a broad sense, differs from it in having the leaves serrated and obtuse, not ligulately spatulate. It is a handsome species, lost to cultivation until re-introduced by Mr. Maw some few years ago from Abruzzi, in Italy, where it grows at elevations of 3500 feet. It is perfectly hardy, thriving well on deep slopes between pieces of limestone, and as it is impatient of damp

in winter, a small piece of square glass placed over it gives the desired effect. It forms rosettes from a quarter to an inch in diameter. Its leaves, which are almost obovate, are blunt, serrated, pitted, and encrusted copiously with limy or calcareous matter. The flower-stalks are about 2 inches in height, and bear an umbellate head of large white flowers about an inch in diameter, recurring two or three days after opening and giving a good effect. It flowers in March and April, and sometimes later.

## WINDFLOWER MEADOW-RUE.

(*THALICTRUM ANEMONOIDES*.)

THOUGH a large genus comprising a considerable number of good botanical species, comparatively few *Thalictrums* can be recommended for cultivation in the garden except as fine-foliaged plants, and even then the number may be limited to two or three. *T. aquilegifolium* and its variety *purpureum* or *purpurascens* are really handsome plants, and worthy of a place in any collection for their beautiful and rich flower-heads, and as they may be grown with ease in almost any soil, there is nothing to prevent their becoming general. *T. flavum*, *rugosum*, *glaucum*, *collinum*, *concinnum*, and *Jacquinianum* are only to be recommended for large collections, and then only used, and that judiciously, to vary the colour of the mixed border. They are increased either by seed, which they ripen freely, or by division of the roots.

THE ALPINE MEADOW-RUE (*Thalictrum alpinum*), though a native of our own country and far from being a plant to be despised, the rarity with which it is to be found in collections of hardy plants is very remarkable. For covering bare spots in almost absolute shade and in the form of a carpet, *T. alpinum* vies with, if not surpasses, most of the plants with which I am acquainted. It grows well in ordinary garden soil, sending its tiny roots out in all directions, even running up the sides of old Moss-grown stones when of a soft porous character. It rarely if ever exceeds 3 inches in height, and produces simple, almost naked, stems furnished with whitish terminal nodding flowers. The leaves, which chiefly rise from the crowns, are often twice parted, but sometimes quite pinnate. They are very dark green and their upper surface shines as if varnished. It is a native of all the colder parts of the globe and flowers from May to July. It is readily increased by division of the roots.

*T. ANEMONOIDES*, which is well represented in the accompanying plate, has earned the popular name of North American Wood Anemone, there taking the place of our own beautiful *A. nemorosa*. It is sometimes called *Anemone thalictroides* and also *Ranunculus nemorosus*. It has the habit and general appearance of an *Isopyrum*, with the flowers of an *Anemone* and the fruit of a *Thalictrum*. Just now, and indeed ever since March, this plant has kept yielding a succession of its truly pretty blossoms; indeed, among all the spring flowers, varied and beautiful as they are, none have elicited more admiration than this Meadow-rue. With us it is perfectly hardy, growing almost like a weed when once properly established. It seems to thrive best in pure peat, although we have had plants of it in pots do well in a mixture of peat and loam in equal parts. Our plan is to embed a large stone in the peat, close to which we place the plant; in this way the roots are kept cool and the moisture more equable—one of the essentials as regards the culture of this as well as of most American plants. In our case it is partly shaded from the afternoon sun, and even at mid-day it does not strike directly on it. The root leaves are twice ternate, having three-toothed leaflets; the flower-stalks range from 6 inches to 9 inches in height, carrying umbels of leaves and flowers together—a charming combination. The variety *multiplex*, the double form, is extremely handsome, and though long an inmate of



our gardens, is by no means common. There is also a one-flowered form, but, being inferior to the type, it should be avoided. It is a native of the woods of North America from Canada to Carolina, and flowers from March to June.

**LESSER MEADOW RUE** (*T. minus*).—This is too well known to require minute description. It is a British plant, found on chalky hilly places or in shelly sand by the seaside—*i.e.*, if not quite exterminated. It looks well on rockwork, and the variety *adianti folium* has well earned the name of Maiden-hair Rue, being a fairly good imitation of the Maiden-hair Fern. In airy places, fully exposed to the mid-day sun, in light rich well-drained soil, it forms nice thick bushy plants, the beauty of the foliage of which makes up for the rusty-coloured ineffective flowers. The variety *pubescens* is also very desirable and useful for front rows in flower borders. It grows rather taller than the first-named variety and has a looser habit. It flowers in June and July.

**T. TUBEROSUM**.—This is a handsome species, suitable alike for rockwork and flower border. It is generally found doing duty for the much rarer *Isopyrum thalictroides*, a name under which it has been received from nurseries. This species is also very easily cultivated, and in a good, free rich compost the flowers are proportionately increased in size and beauty. It is an extremely free flowerer, and well worth a place in even a small collection. It grows about a foot high. Its flowers, which are pure ivory white and about an inch in diameter, are collected into loose corymbose heads; the leaves are on slender stalks, twice tripinnate, rounded, and smooth to the touch. It flowers in the latter end of May and June. It is a native of the Pyrenees, Spain, and other countries.

D. K.

### NEW ZEALAND ROCK LILY.

(*RANUNCULUS LYALLI*.)

"B." IN THE GARDEN, March 14 (p. 212), requests some information regarding the treatment of this New Zealand plant. He states that in England it has been treated as an aquatic, with the result of losing the plants, a circumstance not to be wondered at, as this so-called Lily would not stand such treatment. It will, I have no doubt, stand a large amount of water, and must do so while the snow was melting, but this occurs when it is in active growth, and then only of short duration, as the snow soon melts in the localities where this plant grows; and in those positions it has perfect drainage, the ground generally consisting of broken rock, covered only by a thin coating of black vegetable soil of rather a peaty character made from decayed vegetable matter. Still, it does not appear to be very particular about the kind of soil in which it grows. I have seen it growing in a rather stiff clay soil, but vegetable soil I think suits it best, especially if it grows on the banks of a small stream, where it appears to flourish best, both leaves and flowers being larger and healthier than elsewhere, and it seems to like the full glare of the sun, with neither rock nor bush to shade it. In and around Dunedin, however, one may find it growing in almost every kind of soil, and at the sea level in the open border, where it seems to thrive just as well as on the hills. Messrs. Martin, of the Fairfield Nursery, have grown it for many years in the ordinary open garden border without any selection in the way of soil, their only trouble being to keep the grub of the *Rhizotrogus zealandicus* beetle from eating the roots, for which they have taken a particular liking these few years

back—so much so, that they have had to shift the plants from place to place in order to get them out of the way of the grubs. I think there need be no fear that this Lily will not succeed in England or Scotland, *i.e.*, if hard frosts are not too much for it. Although it grows with us on high ranges where the snow lies the whole winter, it is, I believe, pretty comfortable under the snow and quite secure from frosts, and also pretty dry till the snow begins to melt early in summer, when it will have a good supply of water, after which it rushes into growth, flowers, and ripens its seed before winter, when it is again covered with snow, which is a better protection than we can give it in our lower altitudes.

About Dunedin many plants are lost through being roughly lifted in the growing season and replanted in a half-dead state, thus giving the plant the name of being difficult to grow. The summer season is the only time that excursionists go where it grows, and it is generally lifted when in flower. The wonder, therefore, is not that a few plants die, but that any live. This Lily is getting scarce, except at high elevations; on the lower ground, where it was wont to grow, the sheep have quite destroyed it by trampling on it, a circumstance not unpleasant to the runholder, who has an eye rather for a fine green blade of Grass than for the large and beautiful peltate leaves of this *Ranunculus*. Many are the stories told about the delight experienced by thirsty travellers when they behold the cupful of clear water contained in the leaves of this plant provided for their reception. At the elevation at which this *Ranunculus* grows there must be a good deal of evaporation during a warm day, but this is either returned in the way of rain or mist, the latter rolling down the hillside quite heavily enough to wet any one caught in it; and this, however unpleasant to travellers, is life and refreshment to the *Ranunculus*, replenishing and filling its cups both for its own benefit and that of all who may happen to travel that way.

I have sent many packets of seed of this plant both to England and Scotland, and many of the plants themselves to our late lamented friend, Mr. Isaac Anderson-Henry. I should therefore be glad to learn that someone had succeeded in growing and thoroughly establishing this beautiful plant in England, as that it will become scarce with us, if not lost altogether, is only a matter of time. We have several others of this family that I think would also be welcomed by English cultivators if they were better known, especially *R. Buchananii*, which grows at even higher elevations than *Lyalli*, and is as fine in flower, but not in foliage.—A. C. PURDIE, *Otago University Gardens, Dunedin*.

—As requested in THE GARDEN of March 21 (p. 235) when alluding to my groups of this fine plant—there so beautifully reproduced—I have much pleasure in furnishing some particulars of my treatment. The plants growing in the group photographed

were collected by myself two years ago on Mounts Rolleston and Franklin, two peaks (each about 8000 feet high) near the centre of our Southern Alps. The soil of my garden is naturally a rich black loam, with a very moist subsoil, but is never wet near the surface. It is, in fact, such a soil as suits Lilies and Rhododendrons to perfection without any addition of foreign matter. The bed in which the plants grow is situated on the south or shady side of a boarded wall about 6 feet high, and this is all the shade given them. The soil having been dug over, the thick fleshy root-stocks were simply laid on the surface and over them about 3 inches of leaf mould was placed. No further attention has ever been given them except watering in dry weather and a little weeding. Yet, as stated, the photograph affords proof of the success of the plant with me, and directly refutes the statement of Mr. Mudd in a contemporary some months ago, 'that nobody in the colony could grow the plant.' All that is really necessary is to provide it with a suitable position, a good soil, water in the driest weather, and to avoid the constant meddling adopted by some cultivators, and which is so fatal to the well-being of many hardy plants. I should advise those of your readers who possess this *Ranunculus* to put it out at the base of a rockery or on the shady side of a wall, providing it with a good loamy soil mixed with peat and a few broken rocks embedded in the border.

There is no fear of its being injured by frost, as it grows wild in a region very much colder than any part of England or Scotland, and during winter is usually buried deep in snow and ice. It is most generally found wild on the south or shady side of rocky banks, at 2000 feet to 4000 feet elevation, and grows in all kinds of soils, but luxuriates most in situations where the morainic accumulations are covered by a thin layer of peaty loam (no true peat exists in New Zealand) formed by the decay of many generations of this and similar plants. The main points to be attended to are, therefore, perfect drainage, moisture during summer, a rather moist atmosphere and water during times of drought. If it could be placed among half-buried rocks on the banks of a small stream running down a hill facing the north, I should say it would do well, but it must not be under the shade of trees. In pots this Lily is not a success; its leaves become small and miserable and the flowers few in number, but planted out in a mass it is one of the finest plants with which I am acquainted and the finest known species of its genus, though closely approached in beauty by several other New Zealand species of *Ranunculus*. The plant is deciduous, disappearing entirely in winter, and has a thick, fleshy, tuber-like rootstock, from which the radical leaves rise in spring. These are peltate in form, resembling a big saucer elevated on a stalk. They vary in size from 4 inches or 5 inches to 16 inches in diameter, and have been used as funnels by bushmen on an emergency. The flower-stem stands well



above the leaves, and carries from four to thirty snow-white flowers, which are from 1 inch to 4 inches across, the central one being the largest and opening first. The petioles and peduncles are spotted with purple, and both the radical and cauline leaves are in some varieties edged with pink.

I may add that it appears to me that the difficulties of your cultivators with New Zealand plants arise from mistaken ideas respecting our climate. It appears to be generally assumed that the climate of this colony is warm throughout; whereas the difference between the north and south is very great, the former being almost sub-tropical, whilst the latter is little warmer than England; and in the mountains, which are very extensive, it is very much colder, the thermometer frequently falling below zero at night. It must therefore be understood that New Zealand produces many plants perfectly hardy in England, and also many from the north and the warmer portions of the south that require greenhouse temperature. It only remains to be said that the rainfall in our Alps is from 40 inches to 50 inches, much of it falling in summer, which corresponds fairly well with yours, whilst in Christchurch the rainfall varies from 17 inches to 25 inches, with drying winds in the summer time, rendering the growth of most alpine plants a difficult matter. In spite of these circumstances, however, I have found *Ranunculus Lyalli* to be quite easy to manage, certainly very much easier than any other of our alpine herbaceous plants.

Another very fine *Ranunculus* is *R. Godleyanus*, the golden Lily of the settlers. This is a large glabrous herb, branching very freely, with fine glossy oblong radical leaves from 4 inches to 8 inches long, much in the way of the *Megaseas*, but smoother and thicker than in any of those. The flower-scapes are very numerous and branch freely, the whole plant forming a tuft of glossy leaves mixed with scapes a foot high, bearing large numbers of golden-yellow flowers from 1 inch to 2 inches across. Its natural habitat is like that of *R. Lyalli*.—J. B. A., *Christchurch, New Zealand*.

**Giant Poppies** (p. 507).—Mr. Wilks' statement to the effect that large forms of Poppy do not come true from seed is evidently correct, as in the stock I have raised from seed saved from one plant I find that in nearly all the forms he names some flowers are very large, some are of moderate size, some are rich scarlet, some orange-scarlet, some have blotches at the base of the petals, some have none; and whilst some plants send their blooms up on stalks to a height of 4 feet, others are content to bloom at 2 feet high. Thus from one lot of seed come flowers as varied as they can well be. It is worthy of note that the very biggest blooms came on a plant that had the shortest stems, and was so good in character, that I shall grow seed from that sort alone. I think the kind I grow is bracteatum, because I have seen recently in other gardens a true coloured variety called *orientale*, the flowers of which are large and of an intense crimson hue. With respect to doubling the common field Poppy, I noted at South Kensington last week some very beautiful semi-double forms in Messrs. Paul's collection of hardy flowers called *Broxbourne Poppies*. They seemed to be varieties

of *Papaver Rheas*. If they were so, it is certain that much improvement in that flower has already taken place.—D.

—“D.” will find that in the French *Papaver Rheas* the improvement which he suggests has already been carried out. These Poppies are beautiful biennials of all shades of scarlet and crimson, as well as pink, rose, lavender, blush, and white.—J. D.

## INDOOR GARDEN.

### IMPATIENS SULTANI.

It is not often that a newly introduced plant becomes popular in such a short time as this African Balsam has done. It is only some two or three years ago since it first came to this country accidentally in a consignment of other plants to the Royal Gardens at Kew from the east coast of Africa, and now it is to be found in the most out-



Sultan's Balsam (*Impatiens Sultani*).

of-the-way gardens throughout the country, a good proof of the plant's value. Being a rapid grower and easily propagated, it was soon distributed plentifully, and the fact that no one nursery held the monopoly of it, it was not kept so long from the public as is usually the case when the object is to “work up a stock.” Being now so common, we need not describe it. Our illustration represents a well-grown example of it such as may be obtained from cuttings or seeds in a few months. The chief point in its culture is to treat it liberally. It should not be allowed to become pot-bound, otherwise it loses its lower leaves and has a leggy appearance. It delights in an abundance of heat and moisture, but it may nevertheless be grown with perfect success in a greenhouse, provided the young plants are either struck or raised in close frames. Messrs. Jackson, of Kingston, exhibited plants of this Balsam

last year quite 4 feet through, and profusely laden with brilliant carmine flowers. The new *I. episcopi*, which Mr. Lynch, of the Cambridge Botanic Garden, has been the means of introducing, is very nearly related to *I. Sultani*, although no doubt there is sufficient distinction to justify the specific name. The growth is similar, and so are the flowers, except that the colour instead of being a clear carmine is suffused with lilac-purple. This plant, we feel sure, will prove quite as popular as *Sultani* itself when once it has been seen in perfection. There is also a hybrid variety, presumably between *I. Sultani* and *episcopi*, as the colour of the flowers is exactly intermediate. These African Balsams will most probably be the forerunners of a distinct race of garden Balsams, and we should not be surprised to hear of double sorts and kinds possessing various colours before long.

**Tuberoses.**—Should the bulbs of Tuberoses after potting be kept in the dark, say, for the first six weeks, until roots are formed, as with Hyacinths?—H. G.

\*\*\* It is unnecessary to keep the roots of Tuberoses dark for a time in the way usually followed in the case of Hyacinths and other bulbs. After potting there is no better place in which to place them than on the floor of a house or pit composed of earth, where the slight moisture arising from it obviates the necessity of giving water until roots are formed. If plunged in ashes, they should be in a pit or frame where rain cannot reach them, otherwise if the soil gets much wet before roots are formed they are likely to fail.—T. B.

**Planting out Poinsettias.**—Few winter-flowering plants are more effective than Poinsettias, and the best way to obtain good plants of them is to plant them out. Some think they need the protection of frames or pits in summer, and when grown in these they may show their fiery bracts earlier than when planted out; but the best plants are obtained by the latter system. In June we cut them back to two eyes, and place them in a cold frame until they begin to break. As soon as that happens we plant them out. We have a spare border in the kitchen garden on the south side of a wall, which we devote entirely to our winter-flowering plants, such as *Eupatoriums*, *Solanums*, *Linums*, *Abutilons*, *Libonias*, *Richardias*, *Salvias*, *Bouvardias*, and Poinsettias. In this they are planted, and about the second week in September we begin to lift them. We then pot the Poinsettias in suitable-sized pots, taking care not to injure the roots more than can be helped. We put them in a cool pit or frame, and keep close, well watered, and shaded for about a week. They are then placed in an intermediate house, to which is admitted plenty of air during the daytime, but it is reduced at night, and we damp the house and stage twice a day. In a few weeks they fill their pots with healthy roots, and are benefited by a little feeding with liquid manure. This helps them to expand their bracts and keeps their foliage in healthy condition. Anyone who has not much time to attend to such things during the summer months should plant them out, and good plants will be the result.—H. W. P., *Alderbrook, Surrey*.

### CELOSIAS IN AUTUMN.

**CELOSIAS** are amongst the most showy annuals anyone can cultivate for greenhouse or conservatory decoration. The seed is generally sown early in spring and the plants brought into flower about this time and during the summer months. In my opinion, however, they are not so much wanted now as in autumn and early winter, when flowers are less plentiful. Of what value, for in-



stance, are quantities of Fuchsias, Pelargoniums, and similar plants just now when far more showy and sweet-smelling flowers may be had in profusion in hardy plant borders? We never try to have our conservatory at its best when there is abundance of brilliant flowers in the open air; attention is then given to getting up a good stock to come in when the outside ones have faded, and it is to fill up an important place then that I advocate the culture of late Celosias. They cannot be grown to pass through the winter successfully, but they may be retained in full beauty till near the new year, and about Christmas-time their rich plumes are greatly valued.

Seed sown now germinates freely in any house or frame almost without the aid of fire-heat, and the young plants may be grown on in cold frames. If a pinch of seed is sown in a 6-inch pot, one or two dozen plants are sure to come up, and these should be potted singly as soon as they have formed four or five leaves. They delight in a rich, sandy mixture at all times, and this should be given them from first to last. They require a little shade when newly potted, but after they begin to root afresh, they should be fully exposed to the sun. They should never be allowed to become root-bound, as this causes them to bloom prematurely. Indeed, plants grown under any condition generally show flower before they are any great size, and in the case of those grown for autumn decoration, the flowers should be pinched off as fast as they appear until large plants are formed and in 8-inch or 10-inch pots. It may be September before this stage is reached, and then blooms may be allowed to make their appearance as fast as they like; they will develop satisfactorily in a little heat in October, and will remain good for many weeks afterwards.

Red spider and some other insects often infest them, but a good syringing now and then will keep such pests in check, and if the plants are grown on freely and never allowed to become stunted, they will never be very troublesome. The kinds generally grown are the yellow and red-flowered sorts, and although they vary a good deal in tint,

the red-coloured ones are the most attractive late in the season. CAMBRIAN.

## GARDEN IN THE HOUSE.

### BOUQUET OF WILD FLOWERS.

Now when fields, meadows, and lanes teem with beautiful flowers, there is no need to confine ourselves to gardens for a supply of cut flowers for our vases or for making bou-

A few elegant Grasses from the meadow, combined with a selection, at any season, of flowering branchlets from the shrubbery or common garden border, and a free-handed and tasteful grouping, without crowding, and with a well-balanced proportion of natural foliage, may be made to form a composition, such as a painter might desire to transfer to his canvas, while he assuredly could never wish to dip brush in colour for one of the

expensive bouquets of the "cauliflower" type. Such has long been a favourite theory of the writer in the matter of flower grouping; and the other day he found it gracefully exemplified on the drawing-room table of a friend, by a graceful half-wild bouquet from field and garden, formed with the free grace and uncrowded arrangement which, as nearly as may be, illustrated his views. It is needless to state that a lady's fingers and a lady's taste were the joint authors of the composition. In the arrangement, each flower and Grass of the gathering had been made to find its seemingly proper place, unjostled by its neighbour, and so freely and easily located in its basket-work receptacle, supported on three slender canes of Bamboo, that even its foliage had room to display its graces and modes of growth.

The excessive formality of the present orthodox form of presentation or ball-room bouquets exhibits a kind of close packing in which the delicate graces of flower form are entirely submerged in consequence of this close, even tight, juxtaposition. The end sought in this kind of grouping appears to be a method of packing together (according to price) an abundance of rare, and consequently

expensive, flowers, all of which must be got into the same lump. This system, of course, necessitates the use of such flowers as are more or less rare, and there is, perhaps, no other way of making up a bouquet that shall be fairly worth, in intrinsic value, from five shillings to five guineas. The cut flowers of which the bouquet is composed are probably worth all the money at their respective market prices; and, for certain occasions, bouquets so manufactured may be deemed appropriate, even necessary; but as works-



A bouquet of summer wild flowers. From a photograph by the Rev. H. E. Fox, Durham.

quets. There are numbers of wild flowers in hedgerows that might be gathered and arranged tastefully in vases so as to give variety to the floral decorations of the dinner table, for instance. If garden flowers are used day after day for such purposes, they are apt, through too much familiarity, to lose their charm, but by varying them during spring and summer with wild flowers—such, for example, as wild Roses, Campanulas, Irises, Ox-eye Daisies, and the like—we have always something fresh presented to us.



of art they must be looked upon as utterly valueless, and ought never to be set up as examples of good taste.

#### GARDEN TOPICS.

**Eucharis disease.**—One who grows a large quantity of this plant for decorative purposes tells me that he has little doubt that the cool system of culture is the cause of failure in many instances, if not of the attacks of the mite which has been described as the immediate cause of the leaves going off. He has tried both plans and finds that by growing the weakly plants in a uniform stove temperature throughout the year they recover gradually, growing green and luxuriant, all signs of the "yellows" disappearing. One thing can be said of the warm system of culture—that it is the most rational, considering the habit and native country of the Eucharis.

**Transplanting Parsley.**—Parsley will transplant, and afterwards grow more or less, but they are the wisest who do not trust to such a mode of culture. Carrots will transplant, and occasional good examples have been grown in that way, but it is not the way to grow Carrots successfully. Considering that it is easier to grow Parsley where it is sown than to sow it first and transplant it afterwards, I do not think much need be said about the transplanting system of culture.

**Treading the soil.**—"This is of benefit to all young vegetables. Where there is not much walking between the rows or around the plants, we purposely firm the ground by treading" (p. 570). This sentence furnishes a striking example of the "all-sixes-and-sevens" character of our horticultural knowledge. The majority of cultivators, both in the farm and garden, believe and practise quite the contrary, but no one is quite able at this moment to say who is right. We believe that several patent implements have been brought out at different periods in this country, in America, and in other countries for hacking up the soil where it had been trodden or "made firm," and we read constantly in calendars the advice to stir deeply between mostly all growing crops whenever possible. One can imagine an inexperienced reader of such contrary assertions vowing to disregard all professional advice in future and to follow the dictates of his own common sense. Those who advocate treading the ground hard between "all young vegetable crops" no doubt condemn mulching as well, seeing that stirring the surface and mulching are practised for identical purposes. Most gardeners will continue, we hope, to believe and practise both, since in most gardens there are no operations with which I am acquainted that more need attention.

**Seedling Carnations.**—It is very interesting to watch the development of these in leaf and flower—that is when you keep them all and do not throw away all that are not double enough and formal enough to please critics. A batch of seedling border Carnations sown in 1883, and put out by us in the spring of 1884, present every phase and feature of all the garden varieties—Cloves, Carnations, Pinks, Tree Carnations, singles and doubles of all degrees and great variety of habit and foliage. All bloomed last year except the late sorts, and these have flowered freely during May and June, the plants not having had any protection. On some of these late plants the buds were partly developed by last November, and others expanded now have appeared since. The differences specified, however, are so graduated, that it would be impossible even for an expert to tell where one form began and another ended. As I have said before, there is only one type of border Carnation, the difference existing among such plants being only one of degree.

**Feeding plants.**—It is not a very apt expression this; it indicates stimulants which are only permissible under exceptional circumstances of vital prostration. Plants require feeding always, and if they are always fed, as they ought to be, "feeding," in the sense commonly understood, would not be necessary. Let us give an example. I read the other day that "now is the time to apply manure to Grapes when the berries are swelling." Why apply it at that particular stage? Why not before? The necessity of giving

liquid manure, in the liquid form or otherwise, when the berries are swelling is an admission that the Vines had not had enough of food previously. A plant ought to have as much food as it can absorb and assimilate properly and no more is needed, and this involves feeding during the whole period of growth. Fruits or vegetables that are starved in the earlier stages cannot be recouped by a superabundant supply of food after the fruit is set or the growth has been half completed. Small bunches of Grapes do not have additional berries added to them by the application of frequent doses of liquid manure after the berries have formed, nor will any amount of feeding at or after that stage make small berries large. Nothing has been better ascertained than the last fact, and the first goes without saying of course. It is structural capacity that is needed, and that is given by nourishing treatment from the beginning, which, it may be asserted, can hardly be overdone so long as the growth is also firm and mature. No wood or foliage is too gross or strong that can be fairly well ripened, and there only need the line be drawn.

**The original Pansy.**—What is the typical Viola tricolor like? My experience of it is that it varies in colour and shape almost as much as do the cultivated forms. The common wild Pansy is abundant about here on upland pastures, and this year it has been particularly fine, the coolness and moisture suiting it. A Grass field laid down last year, not far from here, was lately almost covered with it, the plants pushing strong among the Clover and Grass, evidently luxuriating in the cultivated soil. Within a few yards I gathered seven or eight distinct varieties running from deep rich blue, without any yellow or white, to almost white or yellow, while the ordinary "tricolor" was also plentiful. The flowers were unusually large with strong stems, the foliage also fine, and one could easily believe in the fine garden Pansies originating from such a sportive parent. I have often noticed this abundant variety in Viola tricolor in cultivated fields among Clover and Grass, while on the roadsides and old pastures the flowers are neither so large nor so varied. What is the difference between Viola tricolor and Viola tricolor arvensis, both natives of Britain?

**Extension in Melon culture.**—"W. I. M." need not fear much opposition from me on this subject. I only say the plan does not answer where a few early Melons are required; but for producing a heavy crop, with time, it beats restriction far and away. "W. I. M." is one of the few who got hold of the right end of the stick, on the subject of "extension," at the beginning, and has advocated it in practice and precept, and I have no hesitation in saying that he and I and those who think with us are right in principle, and that everyone else is wrong. A good deal to say this on any subject, but "facts are chieftains that dinna ding and darna be disputed." Even the former opponents of extension now manifest a kind of desire to come round to "the faith," and one receives a wonderful amount of testimony from one source and another. We have just been taking note of an extension experiment with that fine old flowering shrub the Weigela, which, when rightly managed, is one of the gems of the garden at this season, especially the creamy white varieties. In 1882 we planted out some small plants, about the length of one's hand, in good soil, and let them grow. By the spring of 1883 they just got hold of the soil, and during that year and last year (1884) they made thick gross shoots about 8 feet high with numerous laterals—branches that would horrify our present restrictive friends. Nothing was done to them, but the other day I estimated the number of perfect flowers and buds on one of these shoots and found they amounted to about 7000. All the bushes are smothered in the same way. In good soil the Weigela throws up strong Willow-like shoots 6 feet or 7 feet high or more. The second year these shoots throw out side shoots one above the other in the most regular manner, and these bloom their entire length at every joint—as many as thirty flowers being produced in one cluster. All flowering shrubs and fruit trees grow and flower on the same principle, and it would be just as reasonable to cut back Rhododendrons as to cut such back with the object of making them bloom or fruit.

J. S. W.

#### WORK DONE IN WEEK ENDING JULY 7.

JULY 1.

HEAT and drought render artificial watering a necessity, that is, if the best results are desired, and having good supplies of water, we have to-day put it on with a liberal hand to Celery, Brussels Sprouts, Tomatoes, Lettuce, Runner Beans, and the flower beds. As Potatoes are cleared off the borders, we continue to plant out Broccoli, another batch of Snobs' and Early Penzance having been got out to-day. The ground is not dug other than what it gets by lifting the Potatoes; the haulm and weeds are cleared away, drills drawn at 30 inches apart, and the plants are dibbled in at 2 feet apart, and are given a thorough soaking of water; and the watering will be repeated twice each week so long as the drought continues. Pruned standard Pears and thinned out the fruit. Winter Nelis, Beurré Thoun, Beurré Rance, Passe Colmar, and Brown Beurré are exceptionally heavy crops on standards, and manure water will occasionally be given them as time can be spared to apply it. Roses are now in their best dress, and faded flowers are daily picked off, not so much for the sake of neatness as for the well-being of the plants, and more particularly in respect of aiding the production of successional flowering, as the process most certainly does, and to the Perpetual class especially. We water when we can and mulch always, and, to a large extent, the latter practice renders artificial watering unnecessary. It is all very well to say, "Use manure water frequently," but not one in a hundred can get it to use. Therefore mulch, and let rain help to apply the manure, and if, in this dry weather, a soaking of clear water can be given over the mulching once a week, more will be unnecessary. Layering Strawberries; picked flowers and runners off the plants that are intended for autumn fruiting, and watered the plants that were put out in May last. Netted up Cherries on walls and Raspberries; soon as time can be spared, there are a large number of small suckers on the Raspberries that must be got up with a hand-fork. Got soil ready for potting Pines, turned over the manure and leaves with which it is intended to renew the plunging beds, planted out a successional lot of Melons, and made another sowing to succeed a batch now approaching maturity.

JULY 2.

Heat and drought continue excessive, and there being traces of scorching in one or two of our vineries, we have thought it advisable to slightly shade all of them with whitening and water, for once the foliage gets injured it is all up with perfect finish of the fruit. The fruit in early Peach house being all gathered, the trees have been well washed with the garden hose to free them of spider, and the shoots are now being thinned out, that the sun may have full play on the fruiting wood of next year. The old straw mulching (for the sake of getting rid of the insects) will be cleared out, and in its place will be put a thin layer of long litter to prevent the cracking of the soil. Filled Strawberry house with flowering plants, tuberous Begonias, double-flowered Petunias, Pelargoniums, and Celosia pyramidalis being the most useful for our furnishing purposes. These are the principal kinds grown, and right well they do in this house, which is kept at an intermediate temperature—greenhouse and stove—and shaded with tiffany during the hottest part of the day. Tied Tomatoes up, and cut away all the shoots growing from the base of the stems and a few of the longest laterals. They have set their fruit well, and being on a south border with full exposure to the sun, heavy mulching is needed, and a thorough soaking of water once or twice a week. Over-rich soil they resent by the production of shoots and foliage in lieu of fruit. Watering of Scarlet Runners and Celery, clipping the verges, hoeing the sides, and sweeping up coach roads has taken up the remainder of our time to-day.

JULY 3.

Another scorching day. Continued hoeing and cleaning of coach roads and woodland walks. Staked Peas and drenched those last sown; as they are sown in trenches, after the fashion of Celery, watering is most easily done. Cleared off the earliest lot of Peas,



and after weeding and levelling the ground planted thereon Savoy and Cottagers' Kale. Every description of the Cabbage tribe we plant in deep drills, so that watering can be effectually done, and earthing up is reduced to a minimum, or rather high ridging is not required, seeing that the plants are put in below the ground line. Finished, for the present, the summer pruning of all kinds of fruit trees. Laid in the new shoots of Pears and thinned out the fruit of a few that still seemed too heavily cropped. Mildew has put in its unwelcome appearance on the Peach wall, and our first step has been to well water the border, and the affected trees will now be given a strong dose of sulphur, which will be mixed with water and afterwards syringed over the trees, and three or four days afterwards they will be well washed with clear water. Staked Ricinus, Sunflowers, Tobaccos, Solanums, and Abutilons in sub-tropical garden, and pegged down the undergrowth plants. The soil in this garden is stiff, and only surface waterings are needed as yet, but the surface soil so quickly cracks in dry weather, that it is of first importance to keep the same mulched, or else covered with surface-rooting plants, such as Sedums and Saxifrages. Thinned out the long naked shoots of old plants of Tree Carnations and tied remaining ones in neat form to a stake; the drainage was then examined and put right, and fresh soil, as top-dressing, given to each, and the whole of them plunged in ashes in the open air. The young plants have also been weeded and top-dressed, and are being grown on in the same way. Got out ripe fruit of Pines and stood them on the floor of late vinery till they are fit to cut, the suckers of Smooth Cayenne being taken off and potted up at once. Finished layering Strawberries for forcing purposes. They take up a lot of time in regard to watering, as by no chance should the soil be allowed to get so dry as to break away from the sides of the pots, and I ought to add that we always water with a fine spray or rose watering-pot.

## JULY 4.

At noon to-day the thermometer registered 86° in the shade. A heavy rain would be a great boon, but there being no signs of it, we have been busy watering outside Vine borders, the mulching, disturbed by the process, being pressed down and weeded directly watering was finished. Cleaning up and watering was really all the housework that could possibly be accomplished to-day. Picking seed-pods off Rhododendrons, cutting back the long shoots of standard Portugal Laurels, and cutting off all the flowers to encourage wood growth; also cut back Ivy that had grown into the ornamental stonework surrounding the flower garden, which, being of formal design, marred the effect of the same by its irregular growth. Weeded and trimmed up herbaceous borders, in which was included cutting seed-pods off Aquilegias, Geums, Pansies, Day Lilies, Pinks, Delphiniums, and other early-flowering plants. The various kinds of Spiræas now make a magnificent display and are worthy of any amount of labour as to tying to sticks and watering. Phloxes are amongst the first perennials to show symptoms of suffering from drought, and hitherto the growth has been all that could be desired, and the promise of such a harvest of flowers so good, that, notwithstanding other pressing and more important work, we determined on and at once gave them a thorough watering. Roses we served the same, and again freed them of faded and fading flowers. Cleaning up generally.

## JULY 6.

It has again been intensely hot, and watering indoors and out now takes up quite half our time each day, for in addition to watering of fruit trees, kitchen garden crops, and flower garden, shrubs that were moved in the depth of winter are now beginning to flag, and to prevent a serious check to growth we have to-day began to water those that were planted in the more exposed positions, and consequently suffer most from sun heat and drying winds; others in shady places, though they would be the better for watering, the labour to do it cannot be spared, and therefore they must take their chance, not that we anticipate fatal results from drought, as the thick mulching which was put on at the time of planting will prevent that. Gathered Strawberries for preserving; the crop was never larger and could not

possibly be finer, and the same is true of Raspberries and Currants. Not a drop of moisture other than has fallen from the skies have the Strawberry plots had, and yet our soil is of a hot, sandy nature, but deep tilth and the heavy mulchings of manure that are given early in the autumn and added to in early spring keep the plants in the greatest vigour, sandy and naturally poor soil notwithstanding. Weeded, soiled up, and pegged out Vegetable Marrows and ridge Cucumbers, and gave them a drenching. Non-setting of fruit, if not always, is nearly always due to lack of root moisture. Pulled up Shallots, autumn-sown Onions, and Garlic, and spread them on the gravel walk to dry; the ground they have occupied will, soon as cleared, be re-cropped with late varieties of Broccoli. Top-dressed fruiting Pines, renewed bottom-heat, and re-plunged the plants in leaves. The plants with fruit nearing maturity have not been again plunged, but have been put in one of the warmest vineries, and fruit fully ripe have been cut and will be kept in cool fruit room till wanted for use. The first succession stock are being potted into fruiting pots, and manure and leaves in mixture is being got in to the pit in which they are to be plunged; a bottom-heat of not less than 80° or more than 90° is the temperature we aim at.

## JULY 7.

To-day's warmth, without the scorching sunshine of the last few days, has been the perfection of weather for our Pine potting and shifting of the plants from one pit to another. All strong successions that were well rooted in 7-inch pots have been shifted into our fruiting size, 12-inch. The plunging beds have been renewed with material—leaves and litter—to ensure a bottom-heat of at least 80°. Shading will be regularly done in sunny weather till the roots have begun to work in the new soil. Watering and syringing is the only other inside work we have been able to do. Gathered more Strawberries for preserving and the first lot of Raspberries, the crop of which is quite as good as Strawberries both in quantity and quality, and the treatment they have had is very similar, for the ground is never dug nearer to the canes than 4 feet, and heavy manual mulchings are considered an indispensable requisite of culture. Clipped the dividing lines of *Herniaria glabra* and of *Sedum acre elegans* in flower beds and pegged down *Violas*, *Pelargonium Mangisii* variegatum and the scented variegated variety *Lady Plymouth*, which, together with scarlet herbaceous *Lobelias*, white-flowered *Abutilons*, and dark-flowered *Fuchsias*—used as standards—complete the arrangement of one set of beds. *Acacia lophantha*, *Cannas*, *Abutilons*, single *Dahlias*, &c., have all been gone over to secure them with fresh ties to their stakes, and where the groundwork plants have not filled out the surface has been loosened with a sharp-pointed stick.

HANTS.

## FRUITS UNDER GLASS.

## PINES.

Where the first batch of early Queens started into fruit about the time anticipated, the bulk of the Pines will have been used, or certainly sufficiently advanced towards ripeness to admit of their removal to another structure, where they can be kept dry and cool if it be found necessary to retard their ripening. An early vinery in which the Grapes are ripe or from which they have been cut is, perhaps, one of the best places that can be selected for this purpose, as the gentle warmth and partial shade are favourable to colour and flavour. When clear, the pit in which they have been grown should be cleansed and prepared for another batch of fruiting plants, which may be drawn from the general stock, or possibly from the earliest successions. If the fermenting material requires renovating or replacing, great care must be observed in the preparation and management of the new, be it tan or Oak leaves, as it often happens that disturbance at this time of year results in a rapid rise of temperature, which may prove injurious to the roots coiling round the insides of the pots. It will, therefore, be well to wait until the heat in the newly-formed bed has declined to 90°, when the plants selected may be gently rammed and made firm by the addition of a few pieces of fresh turf preparatory to plunging in their new quarters. The plants should

be lightly plunged at first and carefully tended with water until the heat becomes steady, when the tan or leaves may be packed a little closer. As this move forward will admit of giving more room to fast-growing successions, advantage should be taken of the earliest opportunity for potting on any that may require a shift, and getting them replunged where they can remain until the end of the season. Strong growing varieties, like Rothschild and the Smooth Cayenne, may be transferred from 8-inch to 14-inch pots, Queens to 12-inch, and Jamaicas to 10-inch pots, provided the compost is rough and dry, the bottom heat good, and water is sparingly given until the roots again reach the sides and are in a condition to take more liberal supplies. It may be necessary to run a light shade over the newly-potted plants for a few hours during the hottest part of the day, but this should not be overdone, as a tinge of brown does less harm to the leaves than systematic shading. The syringe will of course play an important part, as the plants must be kept liberally supplied with atmospheric moisture, and early closing with sunheat will produce conditions highly favourable to their growth and reduce firing to a minimum. All established plants, be they successions or fruiters, will now take liberal supplies of water of a slightly stimulating nature, and the same may be used for filling up the evaporating pans and damping down after the houses are closed for the day. Soot water, judiciously used, is an excellent stimulant, a good insecticide, and gives the foliage a dense healthy colour. Guano water in a weak form is a fine root stimulant, and may be used alternately with diluted liquid; it should not, however, enter too freely into the atmosphere of the house, as it soon produces a tendency to large crowns and flaggy growth of foliage.

*Sucker pits* should now be overhauled, the beds renovated, and the plants re-arranged as near the glass as may be consistent with the preservation of the points of the foliage. If bottom-heat is obtained from hot-water pipes and fermenting material combined, the latter should be kept sufficiently moist to feed rather than abstract from the roots, and on no account must it be allowed to heat any beneath the bottoms of the pots, and so produce a check which may throw many of the plants prematurely into fruit. In order to avoid this unseen evil, fermenting leaves should be used in preference to fire-heat, and the pits should be closed early with solar heat and plenty of atmospheric moisture. If any of the stools from which the fruit has been cut contain good suckers, they should be at once twisted off, trimmed, and immediately potted into 6-inch or 7-inch pots according to their size. It was at one time the practice to allow them to lie about for some days to get dry, but no good comes of this baking process. It is much better to pot as soon as they are detached, water moderately to settle the soil, and plunge to the rim in a bottom-heat of 85° to 90°.

## PEACHES.

As soon as the early house is clear of fruit and the syringe can be freely used, the first effort must be directed to the cleansing of the foliage, for without clean healthy leaves the trees cannot be expected to form and mature perfect flower-buds for another year. Then an examination of the borders will reveal the condition of the roots; if very dry and the trees have been heavily cropped, a layer of rotten manure spread over the surface and well washed in with tepid water, not once only, but repeatedly, until every particle of soil is moist, will prove an excellent pick-up for the trees, and at the same time greatly assist in the removal of red spider. If, on the other hand, the roots are moist, as they ought to be, and slowly ramifying under a good mulch of some not over-rich non-conducting material, the watering must be lighter, but at the same time sufficient must be given to feed every root and keep the foliage fresh and healthy. Their immediate wants provided for, all superfluous shoots, notably those which have borne fruit, must be removed from the trees to make room for the full development of the growths from which the next crop is to be secured. These should then be neatly regulated so as to let in plenty of light and air, and throw a little shade over all the old stems and bare parts of the trees which might otherwise be affected by the great heat of the sun through the dog days. Venti-



lation will, of course, be on a very liberal scale, as the house cannot be kept sufficiently cool without plenty of air; but the too frequent system of throwing open all the ventilators immediately after the crop is gathered and allowing them to remain so, must not be taken into account as good management.

*Succession houses*, in which the fruit is ripening, must have an abundance of air whenever the weather is fine, care being taken that drops of rain do not reach the Peaches. Atmospheric moisture from damping down and syringing the walls and stems will also benefit the trees and do no harm to the fruit during the time it is ripening, or reaching the stage at which Peaches are now considered fit for gathering. If the weather continues so intensely hot, and it is thought desirable to retard a portion of the fruit, that which is most backward should be selected for shading. The shading of Peaches, unless to meet any special demand, is not, however, recommended; but when it is resorted to, thin canvas or fine netting, through which the air can pass freely, should be used in preference to opaque materials impervious to the influence of warmth and light. Fixed roofs, if of any great depth, often confine the heated air to an extent that is injurious to the fruit, although it may not be necessary to retard. When this is the case, a few squares may be taken out along the centre, provided there is no fruit immediately under the openings, with the best possible results during the months of July and August.

*Late houses*.—If not already done, the wood in late houses should now be tied down, and all shoots that will be taken out after the fruit is gathered shortened back more or less, to throw size into the Peaches and make room for the advancing shoots that will eventually take their place. The disbudding of the trees and thinning of the shoots do not always receive the attention they deserve, and yet this operation is quite as important as the thinning of the fruit, for without light and air perfect leaves and buds cannot be expected, and the tedious operation of tying in is uselessly protracted. Good syringing and copious watering, if the roots are inside, will now play an important part in swelling up the fruit and keeping the foliage clean and free from spider. If the roots are in outside borders, a good mulch may be found sufficient for their need, but in dry seasons an occasional flooding cannot possibly do any harm. If the fruit is likely to get too forward, all the ventilators may be left constantly open; but to secure full size they should be closed for a couple of hours after the house is syringing on fine evenings.

#### FIGS.

If the second crop of fruit on free-bearing kinds like Brown Turkey and Osborn's Prolific, two of the best forcing Figs grown, is heavier than the trees can swell to maturity, no time must be lost in getting them well thinned down to a few of the finest near the base of each shoot. All fruits formed after this month may be rubbed off, as they will not have time to ripen before the trees go to rest, and their retention will place an unnecessary strain upon the trees. Tie down to the wires all the most promising shoots to prevent the points from touching the glass, and thin out all useless spray as the work proceeds to prevent overcrowding, for without light and air Figs cannot colour and attain flavour. Renovate the mulching, give an abundance of tepid water, and syringe well twice a day, the first time before the house is opened, and again after it is closed for the day.

*Succession houses*, in which the fruit is ripening, must have a constant circulation of dry, warm air from the base to the apex ventilators, and somewhat less moisture in the body of the house; but this, on fine days, need not be entirely suspended, as it is necessary to make a sort of compromise between the ripening and advancing crops of fruit. In like manner regulate the supply of water to the roots, otherwise drought will do harm to the second crop, while root watering in moderation will not injure those fruits advancing to maturity. But when water is given, let it be quite up to the dry temperature of the house, and choose a bright morning for its application.

*Ripe Figs* do not keep for any length of time if allowed to hang on the trees, and conditions favour-

able to that short period do positive injury to the advancing crop. But if ripened in a dry, warm, airy atmosphere and carefully gathered, they may be kept for some time placed on paper shavings or hair sieves turned upside down in a dry, airy store room. So placed, the air can play all round the fruit, but provided the Figs are well coloured, they should not be dead ripe at the time of gathering.

*Packing Figs*.—Having had great experience in the packing of Figs for transit by rail, a few words may not here be out of place, as it is generally admitted that large ripe fruit will not stand much rough usage. Each fruit should be detached from the tree without the slightest abrasion of the skin, and placed on a soft dry Vine leaf in a padded basket or box. The travelling boxes, 4 inches deep and not too large—say 18 inches by 10 inches—should be dry and strong enough to resist pressure from without. Soft elastic Moss, where it can be got, thoroughly dried and beaten, is perhaps the best and cheapest packing material that can be used. Next to this comes soft, well-rubbed paper shavings. Having lined the box with paper and made a firm bed of Moss all over the bottom, fold the fruit first in the Vine leaf, then in a square of tissue paper; commence at the left hand corner by making a nest of Moss, drop in the Fig, stalk downwards. Keep the fruit in its place with the left hand, form a second nest with more Moss, and so on until the first row of four is complete. Proceed in this way until the box is full; then press in more Moss round the sides to prevent the possibility of any of the Figs touching the sides or moving; spread a thin layer over the top, turn up the sides of the paper, and secure the lid. When sent by rail, boxes of Figs should always be met at the terminus, and not trusted to the tender mercy of delivery companies, who do much mischief which falls to the credit of railway carriers. Inexperienced packers of soft fruit like Figs often fail through fear; they pack too lightly, forgetting that the Vine leaf and the paper will protect the fruit, provided it is completely surrounded by a soft, but moderately firm, cushion of Moss. Some use baskets and boxes divided into separate squares for each fruit, but these enhance the cost of transit, as the squares are sure to prove too large or too small, independently of the difficulty which attends their removal from the boxes. Wadding is not a suitable packing material, as the dressing is apt to sweat when it becomes hard and prevents the escape of moisture.

*Eastnor Castle, Ledbury.*

W. COLEMAN.

#### QUESTIONS.

5363.—*Tree Pæonies*.—Will some reader of THE GARDEN kindly tell me how Tree Pæonies (Moutans) are propagated? If, as I suppose, they are grafted, would some one state what stock should be used and what mode of grafting?—J. W. L.

5364.—*Colour of garden walls*.—Having seen a wall in a kitchen garden white-washed for the growth of fruit, the reason given being that the experience of French fruit growers proves white to be the best colour for a wall, I should be glad of the opinion of readers of THE GARDEN as to whether white is really the best colour to be applied, and if not, then what colour?—J. W. C.

5365.—*Gas boilers*.—Can any reader of THE GARDEN give me any information on heating by means of gas boilers? The range of conservatories to be heated, and which are now being erected, is directly in front of the mansion; consequently smoke from coke or coal would be objectionable. The houses are span-roofed and in three divisions, each 40 feet long, 20 feet wide, and 13 feet high at the apex, and will probably be used as stove, intermediate, and cool house respectively. Can such houses be satisfactorily heated by means of gas? and, if practicable, which is the best and most powerful boiler for the purpose? Also the comparative cost of heating by gas at 2s. per thousand feet and coke at 7s. 6d. per ton?—P. COWBURN, *Broomfield, Huddersfield.*

5366.—*Chrysanthemums in New Zealand*.—As we have just had our first Chrysanthemum show held here, and which was a great success in regard to cut blooms, I would like if some of your readers would give us here at the Antipodes some idea of the size of the Chrysanthemum blooms exhibited at some of the leading shows in England. I may mention that among the exhibitors was Mr. Adam Forsyth, late of Stoke Newington, said to have been a champion grower of Chrysanthemums when about London. The blooms which he showed here were as good as ever he staged in his life, according to his own statement, but they were fairly eclipsed by an amateur named Watson, some of whose blooms measured 18 inches in circumference, and were also fine in form. A friend of mine who has seen exhibitions of the kind in London and Paris said that he had never seen their like before, but, in fact, amateurs here beat our gardeners in growing specimen plants, fruits, and vegetables.—A SUBSCRIBER, *Danaru, New Zealand.*

#### HARDY FLOWERS AT LONDON SHOWS.

VISITORS to the last show of the Botanic Society, in Regent's Park, were pleased and surprised at finding the place full of beautiful hardy flowers. One could not get near some of the groups shown by Messrs. Paul and other nurserymen, who until recently have not taken much interest in such things. As these were mostly flowers that everyone knew, or knew some allies of by their English names, people seemed to take a more lively interest in them than in the ordinary occupants of the greenhouse bench. When hardy flowers began to be shown some years back the result was miserable to see—wretched kinds badly grown, shown in little pots often without flower, even when they were good flowering sorts, a few sickly variegated things being added. Here for the first time one got some idea of the rich and varied garden flora which we may have in the open air. The poor old greenhouse plants that have been trotted out to show after show, supported on scaffolding with innumerable twine ties, looked poor indeed in comparison with the things we speak of. The grouping was not so good as it might have been, though a great improvement on that of past years. Exhibitors begin to see the value of simplicity in arrangement and of "holding things together." They will see that much clearer a few years hence, we hope. Many fine things were spoilt by the usual dotting about and sticking flowers in little bottles. The same plants, each shown in some quantity in a good basin or simple basket, and with its own foliage or some foliage that went with it, would be far more effective. We should not be at all surprised to find that, a few years hence, both flower show managers and the trade will discover that they may make more beautiful shows by means of hardy plants than by the old stereotyped material, for the hardy flowers vary with the season, and, do what one would with them, one could not manage to get shows composed of materials so like each other as the great flower shows of London have been for many a year.—*Field.*

#### BOOKS.

##### HOW TO MAKE THE LAND PAY.\*

ALTHOUGH it is a fact that land does not pay at present, there have not been wanting of late authorities prepared to show that it should pay if only their advice is followed. One of the latest of these authorities is Mr. Dunster, who has produced a book in which, it must be admitted, he has collected almost everything of importance that has been written on the subject. It does not appear from the preface or from the book itself that Mr. Dunster is an authority on either farming or gardening, but his motives, according to the preface, are excellent, and he has spared no pains in collecting the opinions of others on the subject and setting them off in as rosy a light as his own sanguine views permit him to do. Our excessive importations from foreign countries of garden and farm produce is, of course, Mr. Dunster's text, and forms the basis of his calculations of what English cultivators ought to save by home production. The millions of pounds' worth of garden and farm produce imported from abroad are, no doubt, very startling marshalled as Mr. Dunster marshals them, but when one reflects that our importations of that kind are clearly the result of our greater prosperity in other branches of industry of far greater magnitude, our wonder ceases. It is

\* "How to Make the Land Pay; or, profitable industries connected with the land and suitable to all occupations, large or small." By Henry P. Dunster, M.A., vicar of Wood Bastwick Norfolk. London: Longmans, Green & Co.



admitted that the British farmer and market gardener might do some things better—grow some crops he does not grow now and make more money thereby, but no practical man believes that fruit and flower growing, rearing poultry and pigs by themselves, will pay so well in the long run as growing Corn, Potatoes, Turnips, Mangold, hay, and other farm crops on anything like a proportionate scale. In abandoning one kind of farming for another it must be borne in mind that the lost crops will have to be replaced by importation. Our author dwells on the fact that we import two or three million pounds' worth of fruit from abroad. To use his own words, "there are at the present time customers ready to buy fruit to the value of the enormous sum of nearly two millions and a half over and above what they can buy of our own growers; and because our own growers will not produce supplies equal to their demands, these two millions and a half of money are sent abroad to benefit foreign growers." It does not seem to have occurred to the author, apart from the considerations stated, that if the two or three millions' worth of fruit imported be a sufficient reason for our growing the fruit at home the many more millions "sent abroad" to buy corn is a still more potent reason for our farmers sticking to the corn for which Mr. Dunster proposes to substitute fruit. This sort of reasoning will not do. The book is, however, suggestive and worth reading by all interested in such subjects; but the author's deductions appear to be drawn from doubtful sources in not a few instances. Here is a sanguine prospect for farmers disposed to grow flowers, for example:—

No one with his eyes open can doubt the great demand for cut flowers, or the increased and increasing value set upon them. Those who will take the trouble to grow them will easily find a market and very remunerative prices. Well made wreaths and crosses command a large price, and so do ornamental bouquets. Even one or two bright flowers, with a small green spray, formed into a "button-hole"—thousands of which are sold in such markets as Yarmouth and other large towns—will bring the grower and the seller a good return. They are bought by the market women at 1s. the dozen, and sold at 2d. each. Though well stocked in the early morning, we have seen the Saturday's Yarmouth market cleared of these small bouquets before two o'clock.

What a nice addition to his income may a small farmer make by giving attention to the cultivation of some few flowers! If he happens to be a man of family, his children can attend to them, cultivate what is needed, gather the flowers, and make up the saleable bouquets. All that is required of him would be to send the flowers to market, with his butter and eggs and other produce. As things now are, it is notorious that a farmer's garden is the worst cultivated part of his farm. Far from thinking of growing cut flowers for sale, he is somewhat of an exception to the rule if he troubles himself to grow a few vegetables for his own table.

Almost every small farmhouse has a piece of garden ground attached to it, and under proper cultivation, with the means at command which every farm possesses, this garden might be made not merely ornamental, but profitable, by the growth of flowers without interfering with the ordinary vegetable crops. Good flowering shrubs and perennial herbaceous plants are the easiest and most useful things to grow,

and among shrubs, Evergreens are to be preferred, for they yield foliage at all seasons.

No doubt, if two or three farmers, who grew herbaceous flowers in sufficient quantity, had the run of a town like Yarmouth, they might make money; but if all the farmers in the country sought to augment their income by the same means as they are advised to do, their flowers would not be worth carrying to market, and they and their children would be far better employed hoeing the Turnip crop, hay-making, and looking after the multitudinous other duties of the farm. We believe Mr. Dunster is correct, however, in saying that growing Strawberries, Raspberries, and Currants pays, because in these foreign competition is not strong, but a universal venture even in these would result in a collapse, for the simple reason that jam is not one of either the foods or necessities of a nation.

Mr. Dunster deals with poultry and pigs as well as with fruit and flowers, and pretty much in the same strain, besides other subjects. Speaking of milk, he avers that "many a small farmer can make a good living out of three or four cows by selling milk to village customers at 2d. a pint"—new milk, be it remembered—the farmer's "wife and family," it is added, "are then free from the labour and care of butter-making!" "A good living out of three or four cows" at 2d. a pint must be derived from "perpetual" and good milkers, seeing that the tenant "can also afford to pay a good rent for his small occupation" from the same source.

The book is, however, as has been stated, full of facts and suggestions, and may be read with profit by both farmers and gardeners. Here is a useful practical suggestion, for example:—

What Lord Sudeley is doing on a large scale there is reason to believe that others are doing in smaller degrees, sufficient, however, to warrant a much more extended cultivation of bush fruits than at present exists. In one large seaport town, with which we are well acquainted, an enterprising greengrocer is doing a large trade in "home-made jams." These jams are made of the different sorts of fruit which are brought with vegetables and other things by the small growers into the local market, and they are bought up by this said greengrocer as he can meet with adequate supplies. Why should not every village shop be supplied with jams in the same way by small farmers who will cultivate fruit for the purpose? The profits of the trade are large and no foreign competition can interfere with them; for, as Mr. Gladstone remarks, sugar is cheaper here than in any other country.

There is sense in the following extract also:—

There is probably no department in floriculture that creates so much interest at the present time, and that offers so fair a prospect of increasing development, as the culture of bulbous plants. As evidence of this, reference need only be made to the numerous trade catalogues of bulbs, which in time for autumn planting are every year put into circulation by our large florists' firms; and to the immense sums of money which, according to the Custom House returns, are every year sent out of the country to purchase "Dutch bulbs." Catalogues of Dutch bulbs are paraded before the eyes of English customers, and a large trade is in this way kept up, as if our own soil were entirely unsuited to this industry, which proves so profitable to our foreign neighbours.

There is, without doubt, a far greater extent of land in the Low Countries suited to the cultivation of this class of plants than is to be found in England; but, if we mistake not, a certain peculiarity in the Dutch character—that patient industry in which we in this country are somewhat deficient—has nearly as much to do with success in bulb culture as the nature of the soil. If our people would take up bulb growing with the same energy as the Dutch, and persevere in the hope of success, there would be no necessity for the importation of these Dutch bulbs at all, as far as a suitable soil is concerned.

Near the sea coast in many parts of England there are thousands of acres very similar in soil to the soil of Holland, in which the Hyacinth, which is looked upon as the most important of these bulbs for commercial purposes, is grown. The soil of Holland is sandy, presenting a well-drained surface to receive the bulbs and keep them sound, while water stands at from 20 inches to 2 feet below the surface, attracting the roots of the bulbs downwards, and under the influence of sunshine promoting a vigorous growth. Wherever soil is found answering these conditions Hyacinths and most other bulbs may profitably be grown.

In reference to fruit, the author has been at much pains to find out the best methods of culture, the best varieties to grow, and their probable value in the market; indeed, he forgets nothing that can be turned to account in either the farm or garden.

S. W.

## ORCHIDS.

### ORCHIDS AND OTHER PLANTS AT YORK.

AMONGST plants of more than ordinary interest to be met with in the York Nurseries are the Orchids, which are here treated in a way different from that practised by the generality of growers. Orchid culture has of late years been to some extent in a state of transition, from the reeking saturated atmosphere that used to be considered necessary, further aggravated by the semi-darkness to which the plants were subjected during their growing season, to the more rational course now followed of giving them sufficient air combined with plenty of light. The last named course of culture has, however, not become so universal as it deserves to be. Unlearning is a difficult process. Ideas first imbibed are not easily got rid of. Messrs. Backhouse were amongst the first of those who led the way to a better system of cultivation, the outcome of which is to show that Orchids, so far from being the short-lived, miffy subjects to grow they were by many supposed to be, are amongst the most enduring and tenacious of life of all cultivated flowering plants. The number of cool kinds which have from time to time been tried out in the open air during summer, and the continual reduction in the amount of shade given to shield the plants from the sun through the growing season until shade has been dispensed with altogether for most of the genera, have given an unusual amount of interest to the line of cultivation followed in the York Nurseries. The additional experience gained during the hot, cloudless summer of 1884 goes to confirm the fact that with plants to commence with in robust condition of growth, and in houses that stand ends north and south, shading may be altogether dispensed with to all but the thin-leaved kinds, of which most of the *Odontoglossums* may be taken as examples, and the soft-leaved species, such as the *Phalenopsis*.

ORCHIDS WITHOUT SHADE, as might be expected, are paler in colour than plants exposed to the direct action of the sun. But this, if looked upon as a defect, is only an imaginary one. As a set-off to compensate for the absence of a shade or two on the score of colour in the foliage, plants so treated bloom more freely, in addition to which there is more substance in the flowers, enabling them to last longer. There are also other attendant advantages, not the least of which is that when growth is made under such conditions, such species as the *Cattleyas* and *Lælias*, which are susceptible of injury through any excess of water to



the roots, do not suffer if a little too much is given, as, where the heads of the plants are unshaded, it follows that they give off much more moisture by evaporation, enabling the roots to take up more, added to which the moisture in the potting material dries up much quicker. Exposed to full light in this manner, there is nothing to fear in the way of young growths rotting off through the partially opened leaves getting water in them. With very few exceptions, where the cultivation of any plant is such as not to enable it to bear water overhead, and that freely during the season of growth, there is something defective in the treatment. And Orchids are no exception to the rule. Half the insect pests that affect Orchids owe their existence to the reluctance to give water overhead. The large house originally used for pot Vines, but now filled with Cattleyas, *Lælias*, and other species that thrive under like treatment, has been altered internally; in addition to the side stages there are now two stages that occupy the body of the house, running the entire length with a continuous path between them. There is thus three paths by which means in a wide structure such as this the plants can be better seen and their wants attended to. Amongst a number of kinds in bloom in this house were several beautiful varieties of Cattleya *gigas* Sanderiana; a plant of this fine Cattleya with fifty bulbs recently bore here ten bloom-spikes. A large portion of one of the centre stages is filled with *C. gigas* and *C. gigas* Sanderiana, as strong and robust as they well could be. Many examples of *C. Mendeli*, *C. Mossiae*, and *Lælia majalis*—that invariably do so well here—were also in flower, as was *Thunia Marshalli*; under the full influence of light here given it, the growth is unusually strong and short, not more than 24 inches in height. The scarce Galeandra Devoniana was likewise in bloom, its pale chocolate lip contrasting nicely with the white colour of the rest of the flower. An unnamed *Oncid* with sanguine red petals and sepals margined with white was very distinct in appearance. A specimen of *Lælia elegans* just out of bloom bore twelve spikes. *Grammatophyllum speciosum* and *G. Ellisi* are quite at home here. *Vanda teres* flowers freely from small pieces. A plant of *Vanda Lowi* was coming into bloom. In the large house that accommodates numerous genera, amongst a host of different kinds there is a quantity of *Lælia anceps allida*, many of which are large specimens, and although recently imported are making growth as strong as if several years established. *Cymbidiums*, *Sobralias*, and *Lycastes* are in fine condition, as are also many kinds of *Dendrobiums*, including *D. suavisimum*. Of *Lælia autumnalis*, imported last year, there is a beautiful lot.

IN THE WARM SECTION OF ORCHIDS, *Cypripedium ciliolare* was in flower. Amongst a number of other kinds of *Cypripedium* species and hybrids was a nice lot of *C. Spicerianum* making stronger growth than usually met with. It is grown in two parts *Sphagnum* to one of peat mixed with charcoal. Of *Phalænopsis* a beautiful variety of *P. Sanderiana* was in flower, the white ground colour of the sepals and petals being relieved by more of the rosy tint than ordinary. *Compactia reseda* in the same house was in bloom, as was also one of the finest varieties of *Saccolabium ampullaceum* I have ever met with, both as regards the size of the individual flowers and their colour. *Saccolabium retusum* was coming into bloom, and likewise the lovely *Aerides crassifolium*. In this house was a large importation of *Cattleya bulbosa*. In the *Odontoglossum* house were several fine forms of *O. crispum* and *O. Pescatorei* in bloom and *O. vexillarium*, representing the wide difference in the size of the flowers and in their colour, for which this favourite Orchid is so remarkable. There are here quantities of these and other cool kinds. At the end of the house, well up to the glass, were a number of plants of *Pinguicula cordata*, very strong and beautifully in bloom. Amongst them were several bearing highly coloured flowers. In the *Masdevallia* house were many fine varieties of *M. Harryana* and *M. Lindeni* in bloom with numerous others, including *M. chimera* and *M. trochilus*. Against the end wall of this house *Oncidium zebrinum* was growing freely.

FILMY FERNS continue to thrive luxuriantly. Many of the rare and singularly beautiful species here

have attained a large size, showing by their freedom of growth that all they need is a suitable structure wherein to grow, combined with due regard to their general requirements. The stock collectively, including *Trichomanes*, *Todeas*, and *Hymenophyllums*, is unrivalled in its extent and the size which many of the rarest kinds have reached. Amongst large numbers of scarce Ferns located in other houses may be mentioned the rare *Lomaria Boryana*, growing out of the dead stump of one of the large growing tree species; its growth is in the way of *L. cycadifolia*, but nevertheless it is distinct from that species. *L. discolor bipinnatifida* is another desirable species of medium growth not often met with. *Rhipidopteris peltata gracillima* is also at home on the dead stump of a Tree Fern; this distinct and beautiful species so treated is thriving in a way that has probably never been seen before. *Platynerium* are here made a speciality, *P. grande*, *P. Willincki*, and *P. Stemmaria* are represented by a fine lot of plants in beautiful condition.

IN A COOL HOUSE is a remarkable example of *Rhododendron Veitchi*, some 5 feet high by as much through. The back wall of this house is utilised for training *Camellias*; they are trained fan-shape for conservatory planting. With them is *Magnolia fuscata*, a plant which all who are fond of highly perfumed flowers should cultivate. *M. Campbelli* is also grown as a wall plant; its showy, white flowers attain something like 10 inches in diameter. However regrettable the all but absence in greenhouses of the fine hard-wooded flowering shrubs that used to be looked on as indispensable may be, there must still be some who appreciate their beauty, or Messrs. Backhouse would scarcely be laying themselves out for producing them to the extent they are. A selection of the best kinds has been recently planted out in the bed of a long, low, span-roofed house to produce stock. Among the least common may be named a few, such as the seldom seen *Boronia polygalifolia*, the shoots of which were smothered with pretty pink flowers. *Prostanthera Lasianthus* was covered with its lovely white flowers, spotted with purple in the throat. This beautiful plant is a profuse bloomer, and deserves to be better known than hitherto. *Vaccinium erythrinum* is a fine winter-blooming plant, the flowers red and very effective; it, too, is seldom met with. The pretty Japanese *Azalea balsamea* is here grown in quantity; the close, compact little bushes in 6-inch pots, covered with the perfectly double salmon-coloured flowers, are unique in their way. As a decorative plant it is most effective, and when better known is likely to become a general favourite. The pretty climber *Mutisia decurrens* is also planted out in this house. This likewise is a plant comparatively little grown, yet it is more deserving of a place than many of the coarser growing climbers often used. *Disa grandiflora* and its varieties are largely grown in this house; some are in pots plunged in Moss, and some planted out; under both methods the plants are in the finest possible condition. *Nepenthes Rajah* is being tried in this house during the summer. *Rogiera gratissima*, planted out some time, is now a dense bush of some 8 feet high and as much in diameter, its branches literally covered with bunches of beautiful soft-tinted, exquisitely scented flowers. It is here struck and grown almost as freely as a *Fuchsia*. Several hundreds of young plants in 6-inch pots were laden with flowers at the ends and joints of the shoots like *Bouvardias*.

AMONGST STOVE PLANTS is a specimen of *Nepenthes sanguinea* bearing pitchers, the largest of which is 13 inches in length and highly coloured; the plant has two strong leading growths and five young side-shoots at the collar. The leading shoots have been bent down in a horizontal position at the bottom to induce the plant to break at the base, a course which is generally successful in getting *Nepenthes* to produce young side-shoots. The stock of this grand species has hitherto been so limited, that those in possession of it have almost invariably been induced to cut the shoots in for propagation, so that it has been a rare occurrence to meet with an example of it that has reached a size sufficient to admit of its true character being seen. Messrs. Backhouse's specimen now shows that with *N. sanguinea*, as with most of the other species of *Nepenthes*, when the shoots have

extended a certain length the character of the pitchers produced is quite different from those that were forthcoming on the same shoots lower down for some distance above the collar of the plant. With this species, after the shoots have grown to a considerable length, the pitchers come devoid of the dark colour for which they are so much prized, being quite green. Those who have grown *Nepenthes* extensively will have noticed that with some kinds after the shoots have extended some length the change that takes place in the character of the pitchers is in their colour, as described in the plant under notice; in others the change extends to both the shape of the pitchers and their colour, such as occurs in the well-known species *N. Rafflesiana*, where, in addition to the pitchers coming without the wing appendages, they are otherwise different in shape, being long, quite thin in the lower part, and devoid of the flask-like expansion that appears in the earlier growth of the shoot, the pitchers likewise having little of the chocolate-coloured blotches so remarkable in the early stages of growth. In their native wilds *Nepenthes* that come up from seed no doubt behave similarly to seedlings raised artificially. That is, the shoots until they have extended some length produce pitchers different in character from those forthcoming as they get longer. In the earlier stage of growth of the plants the character of the pitchers is much more attractive than in the latter, interesting as in the latter they undoubtedly are. Consequently, the aim of the cultivator may be expected to be in the direction of securing the desired form. One thing connected with the change that takes place in the character of the pitchers of these plants that I have never seen noticed by anyone who has written on their cultivation is that plants raised from cuttings made of such portions of shoots as have changed form in the way described will not produce pitchers of the approved shape, but will come with them identical in form to those borne on the portions of shoots of which the cuttings were made. Therefore where plants raised from cuttings are required to give pitchers like those borne on the lower portions of the shoots, only such parts as have produced them of the right shape must be used.

IN A GLAZED PASSAGE, part of which is open at the sides, that acts as a covered way connecting two blocks of houses there is a specimen of *Lapageria rosea* planted out that grows well and keeps on flowering every autumn up to Christmas. In this position, trained up the side and under the roof, it has stood when the thermometer has shown 30° of frost outside. T. B.

## GARDEN DESTROYERS.

### SULPHIDE OF POTASSIUM V. MILDEW.

IN consequence of what was written concerning this last spring, I determined to give it a trial, and so far as I have been able to judge it is a sure and safe remedy for mildew. Seeing that we were going to have rather a bad attack of this pest in one of our Strawberry pits, I dressed the plants in the customary manner, leaving several frames to be done with the sulphide. These were done, one half at the rate of a quarter of an ounce to the gallon, the others double that strength. In each case the mildew was killed and the fruit came off quite clean. Moreover, I found no trace of injury done to the foliage; whereas when sulphur is used and a hot day or two come directly after it is apt to get burnt. This was the case this year; the plants dressed with the sulphur mixture were somewhat scorched; whereas, as I have already stated, those done with the potassium were not injured. The contrast was all the greater from the fact that the plants were growing side by side, and consequently got identical treatment as regards ventilation, &c. Another year I should have no hesitation in using this remedy extensively. Rose growers ought to find in this sulphide a boon, for sulphur is not only unsightly, but dangerous. And here I may remark how fully I am convinced that injudicious ventilation is one of the chief causes of mildew attacking plants. Cold draughts or drying currents of air passing over the foliage for any length of time will be almost sure to bring it on, whilst preserving a genial



growing atmosphere will in a great measure ward it off. Speaking lately to a Rose grower of great experience upon this subject, he assured me that he had known a few hours of inattention in this matter to bring on a bad attack. With plants, as with human beings, nothing seems more deadly than a chill.

J. CORNHILL.

**The great Mulleins** have a serious enemy in the caterpillar that especially infests them. Those who grow these stately plants should now look over them carefully twice a day, and pick off the grubs. A few minutes' attention for a few days will save the plants, otherwise the beauty of the leaves may be destroyed by these voracious creatures, whose appetite and rapid growth are astounding.—G. J.

**Woodlice.**—Where pits and frames are infested with woodlice I know of no safer method for reducing their numbers than trapping them with flower-pots; those known as 4½-inch are the most convenient. Several pots baited with pieces of Carrot or Potato and half filled with dry Moss placed in the pit or frame will soon thin them. The pots should be seen to every morning. Before examining them, place a finger over the hole in the bottom to prevent the woodlice from escaping. Carefully remove the Moss, first of all giving it a gentle shake, and then turn the contents of the pot into a bucket of hot water. This method is safer than pouring hot water into their haunts, which, in the hands of a not over-careful person, might cause destruction to other occupants of the pit.—H. J.

**Peach and Pear leaves diseased** (*R. C. Errol*).—The Peach leaves are badly attacked by a parasitic fungus named *Ascomyces deformans*, a pest which has been, and is, extremely common and destructive in gardens this season. The fungus lives inside the leaf, and bursts through the skin from the inside to the out. In the latter position it may be seen in the form of a thin white bloom. Sometimes frost, wind, aphides, &c., cause a somewhat similar, but by no means identical, appearance. The Pear leaves are attacked by a fungus named *Helminthosporium pyrorum*, a pest which is equally destructive with the last, but instead of attacking Peaches it chiefly destroys the foliage, flowers, and fruits of Apples and Pears. It eats away the epidermis in leaves and fruit alike, and in the latter position it causes the fruit to crack and rot. As in the last case, sometimes the effects of wind, frost, sun, and insects set up somewhat similar appearances to the *Helminthosporium*, but the appearances are quite superficial; there is no identity. To prevent the recurrence of these diseases, carefully gather (if possible) and burn all the affected parts.—W. G. S.

**Diseased Apple, Pæony, and Lily.**—What can have caused the destruction of the enclosed leaves? Are the three plants, Apple tree, Pæony, and Lily, all attacked by the same blight? They sickened together. The Lily bed (for other sorts are also injured) suffered much more severely this time last year than now. After what appeared a very slight rain shower one Sunday afternoon, there were spots on nearly all the leaves (the same as on some of these) by Monday morning, and on Wednesday the whole leaf was decaying. Is there any precaution or cure which I can use for the Lilies? The Apple tree is a Keswick; it alone out of fifty or sixty trees of other varieties has this complaint; therefore, I do not think it could be frost. We have none to hurt Walnuts this year. What is strange is, that the branch or spur of fruit immediately below these is quite healthy, and so it is on all the branches. Only the extremities have suffered, and chiefly on the east and south side. The Pæony (herbaceous) is the only one out of a bed of eight or ten varieties affected. Lily culture is very uphill work here, but I devote much time and a good deal of money to it, and shall be truly obliged if you can help me.—R. H. J.

\* \* These plants are not suffering from the same blight. The same blight, unless it belongs to scalding, parching, or soaking, seldom attacks different Natural Orders of plants. The Apple exhibits the growth of a fungus named *Helminthosporium pyrorum*, a common plague of Apples; it parches the leaves and cracks the fruit. The sun, wind, and

frost sometimes produce a similar, but not identical, effect; the fungus attacks the tender extremities. There are no traces of insects or fungi on the Pæony; the leaves appear to be scalded as if by the sun shining on them whilst they were wet with rain. The Lilies are suffering from the too well-known disease called "spot." Mr. Berkeley says it is caused by a fungus named *Ovularia elliptica*. Diseases of Lilies are badly understood at present.—W. G. S.

## SOCIETIES.

### CRYSTAL PALACE ROSE SHOW.

JULY 4.

NOTWITHSTANDING the lateness of the Rose season, it was the general opinion that a finer exhibition of Roses has seldom been seen, even at the Crystal Palace, than that which took place there on Saturday last, this being the first of the great Rose shows in or near the metropolis. To give an idea that it was a thoroughly representative show we need only mention that there was but one class out of the thirty-four included in the schedule that was not represented, and this was for a dozen blooms of *Rosa rugosa*. We should have liked to have seen this beautiful single Rose exhibited well, and the public would have appreciated it as well as other single Roses. We were pleased to see that the framers of the schedule had endeavoured to break out of the ordinary track, as prizes were offered for varieties of *Rosa polyantha*, and we might suggest that another year a class should be set apart for climbing and single Roses as well as double kinds, to be shown in bold vases with their long flower-laden branches disposed in a tasteful way. These are the things that the public appreciate quite as much as the long lines of boxes of the choicest Tea and Hybrid Perpetual sorts. The Company deserve to have a good show every year, for the prizes offered are most liberal. On the present occasion there was a total sum of about £250 offered in thirty-four classes. Some of these were represented by eighteen exhibitors, the amateurs' classes being the most numerous throughout. The show had a pretty and imposing appearance, the southern nave being quite crowded with the competitive display, while the northern end was exclusively occupied by an extensive exhibition from Messrs. W. Paul & Son, of Waltham Cross, who had about a thousand pot Roses and as many as one hundred thousand cut blooms. This exhibition was arranged with a view to producing a beautiful effect, and, with the aid of coniferous trees and some magnificent Tree Ferns and Palms from the company's gardens, the effect of the whole was extremely beautiful. It was the finest display that we ever remember seeing from the Waltham Cross Rose Nurseries. It remained open during the whole of the week.

#### Open Classes.

The competitors in the open classes included all the great Rose growers in the country—the Pauls, the Cants, the Cranstons, Keynes, Turner, House and Prince, of Oxford, the latter being unapproachable in his special branch—the Tea varieties in the classes for which he was second to none. As is generally the case with the early Rose shows, the locality and soil on which the Roses are grown settle the point of superiority; for instance, the Messrs. Paul, of Cheshunt, had scarcely any Tea varieties sufficiently forward to exhibit; consequently their great collection of seventy-two trusses lacked the variety which Mr. B. Cant was enabled to give his stand, and the same was noticed throughout the show. The exhibitors favoured with a warm soil showed the best blooms, but these probably in the course of a few days would have to succumb to exhibitors from later districts.

**COLLECTIONS.**—In the classes for seventy-two varieties there were four competitors, all of whom showed admirably. The most successful were Mr. B. Cant, Messrs. Paul, and Mr. Turner, of Slough. The six dozen which Mr. Cant showed were as fine a selection of sorts as could possibly be made, and among the large numbers there were very few inferior blooms, and, as may be seen from the following list, which we think well to enumerate for the sake of those who wish to make a good selection

of show Roses, there were a good number of Tea varieties interspersed with the Hybrid Perpetuals, which included the following: Ulrich Brunner (one of the finest of new Roses), Alfred Colomb, Magna Charta, Alphonse Souper, Duke of Wellington, Marguerite de St. Amand, Alfred K. Williams, Annie Laxton, Prince Arthur, Madame Prosper Laugier, Lord Macaulay, Boieldieu, Fisher Holmes, Madame Isaac Periere, Duchesse de Morny, Dr. Sewell, Marquise de Castellane, Mons. A. Dumesnil, Emily Laxton, General Jacqueminot, Star of Waltham, Xavier Olibo, Jean Souper, Countess of Rosebery, Earl of Pembroke, Madame Nachury, Mrs. Baker, Baroness Rothschild, Jules Margottin, Lady Mary Fitzwilliam, Duke of Edinburgh, Madame Gabriel Luizet, Edouard Morren, Madame Marie Verdier, Horace Vernet, Eugène Furst, Marie Rady, Mdle. Julie Dymonier, François Michelin, Comtesse de Serenye, Dr. Andry, Abel Carrière, Marchioness of Exeter, Le Havre, Mdle. Marie Cointet, Sultan of Zanzibar, Violette Bouyer, Dupuy Jamain, Marie Baumann, Ferdinand de Lesseps, Duchesse de Vallombrosa, Etienne Levét, Merveille de Lyon, Madame Ducher, Mons. Noman.

Tea-scented varieties included Catherine Mermet, Souvenir d'Elise Vardon, Marie Van Houtte, Maréchal Niel, Devoniensis, Mdme. Caroline Kuster, Hon. Miss E. Gifford, Comtesse de Nadaillac, Mdme. H. Jamain, La Boule d'Or, Mdme. Bravy, Niphetos, Innocente Pirola.

In the class for forty-eight varieties (treble trusses) there were four competitors, the first prize being won by Messrs. Paul, who showed an extremely fine collection, including the following sorts of Hybrid Perpetuals: Marie Verdier, Duke of Edinburgh, Abel Grand, Star of Waltham, Queen of Queens, Victor Verdier, Comtesse de Paris, Duke of Teck, Gen. Jacqueminot, Marquise de Castellane, Mons. A. Dumesnil, Violette Bouyer, Beauty of Waltham, Mons. E. Y. Teas, François Michelin, Ulrich Brunner, Mdme. Hippolyte Jamain, Comte Raimbaud, Centifolia rosea, Mrs. George Paul, Baroness Rothschild, Xavier Olibo, Clothilde Rolland, A. K. Williams, François Levét, Maurice Bernardin, Niphetos, Antoine Ducher, Pride of Waltham, Horace Vernet, Duchesse de Vallombrosa, Etienne Levét, Captain Christy, Dr. Andry, Mdme. Gabriel Luizet, Marie Cointet, Mdme. Lacharme, Abel Carrière, Louis Van Houtte, Marie Rady, Marie Baumann, Marguerite de St. Amand, Alfred Colomb, Comtesse d'Oxford, Mons. Noman, Prince Arthur, Merveille de Lyon.

**TEA VARIETIES.**—The chief class for these was for eighteen treble trusses, and among a dozen competitors, Mr. Prince, of Oxford, showed by far the finest collection. His selection consisted of Comtesse Nadaillac, Mdme. H. Jamain Teas, Marie Van Houtte, Rubens, Princess of Wales, Perle des Jardins, Souvenir d'Elise Vardon, Jean Pernet, Souvenir d'un Ami, Niphetos, Anna Ollivier, Jean Ducher, Francisca Kruger, Maréchal Niel, Alba rosea, Catherine Mermet. Good collections were also shown by Mr. B. Cant and Mr. Turner.

**YELLOW ROSES.**—The first prize collection of these from Mr. Prince included Comtesse Nadaillac, Sunset, Jean Ducher, Marie Van Houtte, Maréchal Niel, Marquis de Sanima, Jean Pernet, Perle des Jardins, Francisca Kruger.

**WHITE ROSES.**—Among the five collections of these there were two which the judges disqualified on account of some of the sorts being pink instead of white. Among the pink sorts shown as white were Lady Mary Fitzwilliam, Mrs. Bellenden Ker, and Mdme. Bonnaire. Mr. B. Cant's first prize collection contained the following sorts: Mdme. Lacharme, Innocente Pirola, Niphetos, Violette Bouyer, Devoniensis, Merveille de Lyon.

**PINK ROSES.**—In the class for these there were ten exhibitors, the first prize winners being Messrs. Paul, who had the varieties Princess Beatrice, Marie Verdier, Marguerite de St. Amand, Abel Grand, Lady M. Fitzwilliam, Marie Cointet, Baroness Rothschild, Pride of Waltham, Alice Dureau, Mdle. Eugénie Verdier, François Levét, Mons. Noman, La Duchesse de Morny, Marquise de Castellane, Mad. Gabriel Luizet, Claude Bernard, and Julie Touvais.



**CRIMSON ROSES.**—Only four showed collections of this colour, Messrs. Paul again being first with *Maréchal Vaillant*, A. K. Williams, *Star of Waltham*, Alfred Colomb, Maurice Bernardin, *Duc de Rohan*, Beauty of Waltham, Marie Rady, Dr. Andry, Leon Renault, Mons. E. Y. Teas, Marie Baumann, Camille Bernardin, Mrs. Charles Wood, Comte Raimbaud, and Mad. Victor Verdier. Some excellent collections were also shown by Messrs. Bunyard and Mr. Runsey.

**VELVETY-CRIMSON ROSES.**—Messrs. Bunyard, who showed the best collection of these, selected the following sorts: Abel Carrière, Charles Lefebvre, Sultan of Zanzibar, Prince Camille de Rohan, Xavier Olibo, Eugène Furst, Duke of Connaught, Duke of Edinburgh, Fisher Holmes, Charles Darwin, Rosierste Jacobs, Prince Arthur, Horace Vernet, and Duke of Wellington.

**PARTICULAR VARIETIES.**—*Maréchal Niel* was very poorly represented, one boxful being shown, and these the judges did not consider deserving of the first prize. Marie Baumann was shown best by Mr. Cant, who had eighteen splendid blooms. Prince Camille de Rohan, or a sort of a similar colour, was badly represented as regards numbers, but Messrs. Paul has some fine blooms, and also of Ulrich Brunner, in the class for François Michelin, or a sort of a similar colour. The new Lady Mary Fitzwilliam variety was honoured with a special class, and fortunately it was shown finest from its birthplace, Mr. Bennett's nursery at Shepperton, who had eighteen magnificent blooms, while it was shown well also from Bath and Colchester. A. K. Williams was also a special class, Messrs. Paul showing the best, but these were inferior to what is generally seen of this beautiful dark Rose. The eighteen best trusses of *Niphetos* came from Mr. B. Cant, a beautiful gathering, every bloom in perfection. The new American Rose W. A. Richardson, of a rich apricot-yellow, was shown finest by Mr. House, of Peterborough, whom we believe possesses the original stocks sent to this country. His blooms were much richer than those in any of the seven boxes of the same variety. It won the admiration of everyone, being so distinct in colour. The best collection of *Rosa polyantha* varieties came from Mr. Prince, who had beautiful trusses of the *Paquerette Anna Maria de Montravel* and the pretty pink *Mignonette*.

#### Amateurs' Classes.

Though the amateurs' classes were more numerously represented than the open, their exhibits, on the whole, were inferior, although a few of the collections—such as those from Mr. Girdlestone, Mr. Ridout, and Mr. Gray, who took the leading prizes, left little to be desired, containing, as they did, but a small percentage of inferior blooms. In the class for four-dozen sorts Mr. Haywood's gardener (Mr. Ridout), of Reigate, showed an uncommonly fine collection, including the following sorts: *Magna Charta*, Ulrich Brunner, *Marquise de Castellane*, *Merveille de Lyon*, *Violette Bouyer*, Edouard Morren, Mad. Gabriel Luizet, François Michelin, La France, *Pride of Waltham*, Lady Mary Fitzwilliam, Duke of Wellington, *Comtesse de Choiseul*, Le Havre. This was a very large class, there being thirteen exhibitors. The second prize was taken by Mr. Pemberton, and the third by Mr. Slaughter, of Steyning, in Sussex.

The class for twenty-four treble trusses was best represented by Mr. T. Girdlestone, of Sunningdale, Berks, who had an exceptionally fine collection, the sorts being *Mme. Gabriel Luizet*, Etienne Levat, La France, Ulrich Brunner, Dupuy Jamain, *Marguerite de St. Amand*, *Duchesse de Vallombrosa*, General Jacqueminot, *Souvenir d'Elise Vardon*, *Mme. Prosper Laugier*, Miss Edith Gifford, Jules Chretien, T. Miles, *Maréchal Niel*, A. K. Williams, Marie Rady, Marie Finger, *Violette Bouyer*, Jules Margottin, *Mme. Christy*, *Mme. Victor Verdier*, Caroline Kuster, Duke of Teck, Baroness Rothschild. This class was best represented throughout. There were ten exhibitors in all, the second and the third being Mr. J. Brown, of Reigate, and Rev. J. H. Pemberton, of Romford.

In the class for two dozen Hybrid Perpetuals, undoubtedly the finest blooms were in the collection from the Rev. J. D. Pawle, but who unfortunately

included one or two Tea varieties; consequently the judges had to disqualify him, not, however, without expressing regret at the occurrence. Earl Stanhope's gardener, Mr. Gray, was first in this class. The best collection of a dozen Tea varieties was shown by Mr. Slaughter, of Steyning, and very fine blooms they were, the mildness of the South Down district being apparently very favourable for early Tea Roses.

#### Miscellaneous Classes.

The exhibits in these classes added greatly to the interest in the exhibition, there being classes for Begonias, Lilies, Carnations, Picotees, and Pinks. As a matter of course, Messrs. Laing, of Forest Hill, were unapproachable in the class for tuberous Begonias. They showed a magnificent group of plants, all admirably grown and flowered, and including the very finest sorts yet raised, besides some new seedlings. The group occupied an area of 100 square feet, and the Begonias being arranged with Palms and other graceful plants a beautiful effect was produced. Among the new varieties the following were awarded first-class certificates: Mrs. Howe, double carmine; Little Beauty, double rose; Anak, very large single-flowered, 6 inches across, and of a brilliant scarlet; and Princess Victoria, a single sort with white flowers flushed and edged with pink. Besides these there were numerous other exceptionally fine seedlings, the majority not in commerce. The only exhibitor of *Lilium auratum*, six plants, was Mr. Turner, who had a creditable group. Picotees were few, but excellent, considering the early date. Mr. Douglas showed a fine dozen blooms for the first prize, while Mr. Turner was second. Carnations were best shown by Mr. Turner, and the best dozen Pinks came from Mr. F. Hooper, of Widcombe-hill, Bath, who beat both Mr. Turner and Mr. Douglas, who were second and third. Messrs. Cannell, of Swanley, contributed an extensive display of cut flowers from their nurseries, the most noteworthy being the fine collections of zonal Pelargoniums, Verbenas, tuberous Begonias, and hardy herbaceous plants, the latter including the very best sorts in season. An extra prize was deservedly awarded to Messrs. Cannell for their fine display. A select assortment of hardy flowers came from Messrs. Cheal, of Crawley, which won as many admirers as the Roses. Mr. Bennett, of Shepperton, showed two dozen splendid blooms of his new Rose, *Her Majesty*, the largest of all Roses unquestionably; the massive blooms are as much as 6 inches across, and of a lovely soft pink shaded to almost white at the edges. Mr. Bennett was awarded an extra prize for these and a first-class certificate for a new seedling named Mrs. John Laing. This is a Hybrid Perpetual, large and full in flower, of globular form, and of a beautiful deep rose. It will, no doubt, be much heard of in future. Messrs. W. Paul's exhibition, to which we alluded above, contained something like 500 varieties, including all sections, not the least interesting being the beautiful old garden Roses, which one seldom sees at a show. The cut flowers were shown in an informal manner in large baskets, and being accompanied by plenty of foliage they had a charming appearance, so different from the formal long line of boxes of show blooms. Besides the finest of the best known sorts one could single out many that are either new or little known. The pot plants, numbering nearly 1000, were arranged in a large oval group on the floor, and, as we said before, being mixed with noble Ferns and other foliage, a charming Rose garden was produced inside the Palace.

#### NATIONAL ROSE SOCIETY.

JULY 7.

THE principal exhibition held under the auspices of this society took place at South Kensington on Tuesday last. It was as extensive as ever, and the exhibits quite filling all the available space in the great conservatory. The effect of the show was better than usual, inasmuch as the boxes for the most part were arranged in broad sloping banks instead of in long lines singly. Along the centre of the stages running down the middle of the conservatory was a magnificent line of *Souvenir de la Malmaison* Carnations from Mr. Leopold Rothschild's garden at Ascot, where Carnations of all sorts are grown ex-

tensively and well, those shown on this occasion being remarkable for vigorous growth and a profusion of fine flowers. An idea of the extent of the show may be gleaned from the fact that there were 106 exhibitors, who showed nearly 7600 blooms, or an average of about seventy blooms from each exhibitor. The schedule, as usual, was most comprehensive, there being no fewer than thirty-six classes, the first seven being set apart for nurserymen, twelve for amateurs, in two divisions, five extra classes, the remaining twelve being open classes.

The challenge trophies, each of the value of sixty guineas, the most coveted prizes among rosarians, both nurserymen and amateurs, fell this year to Mr. B. Cant, of Colchester, who represented nurserymen, and the Rev. J. H. Pemberton, of Romford, the amateurs. The collections, one of which numbered six dozen trusses, the other four dozen, were, as may be imagined, of great excellence, although they did not represent such uniformly high quality as last year. Mr. Cant's contribution consisted of much the same sorts as he had in his collection of seventy-two at the Crystal Palace the Saturday previous. Mr. Pemberton's collection included grand blooms of *Madame Gabriel Luizet*, *Marquise de Gibot*, Louis Van Houtte, *Madame Lambard*, Henri Lédéchaux, *Reine Marie Henriette*, Marie Cointet, *Madame Montet*, Pierre Notting, and Ulrich Brunner, besides other commoner sorts. The nurserymen's classes throughout were admirable, and in most cases numerously represented, the chief prize winners being Messrs. B. Cant; Paul, of Cheshunt; Prince, of Oxford; Curtis, Sandford, & Co., of Torquay; Kinmont & Kidd, of Canterbury; and Piper, of Uckfield. Messrs. Paul's four dozen treble trusses were superb, and the Teas and Noisettes from Mr. Prince, as at the Crystal Palace, were the admiration of all.

The amateurs' classes were best represented by the Rev. J. H. Pemberton, who, as has just been stated, won the trophy for four dozen blooms; the Rev. Page Roberts from Norfolk, who showed the finest two dozen blooms of Hybrid Perpetuals, and also the best eighteen trusses of Teas and Noisettes, among them being some uncommonly fine blooms of *Comtesse de Nadaillac*, Mad. Welch, *Etoile de Lyon*, *Souvenir de Paul Néron*, *Innocente Pirola*, and Catherine Kuster. Mr. Waterlow's gardener, Mr. J. Brown, of Reigate, won the first prizes in the classes for two dozen and eighteen blooms, as well as in the class for a dozen Tea varieties. The fourth division of the schedule was set apart for amateurs not competing in the previous divisions. The classes were for a dozen, nine, and six blooms, so as to give small growers a chance of competing, and, on the whole, the produce from these small gardens was good. The extra classes included one for a basket of Tea Roses arranged in the most tasteful way. The first prize in this class consisted of a piece of plate value five guineas presented by Messrs. Paul, of Cheshunt, and was won by Mr. E. Claxton, of Liverpool, who showed an admirable basket tastefully filled with good blooms. Mr. McIntosh, of Dunevan, Weybridge, also gave a five-guinea piece of plate for the best dozen Teas, which Mr. Prince easily won by a superb collection. Then followed a class for garden Roses—that is, varieties not included in the National Rose Society's catalogue of exhibition kinds. In this class there was a large display, Mr. Sladden showing the finest. The prizes in the class for a dozen bunches of Moss and Provence Roses were presented by Messrs. Bunyard, of Maidstone, the first being won by Messrs. Paul, who had a capital assortment of such favourites as Mad. Plantier, *Amabilis*, *Narcisse*, Jules Margottin, and Paul Ricaut. The class for a dozen bunches of varieties suitable for button-hole bouquets was represented by a few fine collections, the best from Mr. Mattock, containing such as Catherine Mermet, W. A. Richardson, *Innocente Pirola*, Ma Capucin, Rubens, Mad. Lambard, David Pradel, Anna Ollivier, Mad. Falcot, and Marie Van Houtte. The classes for Roses of particular colours were numerously represented. The best yellow was *Comtesse de Nadaillac*, which won the first and second prizes, while the third was *Mme. Margottin*. The best white sort was the beautiful new *Merveille de Lyon*, which was shown by nine. The best crimson sort out of sixteen was A. K. Williams, while next to it was Marie Baumann, and the third best was Ulrich Brunner.



Of dark velvety crimson Roses the best were Jean Lilevre, Abel Carrière, and Dr. Hogg, the latter seldom seen variety. The class for the best dozen trusses of any Rose was best represented by Mr. Bennett, who had magnificent flowers of his new variety Her Majesty, every flower of which was about 6 inches across. Following it in the same class was the new Ulrich Brunner, also a first-class sort; then followed Souvenir d'Elise Vardon and Mons. Noman.

NEW ROSES were not numerous and unquestionably the finest of all was the one selected for the society's gold medal. This was Mr. Bennett's new Mrs. John Laing, a superb flower of fine globular form, very full in petal, of a rich deep rose-pink, and of delicious fragrance. It has a great future before it without doubt. In the class for twelve new Roses put in commerce since 1883, Messrs. Curtis & Sandford, of Torquay, were first with the following sorts: Marguerite de Roman, in way of La France and rather deeper; Admiral Seymour, deep velvety crimson; Baron N. de Rothschild, deep crimson; Mdme. Julia Gaulain; de Directeur Alphonse, deep crimson; Mdme. Rambaux, deep rose; Mrs. George Dickson, large full flower, good form, and deep rose; Lord Bacon, deep velvety crimson; Mdme. Delle-roux, white blush tint; Mary Bennett, deep rose; Souvenir de Léon Gambetta, large deep rose.

Messrs. Paul were second with Grace Darling, deep flesh pink Tea; Queen of Queens; Marshall P. Wilder; Longfellow, deep plum crimson; Sunset; Mr. Francisque Reve; Pride of Reigate; Mdme. Alice Van Geert; Eclair, bright crimson; Mdme. de Watteville, white blush petals.

The silver medals offered by the society for the best four blooms in the whole exhibition were awarded thus: In the nurserymen's class the best Tea was Comtesse de Nadaillac, from Mr. Prince; best H. P., Marie Baumann, from Mr. Mount. Best H. P. among amateurs was Ulrich Brunner, from Rev. J. H. Pemberton; and best Tea, Jean Ducher, from Mr. J. Brown.

A full list of awards will be found in our advertising columns.

## PARKS AND PUBLIC GARDENS.

### TOWN SQUARES.

WHY are sundry town squares, the greater portions of which are set apart for plant growth, generally so bare of vegetation, showing a sparseness of foliage which is quite depressing? I fear the real cause is to be found in the fact that the outlay necessary to maintain such squares in anything like proper condition is not forthcoming. To say that shrubs and lowly plants will not grow in such positions is quite beside the subject, as ample material fit for such places exist. For instance, what plant is more effective than Solomon's Seal. Its foliage is of a lovely green hue, and its numerous pendent blooms are exceedingly handsome. It is one of the easiest plants to propagate, which may be done by dividing the roots; simply chop them in two each winter season and plant them wider apart. Our native Ferns, too, planted in so many and curious sites around houses in towns would look well in our squares; but they are the exception there rather than the rule. These universal favourites may be had for the collecting in even the home counties, and, therefore, ought to enliven many a bare space beneath trees as well as sheltered nooks. Of shrubs, probably few succeed better within the smoke-ridden circle of the inner metropolis than the Bladder Sennas, or Coluteas. They possess pretty foliage, and are endowed with a great wealth of pleasing yellow flowers, succeeded generally by bladder-like seed-pods. Yet this plant is rarely seen in such places. Has the Lily of the Valley ever been properly tried in London squares? Sundry efforts, I know, have been made to introduce it, but have they been such as were likely to be successful? This modest plant, though often long in dying under adverse treatment, will not flourish unless liberally dealt with. It dislikes Elm-tree or similar underground roots and it is fond of manure, especially decayed vegetable manure. Unfortunately, manures are unknown in London squares, and hence Lilies

are not likely to be helped by them. The Lily of the Valley is especially fitted for shady places. When suddenly come upon in our native woods it is invariably beneath a canopy of tall trees and bowers of Bramble or more lowly vegetation, partly buried in leaf mould, which is not beyond the means of the square attendant. As was amply exemplified in Victoria Park a few years ago, Hollies succeed well within the smoke circle, yet seldom is an attempt made to plant them in our squares or other open spaces. For dwarf ground green in spring Coltsfoot does well, its leaves being of an ornamental type, and moreover it flourishes in the shadiest places. Euonymuses, Aucubas, Ivies, and similar plants also do well in such places, as do likewise the Philadelphus, Persian Lilac, shrubby St. John's Wort, and the Solidagos or Golden Rods, and Periwinkles; even Corydalis lutea will thrive admirably in town gardens.

WILLIAM EARLEY.

**The Grass in Hyde Park.**—Notwithstanding a dry spring, Grass seems unusually abundant this year, and the lawn mower is seldom at rest. By the way, I wonder if "J. H. H." has calculated the cost of keeping Hyde Park and Kensington Gardens mown like the flower ground on either side of Rotten Row. These parks contain 640 acres, and allowing 240 acres for woodland, walks, roads, and water, 400 acres would have to be thus kept as dressed ground, much to the detriment of the Grass, though it might save a few people from soiling their boots. I have observed in the garden part of each park that the weeds make their appearance where the lawn mower is used, or where new Grass has been sown. There is, perhaps, no finer green sward in the world than the Green Park; the only parts of it that contain Daisies and other weeds are the flower belts on the Piccadilly side and a few other patches where Grass has lately been sown. Again, the lawns round the Rhododendron beds in Hyde Park have ugly clumps here and there of Daisies. Surely the trouble and expense of extracting these would be small. I have always heard it said that the great characteristic of English gardens was the velvety green lawn composed of fine Grasses and Clover; yet in our public parks, upon which so much money is spent, the lawns are allowed to be spotted over with weeds, the sheep-nibbled portions being the only ones without them.—J. T.

**Open spaces in London.**—The circular garden in Northampton-square, Clerkenwell, comprising an acre of land, and containing many fine old trees, was opened on Wednesday last to the public by permission of the Marquis of Northampton, the ground landlord. Lady Margaret Graham, his lordship's daughter, presided at the opening ceremony. The garden has been prettily laid out, provided with seats and supplied with a large fountain in the centre, at a cost of £250, borne by Mr. C. C. Walker, of Lilleshall Old Hall, Salop, a native of Clerkenwell, who also defrays the expense—£200—of converting Wilmington-square garden, close by, into a public pleasure resort for the use of the inhabitants of Clerkenwell, numbering some 140,000, who have hitherto been destitute of any open space to which they could freely resort. Great interest in the opening ceremony was shown by the public. Lord Brabazon, who addressed those assembled, commended the example thus set to the great landlords of the metropolis, an example which had been followed by the Duke of Westminster. Having alluded to the liberality displayed by Mr. Walker in defraying the cost of furnishing and adapting that and Wilmington-square for the public use, his lordship said that during the two years of its existence the Metropolitan Public Gardens Association had been instrumental in throwing open to the public thirteen open spaces, eleven of which were gardens and two play-grounds.

### GARDENERS' BENEVOLENT INSTITUTION.

ON Friday evening last the forty-second anniversary festival of this institution took place at "The Albion," Aldersgate-street. The treasurer, Mr. Edward Tidswell, occupied the chair. In proposing the toast of the evening—"Success to the Institution"—he gave a short account of the progress of the institution, which had, he said, now been the means of

assisting, to the extent of several thousand pounds, deserving men and women in their declining years. Until last Christmas the pensions granted were somewhat inadequate—viz., £16 per annum for men and £12 for women; but, owing to a legacy of £450 and a most generous donation of £500 from an anonymous donor, they had been able to raise a sum which enabled the committee to increase the pensions to £20 and £16 respectively. At present there were 104 annuitants—54 men and 50 women. This toast and several others that were proposed during the evening were heartily received and suitably responded to. The chairman then proceeded to express the obligations of the institution to the secretary, Mr. E. R. Cutler, to whose assiduity its present position was mainly attributable. So greatly was this feeling entertained by the committee, that it had been suggested that some testimonial should be presented to Mr. Cutler in order to show in some tangible form their appreciation of his services. He had, therefore, now the pleasure of handing to Mr. Cutler a gold watch and chain (the object of his choice), and further a cheque for £420. The sum subscribed up to that moment by 480 subscribers was £505. Mr. Cutler acknowledged the presentation in a short speech, in the course of which he alluded to the fact that forty-eight years ago he had come to London without friends or means. The subscriptions of the evening showed a total of about £800, of which the chairman contributed 50 guineas.

## OBITUARY.

M. Godefroy-Lebeuf, of Argenteuil, has received news from Cochinchina confirming the report of the death of M. REGNIER, curator of the Botanic Gardens of Saïgon, and importer of *Aerides Houletti*, *Saccolabium illustre*, *Calanthe Regnieri*, *Saccolabium coeleste*, &c. M. Regnier had proceeded on a journey through the province of Pursat, in Cambodge, but having insufficient means of protection was surprised by a party of natives, and, with his two companions, was killed. His brother, who lives in Paris, left for Cochinchina on May 20.

### LATE NOTES.

**Seedling Poppy** (*W. Waters*).—A very fine double variety of the Opium Poppy, but not worth naming, as you could not perpetuate the sort from seed.

**Monstrous Canterbury Bell** (*Mrs. H.*).—A singular occurrence, one that we have not before noticed. It is similar to the deformed terminal flowers common among Foxgloves.

**Seedling Begonia** (*W. H.*).—A very fine variety indeed, and your specimen with twenty-seven flowers upon it must be an extremely fine one.

**Grafting Rhododendrons** (*G. M. P.*).—Next week.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—1, *Iris ochroleuca*; 2, *Xiphion latifolium* var. (English) *Iris*; 3, *Xiphion vulgare* var. (Spanish) *Iris*.—*G. F. W.*—*Stuartia virginica*, *Philadelphus grandiflorus*.—*F. W.*—1, *Delphinium cashmerianum*; 2, *Francoa ramosa*.—*F. L.*—*Erigeron strigosus*.—*Mrs. Saunders*.—*Cattleya superba*.—*J. H.*—1, *Lilium croceum*; 2, *Erigeron strigosus*; 3, *Mimulus guttatus* var.; 4, *Aconitum Napellus* var.—*C. Scott*.—1, *Polypodium Billardieri*; 2, *Selaginella serpens*; 3, *Juniperus chinensis*.—*E. F. C.*—*Spiraea Filipendula*.—*Collins Bros.*—Appears to be *Narcissus moschatum*.—*Anon.*—1, *Libertia dubia*; 2, *Linaria pilosa*; 3, *Odontospermum maritimum*—came in small box without name enclosed.—*Woodman*.—1, *Hoya longifolia*; 2, *Celecyne elata*.—*A. B. J.*, *East Anglia*.—Send a larger specimen with leaves and fully-developed flowers.—*T. B.*—1, *Abies Nordmanniana*; 2, *A. pectinata*; 3, *A. balsamea hudsonica*; 4, cut-leaved Lime (*Tilia europæa laciniata*).—*D. T.*—*Limnathes Douglasii*.—*W. Elliott*.—1, *Selaginella Galleotti*; 2, *Lygodium scandens*; 3, *Lygodium dichotoma*; 4, *Davallia tenuifolia stricta*.—*A. H. T.*—1, *Athyrium Filix-femina thyssanotum*; 2, *Lomaria zamiaefolia*; 3, *Polystichum angulare cristatum*; 4, cannot identify for certain, but is most likely *Lastrea dilatata angustipinnula*.—*Ashton*.—*Adiantum decorum*; 2, *Adiantum excisum multifidum*; 3, *Adiantum amabile*; 4, *Odontoglossum praetense*.—*G. F. G.*—1, *Weigela hortensis* var.; 2, *Melittis Melissophyllum*; 3, *Erigeron strigosus*; 4, *Cephalaria tatarica*.—*C. D.*—*Actinidia Kolomikta*.—*J. R. West*.—1, *Magnolia tripetala* (*Umbrella tree*); 2 and 3, *Fraxinus americana*; 4, *Syringa Josikae*; 5, *Syringa Emodi*.—*C. Scott*.—1, *Asperula taurina*; 2, *Campanula rhomboides*.—*E. H.*—*Onobrychis sativa*; 2, *Lathyrus pratensis*.—*E. H. S.*—1, *Polypodium Phegopteris*; 2, *Asplenium Adiantum nigrum*; 3, *Blechnum Spicant*; 4, *Lastrea Filix-mas grandiceps*.



## WOODS & FORESTS.

### CULTURE OF WILLOWS FOR BASKET RODS.

ALMOST all the species of Willows may be grown for this purpose, but some are greatly preferable to others. The most vigorous-growing basket Willow is unquestionably *Salix viminalis*, and it is also the sort most generally cultivated for that purpose. It has no disadvantage that we are aware of, except that in cold, wet seasons, and in a moist soil, it does not always ripen the points of its shoots. *S. rubra*, *S. Forbyana*, *S. decipiens*, and *S. stipularis* are excellent species, of less vigorous growth than *S. viminalis*, which ripen the points of their shoots perfectly in moist seasons. The best of these is, perhaps, *S. Forbyana*. *S. triandra* is nearly as vigorous as *S. viminalis*. *S. Helix*, *S. vitellina*, and *S. purpurea* are very desirable species where small tough rods are required. Various other sorts might be mentioned, but these we consider as by far the most valuable.

**PREPARATION OF THE GROUND.**—The soil for the successful cultivation of basket Willows ought to be deep, well drained, and thoroughly prepared, and the situation ought to be low, level, and naturally moist; and, if there is a command of water for irrigation, so much the better. "There are few soils," Sang observes, "that will not bear Willows, yet some situations are very unfit for them. Dry and exposed grounds, peat Moss, and land covered with standing water, or a quagmire, are not at all suitable. Hollows, the soil of which is composed of rich, soft, earthy particles, and which can be laid dry, are the most eligible for converting into osieries; and if such can be occasionally soaked with water during the dry months in summer, the situation may be considered perfect. Completely draining the site of a basket Willow plantation is the first step towards its formation and the foundation of its prosperity, and, consequently, of the profit to be derived from it. Drains, in any soil which is to be occupied with a permanent crop of trees, should be constructed upon principles of durability. If the drains are what are called rubble drains, the interstices will soon be filled up with the fibres of the Willow roots, which will creep down to imbibe the oozing water. They ought, therefore, either to be open drains or drains built on the sides, and covered over with flags to prevent their being choked up with the roots. A variety of cases may, however, occur where it will be impossible to form covered drains, or where, perhaps, the expense might operate as a prohibition to doing so with the view of planting Willows. In such cases, the ground may be formed into beds of a less or greater size, according to circumstances by open cuts, or drains, of a sufficient width and depth to keep the soil dry. These open drains will require to be cleaned out every autumn and spring, and the cleanings may be scattered over the general surface of the beds. In preparing ground for an Osier plantation, if the

soil be poor, it should be as well dressed with manure as if it were intended for a crop of Wheat or Barley. The manure most proper for Willows is stable manure." Sang tried lime as a manure for Willows, but found the twigs much fired, or spotted with a sort of canker, and, in attempting to bend them, they readily broke over at the cankered place. Indeed, if a plantation of Osiers be formed previously to a thorough preparation of the soil for the reception of the plants, the saving of the first expense will be found a most severe loss in the end, by the diminution of the crop in the succeeding seasons.

**PLANTING THE GROUND.**—In no case should a plantation of Willows for basket rods be attempted but in prepared ground, except, perhaps, where a few rows may be introduced upon the very brink of a river, or on the top of the banks of ditches, which form, in many instances, the barrier of the waters, where the soil can scarcely be dug or otherwise ameliorated. Nothing can be further from being good management than planting the truncheons in Grass land, and allowing the sward to remain green under or among the crop. Having fixed upon the spot, and having also carefully prepared the ground, the next step is to procure plants. These should be of the last year's wood, or of shoots of one year old, taken from the under end of well-ripened shoots of good size, and cut in a slanting direction with a sharp knife, and they should be in lengths of 1 foot or 1 foot 4 inches. Every vigorous shoot will afford two or three plants. The upper end, as far as it appears soft, being unripe, should be discarded, because such wood will only produce weak plants, and will not make such good roots the first season as the firmer parts of the shoots will do. Pieces of two-year-old shoots of the same length, and cut in the same manner, may also be used; but these are more expensive, and not better for the purpose, than the former. The distances at which Osiers for baskets or wickerwork ought to be planted are 18 inches between the rows and 12 inches apart in the rows. This distance will not be too thick for at least five or six years, but after that period every alternate plant should be stubbed up, which will leave those remaining at 2 feet apart in the rows."

"Osier plantations," Sang continues, "must be carefully hoed and cleaned every year. Nothing contributes more to the raising of a good crop of twigs, after due preparation of the soil, than keeping it and the plants clean. The stools should be carefully attended to annually, from the first year of producing a crop of twigs, in order to keep them clear of rotten stumps, and not to allow them to be overcrowded at the bottoms of the shoots. When these have become too numerous they should be carefully thinned out, and also cut down, leaving only an eye or two at the bottom of each, until they be diminished to such a number as the stool is capable of supporting with vigour throughout the season. A basket-maker finds more service from one shoot of

6 feet or 8 feet in length than from four of 3 feet in length, and one of the first dimensions will not exhaust the stool or the land so much as four of the others. The proper season for cleaning and thinning the stocks is from March 1 to the middle of April." The *rationale* of choosing this season for the operation of cleaning the plants is, that if it were performed in the autumn, the germs of the buds existing at the base of the small shoots cleaned off would swell in the course of the winter, and be liable to throw out shoots in the following spring; whereas, by delaying the cutting off of these till the sap is in motion, the germs remain dormant, the whole current of the sap being taken up by the buds already fully formed. "The cleaning of the plants," Sang continues, "is done with a sharp knife, and if it has been regularly attended to from the establishment of the plantation, it is neither troublesome nor expensive; indeed, this care is necessary, were it only for keeping the plants free from destructive insects. The shoots should not be cut till the second autumn after planting; for, by being allowed to remain uncut for such a length of time, the stools become stronger and more able to produce a good crop than if cut at an earlier period. Indeed, by the third autumn after planting, under the above management, the crop will be of very considerable value."

**CUTTING THE RODS.**—The proper season for cutting the rods for basket Willows is the autumn, immediately after the fall of the leaf. The advantage of cutting at this season is, that the buds which are left to produce the shoots for the succeeding crop immediately begin to swell, and grow in strength during the winter, and, consequently, they make much earlier and stronger shoots in the following spring. Immediately after cutting the rods, they are tied up in bundles, each generally about 3 feet 9 inches in girth, and, if they are not intended to be used green, that is with the bark on, they are set on their thick ends in standing water, to the depth of 3 inches or 4 inches. Here they remain during winter and spring, till the shoots begin to sprout, which generally happens in the neighbourhood of London about the end of February, when they are ready to be peeled. Sometimes it happens that Osiers are cut with leaves on, in which case they should never be tied up in bundles, on account of the fermentation that would be produced by binding them closely together in that state, but the rods should be set up thinly and loosely on end, their tops leaning against a rod supported on two props.

**BUNDLING THE RODS.**—In Cambridge-shire, when a basket-maker purchases green rods, he measures the bundles, or bolts, as they are termed, by a band an ell long (3 feet 9 inches); which band, previously to tying it round the rods, he marks at the point to which the given length extends; with this he binds the bundle as soon as it appears large enough to fill the band, and afterwards completes the bundle by pushing under the



band as many rods as he can. For this purpose the large rods are laid aside, from their filling up the given space more quickly than the smaller ones; and all the rods must be laid parallel to one another in the bundle. Three bands are bound round each bundle, viz., one towards each extremity, and the third in the middle. The one nearest the lower end, which should be at the distance of 1 foot 6 inches from the bottom, is the measuring band. In forming their bundles, basket makers tie up a small armful (which they call a calf), and place it in the middle of the bottom of the bundle, so that the ends extend about 1 foot beyond the bottom, and tie it up in this state. By lifting up the bundle a few times, and letting it fall on its base to the ground, the calf is driven up, and, acting as a wedge, tightens the bundle. A machine called a dumb-boy, made of wood and rope, is used by some purchasers for compressing the greatest possible number of rods into a bundle. Another machine, called a cow, which is made of iron, has a still greater power of compression than the dumb-boy.

**PEELING THE RODS.**—The operation of peeling the rods is very simple, and is commonly done by infirm or old men or women, at so much a bundle. The apparatus for peeling consists of two round rods of iron, nearly half an inch thick, 1 foot 4 inches long, and tapering a little upwards, welded together, at the one end which is sharpened, so that the instrument may be easily thrust down into the ground. When the instrument is inserted in a piece of firm ground, the peeler sits down opposite to it, takes the Willow rod or twig in his right hand by the small end, and puts a foot or more of the thick end into the instrument, the prongs of which he presses together with his left hand, while with his right he draws the Willow towards him, by which operation the bark will at once be separated from the wood; the small end is then treated in the same manner, and the peeling is completed. Another mode is, to fix a plank on legs at a convenient height, so as to form a stool or small bench, having holes bored in it with an inch auger; into these is put a stick, the upper end of which is cleft; and through this cleft the Willow twigs are drawn, to separate them from the bark, in the same manner as through the iron rods. After being peeled the rods will keep in good condition for a long time, till a proper market is found for them. It may be useful here to remark, that Osiers in the peeled state will keep better to wait a market than if left with the bark on, and that they never fail to produce a greater return in the peeled state, after paying for the labour of peeling, than they do when sold immediately after they are cut from the stools.

Whitened, or peeled, rods are tied up in bundles, the band of which is 3 feet 6 inches long, and sold, about London, at from 5s. to 7s. per bolt, or bundle. The rods which have the best sale in the London market are those of *S. triandra*.

Green rods are sold by the score bolts, and whitened rods are sold by the load of 80 bolts. In Covent Garden Market, in and around which there are several basket-makers, the rods of *S. viminalis* are by far the largest brought to market; and, whether with or without the bark on, to them is exclusively applied the term Osiers. All the other kinds of Willow rods are exclusively termed Willows; and those most frequently exposed for sale, with the bark on, are *S. decipiens* and *S. triandra*. All the larger baskets and all the hampers are made of the rods of *S. viminalis*. In Germany, and also frequently in Scotland, the Willows, after being cut and tied up in bolts, are stacked or kept in an airy shed; and, when the bark is to be removed it is effected by boiling or steaming them. The rods, thus prepared, are considered to be rather more durable than when the bark is separated in consequence of the rising of the sap; and they may be used immediately after cutting, instead of remaining in a useless state for several months.

#### NOTES.

**Fast-grown timber.**—"Yorkshireman," I see (p. 607), is endeavouring to demolish my communication respecting the use of the microscope in testing wood, as it happens to clash with the views he has recently been expressing with regard to the value and durability of fast-grown *versus* slow-grown timber. Having been interested in his articles on a variety of subjects that have from time to time appeared, I am fully aware he is a practical man; and therefore I think what he is now advancing on this question is more a matter of argument than real belief. I notice that the paragraph that originated this exchange of views referred only to Oak timber, but it is now gradually widening to include all kinds of timber. This is scarcely fair, as what is a good quality in one kind of wood is a bad one in another. As has been mentioned, few would dispute that under favourable circumstances the wood of fast-grown Ash is more suitable for the purposes for which it is intended than slow-grown wood; but that "Yorkshireman" honestly believes the same conditions to be true of the Oak which is used for purposes essentially different, I am hardly prepared to accept.

**A forest school.**—I would rather agree with what "Yorkshireman" says about this, especially when he remarks on the vast mine of knowledge going unexplored. What is wanted is not a given number of students shut up within four walls, but rather a close observation of the growth of the different kinds of trees under every conceivable condition of climate and soil in this country. Whether many years could not be saved by taking up the observation of plantations already growing, where reliable information as to the mode and time of planting and subsequent treatment are to be obtained, is a question that should receive due consideration.

**Spruce Fir timber.**—That the conditions of climate and soil have much to do with the value of different woods is borne out by what "C. R. S. D." says (p. 558). That Spruce Fir in some parts of this country is altogether to be preferred to Scotch Fir grown on the same soil is indisputable. For such purposes as "C. R. S. D." indicates, viz., for the portions of building scantlings under cover, where Spruce grows to perfection I should certainly use it before I should Scotch. The absence of the qualities that would render it useful for outdoor work are nothing short of a recommendation of it for such purposes as those mentioned. That this wood should be planted to an undue extent, I do not think would be advisable, as of course the purposes for which it is useful are limited in extent. When not allowed to grow too large and within reach of a colliery, it should find a ready market, as although the owners

would naturally prefer Larch for propping, they by no means despise a plantation of good sound Spruce.

**Measuring home-grown timber.**—In this paper (p. 609) we have a good idea of the difficulty an amateur would have in finding the true contents of any given tree. In the instance quoted, both the measurements are theoretically correct, but with the result that one measurement gives the contents at 67½ feet, whilst the other makes it 75 feet. As a general rule, the seller will benefit by taking a tree, unless it be very parallel in its growth, at two or three dimensions, but where a buyer has to run the risk of loss through the possible non-soundness of the wood and similar contingencies, judgment must be exercised as to how far this can with propriety be carried.

**Using home-grown woods.**—Mr. J. N. Blunt advocates the more extensive use of the woods grown on estates in this country. This is very desirable, but for some unknown reason there seems to be a deeply-rooted prejudice amongst workmen against using British woods for building purposes. I am quite convinced, notwithstanding this, that many of our woods are well suited for building; but of course it is important that the various kinds of timber should be employed for the purposes to which they are best suited, as some almost indefinitely resist the action of the weather, whilst others soon decay.

**Rapid consumption of timber** (p. 13).—I do not look upon this question with alarm, at any rate so far as this generation or the next are concerned, as the outcry about the exhaustion of supply has been going on for centuries. This does not, however, alter the fact that the timber in this country is being consumed much faster than it is being produced, and that the end must come sooner or later unless means are taken to keep up the supply. Occasionally we see a well-wooded estate, but in the majority of cases the woods are sadly depleted, and with apparently little prospect of renewal. D. J. YEO.

**The home woodyard.**—At present the home woodyard has no connection with the woods, but is under the carpenter or the clerk of the woods, who procures his supply of timber for most purposes from every dealer but his next-door neighbour, the woodman. While the latter is exporting his timber by rail, or attempting to do so, at an almost prohibitive carriage rate, the other is importing his supply from abroad, and paying the margin the woodman loses and the carriage at the same time. In short, except for the occasional manufacture of a few hurdles, posts, and rails, and his walking-sticks, it would be difficult to name any use home-grown timber is put to for estates. One of the largest landowners, and probably the greatest planter in Scotland in recent times, possessed an extensive woodyard, fitted up with saw-mills and every appliance, but it hardly ever held a plank of his own raising, and was stocked from the Glasgow timber-yards and elsewhere. This proprietor died not long since, and his woods were found to have been a dead loss to him for years back, all the profits having been eaten up by the exigencies of game preservation and what some would perhaps call "eminently distinguished management."—Y.

**Edgings for walks.**—There is one thing in your correspondent's "Notes from New England" (p. 599 last vol.) I cannot agree with, and that is what he says about the use of small Larch or similar poles or tree-tops for edgings round walks. The moment I saw "C. R. S. D.'s" original note on the subject the idea struck me as being a very good one. I imagine, however, as nothing is said in the paragraph about splitting them down the centre, that "C. R. S. D." proposes to use them in the round. A better plan than this would be to use somewhat larger pieces and divide them in two by a saw cut down the centre. Of course the flat or sawn side would be inside and the bark towards the path; the stakes on the inside are fastened with a nail. In this way the soil of the bed would have a flat surface to rest against, as in the case of bricks or tiles, and if done with a little care the bark towards the walk would have a very good effect. Where wood of this kind is at hand there are several things to recommend this kind of edging. It is cheap, quickly laid,



more natural than stiff lines of manufactured material, will endure for several years, and when required can be easily removed. Instead of referring to it to condemn it, many an amateur will be glad to see the suggestion brought to the front.—D. J. Y.

### PRUNING CONIFEROUS TREES.

I AM aware that several papers on pruning have appeared in recent numbers of THE GARDEN, but as there may still be some lingering ideas as to the propriety of denuding trees, especially Conifers, of their branches, the following remarks of M. Boitel, a French authority on the subject, may be useful. He refers to the maritime Pine (*Pinus Pinaster*) of the Landes of Gascony, but as what is true of this particular tree is also true of the Conifers generally grown in this country for timber, his remarks will be equally applicable. I am unable, however, to endorse what he says about cutting off such branches as it may be necessary to remove, at a distance from the bole of the tree, as experience proves they should be pruned as closely as possible in order that the wound may be speedily covered. M. Boitel says:—

Pruning, in its application to the maritime Pine, consists in removing one or more *couronnes*, or ranges of branches, beginning with the lowest; but I have always observed that the removal of a certain number of *couronnes* was hurtful to the vigour and the health of the trees. The leaves play an important part among the nutritive organs, and if pruning does more harm to resinous trees than to broad-leaved trees, which put forth new buds on the old wood, this must, without doubt, be attributable in a great measure to this—that the growing trees do not produce, in place of the amputated branches, young shoots, the leaves of which might discharge the functions of those which have disappeared in the operation of pruning. Pruning has, moreover, the inconvenience of leaving on the trunks running sores, which are healed with difficulty and are the occasion of a pretty considerable loss of sap. It is remarked that the Pines most loaded with branches and with leaves are those which give the greatest bulk of wood and the most abundant crops of resin. Notwithstanding this, pruning, objectionable in theory, becomes useful in certain cases. If there be seedlings with too much space around them, shooting out more in circumference than in height, and loading themselves with heavy and vigorous lateral *couronnes*, which absorb the greater part of the sap, then there is removed gradually the lower branches in order to concentrate the sap upon the stem, the part of the tree which it is of most importance to cause to increase in size and in length.\* As for sowings which are sufficiently stocked, instead of employing pruning to force the trees to shoot upwards, it is more advantageous to get the same result by moderating the thinning, and leaving on the ground as many trees as may be necessary to induce development in height, and one knows not how sufficiently to blame proprietors who, giving no attention to their seedlings for eight or ten years, all at once subject the reserved trees to a vigorous thinning, accompanied by an excessive *élagage* or pruning. This great mutilation, joined to a too immediate action of air and light, occasions a state of disease, from the injurious effects of which the pinery suffers throughout the whole period of its growth. Pruning is also proper on grown-up Pines, the lower *couronnes* of which, enfeebled by age, finally die and fall, leaving long stumps, which, on decaying, produce in the wood perforations which diminish much its value. This serious inconvenience is avoided by pruning away at a proper time lan-

\* I am not satisfied that this is correct. If the trees were pruned closely, and the bottom branches gradually died back as they approached each other, the result would be the upward growth. That pruning would effect the same thing in isolated examples is very doubtful.—D. J. Y.

guishing and dying boughs, and in place of cutting them off close to the stem, leaving a stump 2 inches to 2½ inches long. Such spikes, hardened by the action of resin which accumulates on them, embody themselves without difficulty in the trunks, and produce no other inconvenience than that of obstructing the tools in the working up of the wood.

At Belle Isle M. Trochu prefers pruning rather close to the trunk and leaving no spike, executed in the beginning of winter, as being the method most favourable to the production of planks without knots and without holes. Both thinnings and prunings are delicate operations which should only be entrusted to conscientious and skilled workmen. The woodman who is engaged on piece-work works without other consideration than how he can increase the number of his faggots and of his carts of charcoal; and it is to be feared that in his precipitation he might sacrifice trees which in every respect deserve to be preserved. D. J. Y.

**Gathering Fir cones for stock.**—It is now a well-established fact that stunted and decrepit specimens are prone to produce cones more abundantly than vigorous, healthy trees. I am not in a position to say whether the nurserymen in Scotland who raise such enormous numbers of seedling Pines gather their seeds from such trees or not; but should this be really the case, it would be well for planters and for those nurserymen who purchase quantities of one-year-old seedlings from northern growers to inquire into the matter. That stunted Pine trees bear cones freely cannot be questioned; but that they are more prolific than fine old full-grown trees, no one really acquainted with the Pine would maintain. This is an important question for landed proprietors and those interested in the commercial value of timber trees.—OLD FORESTER.

**Bracken for coverts.**—I am anxious to grow the common Fern or Bracken for game coverts. Will any of you inform me as to the best and easiest way of planting, whether by roots, or, if possible, by seed, and the best season of the year for doing so?—Z.

\*\* There are two modes of establishing Bracken, by transplanting and by raising seedlings, the latter way being the best. Autumn is a good time to transplant, or any time before March. You must, with a full-sized spade, dig up entire sods, enclosing the black underground stems of the Fern, and so transplant in a light loamy or peaty soil. You will not succeed if you pull away the roots, or rather stems, without removing soil with them. Seedlings do much better than transplanted roots, and are in every way more satisfactory. If you will gather a handful of ripe fronds, those with spores (seed) on their fronds now, place them between sheets of dry paper, and keep them dry, the spores will soon fall out. They may then either be sown at once or kept till spring. Make up pots or pans of good loam, rammed firm; sow the spores not too thickly; cover with a piece of glass, place the pots in saucers of water in a cool shady position, and they will grow in three weeks or so. As soon as the young plants are large enough to handle, pot them off singly into small pots, and as soon as they have filled these, give them a shift into 4-inch pots; grow them on rapidly in a house or frame, and by the middle or end of July they will be large enough to plant out permanently. The progress which they make is quite astonishing if liberally treated. Plants in sods always take two years before they recover from removal, even if they do recover, which does not always happen; whereas these seedlings become quite established the first season, and the second season grow into good tufts, ramifying in all directions. A vast number of plants may be obtained from two or three pots. It is not absolutely necessary to employ pots or pans for common things of this kind. Take a sod of loam, turn it upside down in a saucer of water, and sow the spores all over it, and do not cover at all; they come just as well.—ED.

**Varieties of the Larch.**—There are two varieties of the Larch in cultivation in this country, the white and the red, the catkins of the former being of a dull whitish colour, while those of the latter are red. I have sometimes seen trees produce flowers of a light pink colour, but whether or not this is a hybrid produced from the former I am not prepared to say. Various opinions exist among practical men regarding the size and quality of the timber produced by the two varieties; some maintain that the white attains the largest size and best quality of timber, while others are decidedly in favour of the red. None of the varieties, however, keep true to the original type. In 1861 I gathered the cones from a fine weeping variety of this tree, with the view of propagating it for ornamental purposes, but not a single tree of the progeny produced the fine pendent spray as exhibited by the parent tree.—J. B. W.

**The Scotch or Wych Elm** is more valuable than the English Elm as regards its timber. This is useful for cart-naves, and also for various purposes as a substitute for Ash. It often inclines to grow with a straggling head, and to break off into two or three limbs, and is the better for being a little confined. If grown by itself it may be planted at 12 feet apart, but can be advantageously mixed with other hardwood trees. The great drawback to its being extensively planted is its liability to dry rot in the centre—pump-rot it is often called. This, I believe, it is most liable to when planted on sand or very dry soil, although it is often found affected on good soil. The English Elm is a quick-growing timber tree of compact habit; the timber is of little value till over fifty years old. In the south it is used as a substitute for Oak in the manufacture of coffins. It is also used for some of the more common articles of furniture. It thrives well on a sandy soil or light loam; on the magnesian limestone formation it also grows well. It is mostly planted with other trees.

**The white American Birch.**—Some of the most beautiful forests in high latitudes consist of white Canoe Birch (*Betula papyracea*). We see them in Massachusetts only in occasional groups, but farther north, upon river banks, they form woods of considerable extent and remarkable beauty; and with their tall shafts and their smooth white bark, resembling pillars of marble supporting a canopy of bright green foliage on a light feathery spray, they constitute one of the picturesque attractions of the country. Nature seems to indicate the native habitat of this noble tree by causing its exterior to bear the whiteness of snow, and it would be difficult to estimate its importance to the aboriginal inhabitants of northern latitudes. Yellow Birch woods are not inferior in their attractions; individual trees of this species are often distinguished among other forest timber by extending their feathery summits above the level of the other trees.

**The Beech** appears to have been a great favourite with planters eighty to a hundred years ago, judging by the numbers of trees about that age. It is a quick-growing tree, and thrives well on sandy or light soils; and even on clay soils, if resting on sand, it grows freely. Twenty-four feet apart is close enough to plant it; and it is better in a mixed plantation than in masses by itself, especially if any underwood or shrubs are desirable in the plantation, as, owing to the fibrous roots running close to the surface, it extracts all the moisture from the soil, and makes the ground below its shade too dry for any vegetation.

**Hay from woodlands.**—It is plain that one of the things to be done to make woods pay is to reduce the expense of culture in every way by dispensing with useless practices, and one of these is making hay in young plantations. It has not been suggested to leave the Grass to "lie and rot" on rides and drives. My experience is that it is hardly worth while making hay of Grass in plantations; it does no more than pay for getting, and it finds no market unless it is for bedding purposes or packing materials at potteries; and neither Mr. Webster nor anyone else can deny that carrying away the Grass is a distinct loss to the soil and the trees that grow in it. I would,



moreover, only cut the Grass to leave it lying in cases where it was choking the trees; it is better not cut at all. If Mr. Webster would tell your readers what he makes per acre by the hay, one would be the better able to judge of the "economy" of the practice. He speaks of the evils of leaving the Grass lying on wet soils; my reply is that it is better to leave the Grass of such soils where it grows, and on drained soils it is a distinct advantage to leave it, for reasons which every enlightened cultivator of the soil understands. In short, there is no reason for the removal of the Grass unless more profit can be made out of the hay (after paying all expenses and deducting the value of the nourishment taken from the soil); and perhaps Mr. Webster will tell what that profit is. I expect him to be able to furnish that information from the way he writes. —V.

#### PLANTING FOR SHELTER.

In planting merely for shelter it is usual to employ common, hardy, fast-growing trees. I have seen the Huntingdon Elm used in very exposed places, to receive the first fierce blast of the wind, with good effect; and it grows rapidly, and has a less stiff and more elegant appearance than the common Elm or Oak. Having established a first line as a sort of outwork against the enemy, better and choicer trees and shrubs may be introduced. There are, of course, places where these observations on the importance of shelter are unnecessary. The greatest amount of shelter will commonly be required on the north and east aspect, though there are localities where the west winds at times come with the force of a hurricane. They are usually not so cold and cutting as those from the east or north; still, it is necessary to provide shelter in some situations against their destructive force. In the arrangement of the groups of trees and shrubs many things have to be thought of before the plan is laid down. The means of the proprietor will in the main decide the question as to the quality of the materials employed. Planting either for shelter or general effect may be looked upon as a permanent work, and it is a great pity to do it imperfectly, either by deficient preparation of the sites, or by planting cheap and inferior subjects. If the work be well done, and a good selection suitable for each position made, it will annually become more valuable and interesting. One of the evils to be avoided is thick planting; many shrubberies are utterly ruined by that and subsequent neglect. Thick planting would do no harm if thinning were attended to in good time; but even then I question the advantage of planting many masses, except it be on the windward side. Besides, buying more plants than are really necessary adds to the cost of the work.

In setting out positions for belts or groups of trees and shrubs in bleak, exposed situations, where the soil is bad or inferior, after the positions are marked out and trenched, soil should, if possible, be carted from other positions and placed on the top to deepen its staple; it will elevate the site and give the planter an earlier opportunity of seeing and assisting the development of his ideas than would be possible if planted on the level. The idea of planting on slightly

elevated sites may perhaps be cavilled at and deprecated; but the extra depth of soil obtained and the freer drainage which is secured add so much to the warmth of the soil, that many rare plants may be planted with a reasonable prospect of their succeeding even in otherwise impossible situations, and which it would be almost hopeless to think of planting unless some such plan be adopted. Every experienced planter knows that a tree, about whose hardiness there may be any doubt, often succeeds on a raised site when others in a lower situation fail. But I do not believe in raising the site at the expense of depth of soil. The elevated surface should be so much added to its depth—not, as I have sometimes known to be done, raising the surface by filling up underneath with stones, or clay, or rubbish. I am inclined to think, from what I have seen, that much mischief has been done by planting what ought to be permanent subjects on mounds of stones; in dry seasons the plants actually perished for want of water.

Trees planted on a heap of stones are in a worse position than if growing in a thin stratum of soil on the natural rock, so far as regards moisture. It may savour somewhat of empiricism to attempt to lay down rules or to give hints about a matter requiring a special study of all the connecting circumstances, many of which would be altogether of a local nature. These should, and must, be thought out on the spot; but when the ideas have been matured and the plan arranged, if the designer takes hold of one end of an ordinary wagon rope, steps out boldly with the rope trailing behind him, with a couple of men each provided with an armful of pointed stumps to stick in the ground at short intervals by the side of the rope as it glides along, it will be found that a bolder, freer, better outline has been obtained in a few minutes than perhaps would or could be secured by trusting to the eye or by measurement. I have seen both plans tried, and the rope plan is by far the best, always supposing that the person drawing the rope possesses a good eye and has the design well arranged in his head.

In making alterations involving earth-moving—which most improvements do—there should be no difficulty in arranging for the improvement and deepening of the soil where the better and choicer kinds of trees and shrubs are intended to be planted. The last two or three months in the year is the best time for making alterations involving new groundwork, but planting all kinds of trees and shrubs should be done early in the autumn. H.

**Destruction of Oak foliage.**—Mr. Earley (p. 15) may be interested to know that this is not an unusual occurrence. The caterpillar is more or less destructive in many parts of the kingdom. In one extensive Oak wood of about 1400 acres here in South Yorkshire it works great damage every season, and in bad years scores of acres of trees are quite defoliated. At present many of the trees are as bare as a Gooseberry bush after a bad attack of the caterpillar. In many places the caterpillar has fallen upon

the underwood of Hazel and on the young Sycamores and not left a scrap of foliage upon them except the stronger ribs of the leaves. The rooks feed upon the grubs freely, and get so surfeited at times as hardly to be able to fly. Later in the season a partial second leafage takes place, but the injury to the trees through these repeated attacks of the grub is very apparent in many ways. The wood in question has produced Oaks and nothing else generation after generation since the time of Robin Hood, it is said, and the soil is perhaps "sick" of the crop. Other plantations of the same kind in better soil do not suffer seriously.—J. S.

#### OAKS AS HEDGEROW TREES.

It is agreed by most writers that the Oak is superior to all other trees. It produces the most valuable timber and bark in that situation, and does less injury to the hedge, and to the herbage or corn beneath it, than any other species, unless, perhaps, as Matthew observes, the Apple and the Pear be excepted; because the horizontal roots do not run near the surface, and the buds come later into leaf than those of any other British tree. The general form and the great variety of outline of the Oak, as well as its colour both in spring and autumn, also harmonise in a superior manner with the general scenery of an enclosed country. To be convinced of this, we have only to reflect on those parts of the country where Larches, Pines, and Lombardy and other Poplars prevail in hedgerows, in which they are as bad in an agricultural as they are in a picturesque point of view. "The disadvantages," Matthew observes, "attending the planting of hedgerows with Oaks are, that the removal of the Oak when young is not in general so successful as that of other trees, especially in this exposed dry situation; also, that the progress of the plant for a number of years is but slow, and it is thus for a longer time liable to injury from cattle." Fair success may, however, be commanded by previously preparing the roots, should the plants be of good size; transplanting them when the ground is neither too moist nor too dry; and, in autumn, as soon as the leaves have dropped or become brown, particularly in dry ground; performing the operation with the utmost care, so as not to fracture the roots, and to retain a considerable ball; opening pits of considerable size for their reception, much deeper than the roots; and should a little water lurk in the bottom of the pit, it will be highly beneficial, provided none stagnate so high as the roots; firming the earth well around the roots after it is carefully shaken in among the fibres; and, especially, keeping the surface of the ground, within 4 feet of the plant, friable and free from weeds, by repeated hoeings during the first two or three summers. Of course, if the plant is suffered to waver with the wind, or to be rubbed and bruised by cattle or by the appendages of the plough, it is folly to expect success. On this account, stout plants, from 8 feet to 12 feet high, the branches of which are more out of the way of injury, may, in sheltered situations, under careful management, be of the most proper size. Much also depends on procuring strong plants from exposed situations. "We have," continues Matthew, "experienced better success with hardy plants from the exposed side of a hill, having unfibred carrot roots much injured by removal, than with others from a sheltered morass, having the roots most numerous, fibred and well extricated." Several planters of experience have stated to us that they have found Oaks of ten or twelve years' growth, taken up without any preparation and the heads closely cut in when transplanted, succeed much better than Oaks one, two, or three years from the seed-bed, or even smaller transplanted trees, in the same soil and situation. One of the Commissioners of Woods and Forests records that this was the case several years ago, when a number of Oaks, from 15 feet to 20 feet in height, were thinned out of a Government plantation in the Forest of Dean, closely cut in at root and top, and planted in the open common or forest, being only guarded from cattle by a few Thorn bushes tied round their stems. The late Sir Uvedale Price was equally successful in transplanting Oaks in this manner at Foxley.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## FRUIT CROPS.

THROUGH the courtesy of our correspondents, we are enabled to publish to-day a portion of the reports on the fruit crops. It will be seen that on the whole they are good, though not so much so as was anticipated when the trees were in bloom. Even after the fruit was set, too, frost, hailstorms, and bitter winds greatly thinned their numbers, and fruit dropping has continued more or less up even to the present time. Mr. Fish, writing from Bury St. Edmunds, says:—

"The fair promise has failed to fulfil anything like the legitimate expectations entertained regarding large crops based on a bloom of almost unprecedented abundance. Neither can this slip-between-cup-and-lip bloom and fruit be laid to any climatal severities. Seldom have frosts been less severe than this spring. The weather during the blooming season was dry and cold, except about a week of damp, somewhat wet, weather. But one can hardly attribute the partial wreck of the Apple crop, and about here the complete wreck of the Plums to any ungeniality of climate. Be the cause what it may, Plums are *nil*, and Apples by no means the crop that the magnificent bloom promised. As usual, we have an exception in our diamond cordons clustered with fruit from end to end; on other trees, such as pyramids, there is a middling crop only. Pears also are thin with us, though in other gardens they reach an average. Peaches and Apricots are an average. Cherries above the average. Gooseberries and Currants hardly an average. Raspberries and Strawberries are far above the average. Nuts generally, too, are above an average, especially Filberts. The recent drought is telling heavily against the Apple crop. Fruit-dropping is very prevalent, excepting in those rare instances where heavy watering with sewage or clean water has been resorted to. Peaches and Nectarines are clean and healthy, and the fruit is making rapid progress where root-watering and overhead syringing are constantly practised."

Mr. William Ingram, writing from Lincolnshire, says:—

"Orchards and fruit gardens in the north midland division of the country enjoy some climatic advantages from their position, inasmuch as the fruit trees are less liable to be stimulated to the production of early blossoms than those situated further south, thus occasionally escaping from the blighting effects of spring frosts, so destructive in earlier districts. The present abundant fruit crop in Lincolnshire serves to illustrate these remarks. The trees were not at a stage to suffer materially when the ungenial weather which injured fruit prospects in districts further south occurred. The Apple crop is more generally good than it has been for many years; the exception to full crops are very few. The most notable examples of heavy cropping are this year seen in the following kinds: Frogmore Prolific; Blenheim Orange, following a heavy crop last year; Herefordshire Pearmain, Lincoln Pippin, Bramley's Seedling, Worcester Pearmain, Peasgood's Nonsuch, Betty Geeson, Bess Pool, Rosemary Russet, King of the Pippins, Old Golden Pippin, Cox's Orange Pippin, and Stirling Castle. The Pear crop is generally good on trees trained to walls, but less so on standard trees. Marie Louise, Williams' Bon Chrétien, Beurré Superfin, Poire Pêche, Beurré d'Arenberg, Beurré d'Esperen, Josephine de Malines, and Beurré Rance are all carrying good crops. The crop of

Plums is, in many cases, too great for the trees to carry fairly; it has been necessary to thin the heavy set of fruit on trained wall trees. Damsons promise to be a heavy crop; Victoria is, as usual, more prolific than any other sort; Kirke's and Golden Drop are also bearing well. The produce of Apricots is exceedingly large; the excessive dryness of the subsoil has obliged us to apply water to the trees. The Moor Park is the kind chiefly cultivated. Peach trees show a fair quantity of fruit; the trees were checked by the cold weather in May and were attacked by fly, but are now making vigorous growth. Morello Cherries set a wonderful crop, but black fly has been troublesome and somewhat checked healthy growth. The dry weather is also against them. There is a great promise of Nuts. Raspberries, Gooseberries, and Currants of each kind are bearing good crops, but are affected by insects and dry weather. Strawberries are generally bearing well; the earliest is La Grosse Sucrée; the latest, Frogmore Late Pine, which is superb this year."

Apples will, in most instances, be a fair average crop. Bush trees on the Paradise stock are in some places loaded with fruit. Pears, too, are, generally speaking, good crops, especially on walls. Marie Louise is spoken of as being one of the most useful of all dessert Pears, and by planting it on warm and cold aspects and by gathering a few at a time its season is prolonged, the latest being kept hanging on the walls till quite sharp frosts set in. Pyramids do not seem to be increasing in favour. In the case of some varieties, indeed, it is stated that they seldom produce any fruit worth eating. Stone fruits are bearing better this season than usual, especially Apricots, but where the soil is hot and light branch-dying is said to be troublesome. The leaves of Peaches and Nectarines early in the season were badly blistered in many places, but now they seem to be outgrowing it, and promise to make healthy young wood. Cherries are good in many places, but in others indifferent. Morellos on bush trees are more prolific than on walls in some parts of the midlands, and very handsome they are grown in that way, which should be oftener adopted than it is. Small fruits of all kinds are unusually abundant. Birds are becoming unduly plentiful, and do great mischief in gardens not only to Peas and other vegetables, but also to fruits; they devour large quantities of them when ripe, but are even more destructive to them in the bud state, stripping trees occasionally of their wood buds as well as fruit buds, and thereby injuring their growth for next year's crop. The Bird Protection Act is therefore not looked upon very favourably by gardeners.

### METROPOLITAN AND SOUTH-EASTERN DIVISION.

#### Coombe Lane, Kingston-on-Thames.—

Apples here are a fair crop, more particularly dessert kinds; Keswicks are a heavy crop, and so are Pears of all kinds. Of Plums we have scarcely any, except Pond's Seedling, Victoria, Winesour, and Belle de Septembre. Cherries of all kinds are a heavy crop, as are also Medlars, Peaches, Apricots, and Nuts. Raspberries, Red Currants, and Gooseberries are heavy crops; Strawberries are a good crop; Black Currants poor.—W. DENNING.

Claremont, Esher.—Although fruit prospects are far brighter than last year, the crop in some in-

stances is not so large as it promised to be, frosts and keen winds at a critical time having had a prejudicial effect upon it. Peaches and Nectarines are not a heavy crop; taking the trees as a whole, there may be an average yield; certainly there will be little thinning required. Our trees are all on a south-eastern aspect, and the covering used (a double thickness of 1-inch fish netting) was not sufficient protection. The bloom was nipped and dropped prematurely. Apricots are a capital crop; the trees were protected with Fir boughs until the fruit was a considerable size; indeed, the present season has again afforded ample proof, if such were needed, of the advantages that follow ample protection during March and April. Plums are a good crop, also dessert Cherries, Morellos being a heavy crop. Aphides have again been troublesome on most of the above-named fruits, especially the grey species that attacks the Plum, and has entailed a considerable amount of labour. Repeated washings with the insecticide lately mentioned in THE GARDEN have had the effect, however, of keeping them fairly clean. The effect of a heavy storm of sleet and hail, followed by a slight frost, is plainly visible on all Pear walls that were directly exposed to such visitations; on other walls we have good crops—Citron des Carmes, Williams' Bon Chrétien, Marie Louise, and the old Bergamot being especially well furnished with fruit. Apples are, on the whole, an average crop, but decidedly partial. Trees in exposed situations are thin, but, on the other hand, there are plenty of fruits in sheltered spots. Of the fruits not so extensively grown, such as the Mulberry, Medlar, Siberian Crab, and Service, we have good crops. All small fruits are very plentiful, a special feature being the dessert Gooseberries on trellises.

POTATOES are looking remarkably well, with the exception of Beauty of Hebron. This variety was attacked in patches soon after it came up with a kind of blight, and in every case it has had a fatal effect, the haulm withering away, and there is not the slightest sign of new tubers. I have heard of another American variety, Early Rose, being affected in a similar manner.—E. BURRELL.

Rydens, Walton-on-Thames.—The fruit crop in this neighbourhood is the best we have had for some time. Apples of all kinds are bearing heavy crops. Blenheim Orange, Devonshire Quarrenden, Cox's Orange Pippin, Wellington, &c., are all laden with fruit; indeed, it would be difficult to find a failure in the Apple orchards. American blight is, however, very prevalent. We have changed its colour on some trees by dotting it over with paraffin. Pears, both on walls and on standards, are a fine crop. Plums, like Apples, are most prolific. Standards of the Victoria have the appearance of Weeping Willows, so laden are they with fruit. Apricots are grand crops; it is, indeed, quite a treat to see such a fine show of fruit on our garden walls as that now to be seen on most of them this season. Peaches are very fine. Some of our trees were protected with muslin, &c.; others had no protection, but all are equally heavily cropped. Cherries would be very fine if we were able to keep birds from them, but unfortunately most of our trees are too large to net. Morellos on walls are good. Gooseberries are a very heavy crop. Currants, black, red, and white, are all good. Raspberries are looking remarkably well and healthy and have a fine show of fruit. Strawberries seem to have been affected by spring frost. In some gardens the crop is not good; in others it is excellent. We have had a most prolific crop, though we lost a few of our first flowers. Vicomtesse Héribert de Thury is "first favourite" as regards flavour and heavy cropping. Of Mulberries, Medlars, and Quinces we have a fine show. Walnuts and Filberts promise also to be good.—GEO. CARPENTER.

Lytne Hill, Haslemere.—The fruit crop in this locality is an average one. Peaches and Nectarines are good and free from blister. Apricots are also good and swelling fast. Plums good on walls, but thin on pyramids and standards. Pears are an average crop; they would have been an exceptionally heavy one, but we were visited by a succession of heavy hailstorms, which quite riddled the trees and injured the fruit. Some of the varieties that are carrying the heaviest crops and which fruited last year are Doyenné



d'Été, Jersey Gratioli, Louise Bonne of Jersey, Beurré Clairgeau, Seckel, Easter Beurré, Winter Nelis, Dr. Trousseau, Prince of Wales, Doyenné du Comice, Hessel, Beurré Bachelier, Knight's Monarch, Williams' Bon Chrétien and Marie Louise. Apples also are a fair crop, but not so heavy as last year. The varieties that are carrying the heaviest crops are Duchesse d'Oldenburg, Lord Suffield, Lord Derby, Irish Peach, Dumelow's Seedling, Deux Ans, Mère de Ménage, Cox's Orange, King of the Pippins, Cellini, Echlinville Seedling, Codlins, and Rymer. Gooseberries are a plentiful crop and free from caterpillar. Currants, red, black, and white, are over the average. Raspberries are also excellent, but late; Carter's Prolific is the best here. Strawberries are abundant, but fully three weeks late. Vicomtesse Héricart de Thury, La Grosse Sucrée, Sir Charles Napier, President, Sir Joseph Paxton, and Dr. Hogg are exceptionally good. Keen's Seedling and British Queen do not succeed here. Nuts are over the average. Figs good on walls only.

POTATOES which have been lifted are very good in quality and size, and late varieties are showing extra vigour, and promise to produce heavy crops; but the season being so late, field crops have done very little tuberizing as yet. The sorts which are grown for forcing and early lifting are Royal Ashleaf, Myatt's, Early Short Top, and Selected Kidney. Later varieties are Porter's Excelsior, Beauty of Hebron, Worm-leighton Seedling, Welford Park, Magnum Bonum, Paterson's Victoria, Schoolmaster, Vicar of Laleham, &c. Miss Fowler and M.P. are both promising kindly.—A. EVANS.

**Albury Park, Guildford.**—The fruit crop, like other things, is very late this year. Strawberries are a fair crop. Peaches and Nectarines on walls and in houses are excellent. Apricots being in bloom early were cut very badly by frost and hail storms in April; consequently they are not more than half a crop. Plums are a good crop on walls, especially such kinds as Green and Purple Gage, Victoria, Coe's Golden Drop, Goliath, Magnum Bonum, Pond's Seedling, and Orleans. We have very few on standards. Apples are a good crop, especially Early Juneating, Worcester Pearmain, King of the Pippins, Warner's King, Lord Suffield, Court of Wick, Blenheim Orange, Lady Henniker, Devonshire Pearmain, Duzan, Scarlet Nonpareil, Newington Pippin, Manks Codlin, Sturmer Pippin, and Irish Peach. Pears are a good crop on walls, but partial on standards. The best are Williams' Bon Chrétien, Beurré Bosc, Beurré de Capiaumont, Chaumontel, Duchesse d'Angoulême, Glou Morceau, Knight's Monarch, Louise Bonne of Jersey, Marie Louise, Napoleon, Ne Plus Meuris, Winter Nelis, Passe Colmar, Seckel, Swan's Egg, and Van Mons Léon Leclerc. Black, Red, and White Currants are plentiful and good, but late. Cherries on walls good, standards thin. Walnuts very scarce; Filberts very light; Nuts in general scarce, and trees very much blighted and magotty.

POTATOES.—I find Early Ashleaf Kidney to do well with me, also the Walnutleaf, and Beauty of Hebron is likewise an excellent kind, quite as early as the Ashleaf and a heavy cropper. We are now using it in fine condition. Covent Garden Perfection comes next; it is good in quality and a fine cropper. Schoolmaster is good with us here also. Walker's Early Regent, York Regent, and Magnum Bonum are the chief Potatoes grown here. Not a speck of disease has shown itself at present.—W. KEMP.

**Great Gearies, Ilford.**—Apples are a better crop than last year, but still under the average, and the quality does not promise to be first-rate. In our new garden the trees become infested with red spider at the very busiest season of the year. We keep it down by syringing. The best dessert kinds are Irish Peach, Early Strawberry, Ribston Pippin, Orange Pippin, King of the Pippins, Brownlee's Russet, The Queen, Scarlet Nonpareil, Mannington's Pearmain, Adams' Pearmain, Lodgemore Nonpareil, and Sturmer Pippin; of kitchen Apples, the best are Hawthornden, Lord Suffield, Cox's Pomona, Cellini, Blenheim Orange, New Hawthornden, Tower of Glamis, Prince Albert, Dumelow's Seedling, Gooseberry Apple, and Gloria Mundi. Pears promise well and will be a full crop. I have not yet had sufficient experience with a collection of Pears in this garden,

but Jargonelle, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Superfin, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess, Doyenné du Comice, Beurré d'Aremberg, Winter Nelis, Josephine de Malines, Zephirin Grégoire, and Passe Crassane are our favourites. Apricots did not produce anything like an average crop of blossoms, but such as there were set well. We grow the Shipley, Moor Park, and Peach, or Grosse Pêche. Cherries are a poor crop, but those on walls are good in quality. Plums are a poor crop; the trees have been badly attacked by aphides. We do not grow Peaches and Nectarines on open walls, but those under glass, both in pots and planted out, set their blossoms thickly; indeed, the fruit hung on the branches like ropes of Onions. Strawberries are a good crop, but where not watered freely they will not be good in quality. Gooseberries are an immense crop and the fruit remarkably fine. Raspberries promised well, but as usual are beginning to suffer from drought. Red and Black Currants promised well, but they also seem as if they would suffer considerably from drought; birds began upon the Red Currants this year almost before they were well coloured. Our soil is a medium clay on a bad subsoil consisting of heavy gravelly clay.—J. DOUGLAS.

**Brookwood, Woking.**—Apples here are an abundant crop. The sorts which do best upon our heathy soil are, Wellington, Keswick Codlin, Tower of Glamis, Echlinville, Cox's Orange Pippin, Yellow Ingestrie, Bess Pool, Court Pendu Plat, Waltham Abbey Seedling, Royal Russet, Franklin's Golden Pippin, Devonshire Quarenden, King of Pippins, Lemon Pippin, Duchess of Oldenburg, Deux Ans, Manks Codlin, and Blenheim. Lord Suffield cankers and dies, while by its side Keswick Codlin remains healthy; Ribston Pippin cankers and dies, while by its side Cox's Orange Pippin thrives. Bess Pool we find to be very useful, it is a strong grower, flowers late, and gives us a crop when others are scarce. Court Pendu Plat owing to its late flowering always bears fruit. Apples are very liable to canker on this ground; I find that the best way is to top-dress and to keep the roots near the surface. I feel certain that canker is brought on through the roots getting down into poor unsuitable subsoil, and the more so if that subsoil is wet and cold. Pears are a good crop. The sorts that do best here are Williams' Bon Chrétien, Marie Louise, Suffolk Thorn, Catillac, Beurré Clairgeau. Winter Nelis does well on a wall, while in close proximity in the open it gradually dies away through canker. Plums (Victoria) on high ground are breaking down, owing to the weight of fruit on their branches, while in the lower part of the garden most of the bloom was killed by late frosts. Victoria is our most useful Plum. Black Diamond is also a very good kitchen sort; it is a strong grower; the juice, being fine in colour, makes a high coloured wine. Gages of different sorts do well here, but the Bryantone is the most useful. Of Cherries we have a good crop, but it is a difficult matter to get them ripened, birds being so troublesome. Bush fruits are bearing fair crops. In one garden in this neighbourhood nearly all the Black Currant bloom was destroyed by late frosts. Of Strawberries we have a fair crop, but not so good as we anticipated, owing to the late frost causing a considerable quantity of the bloom to go blind. President is our best sort; British Queen and similar varieties fail on this ground. Peaches are a fair crop, though without protection, not even a projecting coping; Apricots and Nuts are also fair crops.—R. LLOYD.

**Panshanger, Hertford.**—Fruit crops here and in the surrounding neighbourhood, with the exception of Apples, are generally good and rather above the average. Apples are only a partial crop—much under the average, the young fruit having fallen off, especially in the case of standard trees; espaliers and bushes are holding better crops. The most productive sorts are Kerry, Cockle, Cellini, Cox's Orange, King of the Pippins, Hawthornden, Lord Suffield, Keswick Codlin, Blenheim Orange, Yorkshire Greening, and Sturmer Pippin. Pears are a full average crop and good; the best sorts are Marie Louise, Forelle, Beurré Diel, Beurré Superfin, and Josephine de Malines. Apricots set very freely and

are bearing good crops; the trees, too, are making strong healthy growth. Peaches and Nectarines are good crops, and the trees clean and healthy. Green Gages and the more tender Plums are thin, except in sheltered situations; Victorias and the more hardy kinds are bearing good crops; Damsons are partial. Cherries are mostly heavy crops in orchards, and on walls Morellos excellent. Strawberries set heavy crops, but the fruit, though good, is rather undersized. Of Gooseberries, Currants, and Raspberries we have heavy crops. Nuts and Filberts are everywhere abundant; Walnuts thin.—R. RUFFETT.

**Moor Park, Rickmansworth.**—Apples here are a full crop, especially on dwarf bush trees on the Paradise stock. Standard and orchard trees are very thin in places, large quantities of the fruit dropping after setting. Of Apricots we have very heavy crops on all trees, and the latter look well. We have a wall (12 feet high and 240 feet long, with a border 15 feet wide) covered with fruit, a sight now-a-days rarely to be seen. Of Cherries we have good crops in sheltered localities. The Crown, for which this locality is famous, is almost a failure. Morellos are abundant, but very much affected lately by aphides. Pears on walls are all that could be desired; the fruit, too, looks healthy, and promises to finish well. On pyramids and others the crop is very thin. Plums, in the case of exposed trees, are bearing very slight crops, the Victoria, however, still holding its own against all other varieties for cropping. Damsons are a fair crop. Filberts very plentiful. Of Peaches and Nectarines we have good crops. Bush fruits of all sorts here are very abundant, but Gooseberries are very thin in the valleys around us. Strawberries are plentiful, but suffering from the effects of drought. The season will be short, and every kind of fruit has to be secured from black birds and thrushes, which seem unusually ravenous and clear everything before them in the shape of fruit, green or ripe.

POTATOES.—I grow nearly thirty varieties, all of which look uncommonly well. The early varieties which I am now lifting are clean and good in flavour, but not large.—J. C. MUNDELL.

**Bayfordbury, Hertford.**—We have a fine crop on all bush fruits, but the very hot, dry weather which we are now having will, I fear, bring the Strawberry crop soon to an end in spite of watering and mulching, especially on light soils. I think I may say that I never remember seeing the ground here more dry than at the present time; quite as deep as the fork and spade go it is dust dry. Haymakers are having it all their own way this season.—JOHN GIBBS.

**Aston-Clinton, Tring.**—We are situated on a cold, retentive soil, and fruit growing is only carried on on a small scale. Strawberries with us are fair crops. The best are Keen's Seedling, President, Vicomtesse Héricart de Thury, and Sir Joseph Paxton; such tender sorts as British Queen, Elton, and Dr. Hogg barely exist through our winters. Red Currants are good crops, but much blighted. Black Currants, the fruit of which usually attain a large size in this neighbourhood, are good crops, but also blighted. Of Gooseberries we have good crops. Raspberries promise to be fair crops. Apples are not largely grown; they generally suffer from canker, but this year they promise to be fair crops. Damsons and other Plums, which are largely grown about here, are very partial, in some places being fair crops, while in others hardly any are to be seen, the result undoubtedly of the late spring frosts, which we seldom escape. Of Cherries we have not many. We have no walls, and therefore Peaches, Nectarines, and Apricots are not grown here out-of-doors. Walnuts are abundant.—J. SHRIMPTON.

**Eridge Castle, Tunbridge Wells.**—The fruit crops here this year are most satisfactory; in fact, I never remember them better. Strawberries are most abundant; I mulch early with long manure from the stables, which becomes clean washed and retains moisture. Black Prince is still our earliest; a rather new kind called Hamonia is unquestionably the best mid-season kind, and Loxford Hall for late fruit; Aberdeen Favourite, however, promises to be still later, and consequently will be useful. Goose-



berries, Currants, and Raspberries are all three very fine crops. These are grown in the orchard partially under the shelter and shade of tall fruit trees. I never dig my orchard, but give it a coat of long stable litter in winter and spring. This encourages surface roots, and answers the two-fold purpose of keeping the fruit clean and retaining moisture for the growing crops in summer and autumn. We also imagine that as the temperature of the soil is higher by being covered in this way the bushes and trees are better able to withstand spring frosts than they otherwise would be. Pears are a magnificent crop; Beacon, St. Swithin, Doyenné d'Été, and Citron des Carmes ripen in the last week of July and the first half of August; these are followed by Jargonelle, Beurré Giffard, Williams' Bon Chrétien, Beurré d'Amanlis, Pitmaston Duchess, Seckle, and Beurré Bosc. These all ripen well as standards, while on walls we prefer Napoleon, Gansel's Bergamote, Josephine de Malines, Knight's Monarch, Bergamote d'Esperen, Ne Plus Meuris, Glou Morceau, Marie Louise, and other late kinds. Plums are a fine crop both on standards and walls; the Victoria is a most useful hardy kind. Figs are very promising; the most useful sort is still Brown Turkey; Castle Kennedy is very large and earlier, but not so productive; Negro Largo is the finest Fig in cultivation, but it requires to be grown under glass. Cherries are a very fine crop; all kinds do well with us; the earliest is Werder's Early Black Heart, and the latest Florence, a fine kind and but little known. Peaches all set well; Waterloo and Alexander are the earliest, while Thames Bank is the hardest kind with which I am acquainted, and ripens during the last half of September. Apricots do not succeed well with us. Nut, Mulberries, and Medlars all promise to produce good crops. The Parsley-leaved Blackberry is the best we have at present. I have made a kind of arcade on which we have trained our Blackberries, and I believe they will do well. Apples—the most important crop of the whole—are most promising; the free stool is best for Grass orchards, while the Paradise does for cultivated orchards and gives a greater variety in a given space. The roots of this stool grow more on the surface than those of other kinds, and care should be taken not to dig deep among them, or better not dig at all. Nearly all kinds of Apples do well with us; the finer varieties, such as Cox's Orange Pippin, we grow as espaliers; the garden is 400 feet above sea level and rather deficient in shelter. The spring was late and dry, and this with our rather high situation has given us a grand crop of fruit.—J. RUST.

**Wilderness Park, Sevenoaks.**—Apricots here are a fair crop, especially on Moor Park, Peach Apricot, and Shipley. Peaches are abundant, the best being Royal George, Noblesse, Barrington, Late Admirable, Early York, and Salway. Nectarines, consisting of Violette Hâtive, Elruge, and Pitmaston Orange, are excellent. Plums on walls good on the undermentioned, viz., Orleans, Victoria, Green Gage, and Early Favourite; other sorts, such as Jefferson's, Kirke's, Washington, and Coe's Golden Drop, are failures. Of dessert Cherries we have good average crops, especially on Bigarreau, May Duke, White Heart, and Morello. Black Currants are almost a failure; Red and White fair crops. Gooseberries are an unusually heavy crop; Lancashire Lad, Crown Bob, Warrington, Golden Drop, Jolly Farmer, Smiling Beauty, Jolly Tar, Whitesmith, Roaring Lion, Sportsman, Early Sulphur, and Gunner are much above the average. Strawberries are very good and of superior quality; the best are Sir Joseph Paxton, President, James Veitch, Garibaldi, and La Grosse Sucrée. Of Raspberries we have an average crop on Carter's Prolific and Fastolf. Pears on walls are plentiful; the best are Citron des Carmes, Williams' Bon Chrétien, Beurré Diel, Brown Beurré, Verlainne, Passe Colmar, Louise Bonne de Jersey, Marie Louise, Glou Morceau, Jargonelle, Bergamote d'Esperen. Of Filberts we have a fair crop and free from maggot; Walnuts are a failure; Apples on espaliers are plentiful and good, especially Nelson's Glory, King of the Pippins, Devonshire Quarrenden, Duchess of Oldenburg, Cox's Orange Pippin, Ribston Pippin, Court Pendu Plat, and Sturmer Pippin. On standards we have a fair crop, but much blighted; Golden Noble, Blenheim Orange, Castle Major, Lord Suffield,

Beauty of Kent, Kirke's Goliath, Dutch Mignonne, Dumelow's Seedling, Manks Codlin, Warner's King, and Kentish Fillbasket are all bearing good crops. Fruit farmers in this district are gathering enormous crops of Strawberries—principally Sir Joseph Paxton; one grower alone sends about four tons per week to Manchester, Sheffield, and other large towns. Raspberries are also largely grown here, and this season are producing splendid crops.

**EARLY POTATOES** are a good crop and free from disease, but smaller than usual in consequence of continued dry weather. Veitch's Improved Ashleaf, Mona's Pride, Myatt's, and Beauty of Hebron are the kinds we grow. Late sorts are strong and healthy, and at present show no signs of disease. Rain is much needed on our light soils for the development of the tubers. The sorts generally grown are Magnum Bonum, Champion, Late Rose, Schoolmaster, and Regents.—THOMAS CARLTON.

**Hall Place, Tonbridge.**—Our Apple crops here are good, and, with few exceptions, also those of our neighbours. The trees, however, want rain badly, to clear them of maggot and fly. The sorts chiefly grown in our orchards are Beauty of Kent, Blenheim, Cellini, Dumelow's Seedling, Goff, Golden Noble, Golden Knob, Northern Greening, King of the Pippins, and Quarrenden. Apricots on walls are thin. Peaches and Nectarines under glass copings with very light blinds fixed in front while in flower are abundant. I consider this the best and cheapest way of securing a crop. Pears on walls are plentiful, especially the following sorts: Beurré d'Aremberg, Easter Beurré, Beurré Rance, Knight's Monarch, Winter Nelis, and Ne Plus Meuris. Pyramids suffered much from late frosts and are in consequence rather thin. A few of the best are Bergamote d'Esperen, Beurré Superfin, Bon Chrétien, Colmar d'Été, Doyenné Boussoch, Fertility, Gratioli of Jersey, Huyshe's Victoria, Louise Bonne de Jersey, Marie Louise d'Uccle, Madame Treyve, Princess, and Souvenir du Congrès. Standard trees suffered more from frosts than pyramids. Plums on walls are about a fourth of a crop. Kitchen sorts on standards are excellent. Damsons are a fair crop. Cherries on walls half a crop; Morellos a full crop. Gooseberries half a crop. Raspberries good. Strawberries a full crop and very fine. La Grosse Sucrée, Keen's Seedling, Sir J. Paxton, Sir C. Napier, The Countess, Unser Fritz, and Triomphe de Paris are our best sorts. Red and White Currants are full crops, Black not so full as usual. In some places near here they are quite a failure. Kentish Cobs promise to be about half a crop. Filberts are better, but of Walnuts we have very few. Soil heavy and retentive. Subsoil clay and gravel. Constant care in root-pruning is necessary in order to keep fruit trees in good condition.—JOHN BERRY.

**Somerhill, Tonbridge.**—With us Lord Palmerston Peach is a very fine looking fruit, but anything but good in flavour. Lord Napier Nectarine is very fine indoors, but outside it does not ripen on the underside satisfactorily. All others mentioned in the following list are very good indeed. I may add that last year (an average year) we gathered Peaches from the 10th of June inside and finished the outdoor Peaches the second week in November. Of dessert Apples our best are Boston Russet, Cockle Pippin, Court Pendu Plat, Cox's Orange Pippin, Devonshire Quarrenden, Early Harvest, Golden Pippin, King of the Pippins, Lord Burghley, Margil, Mr. Gladstone, Worcester Pearmain, and Ribston Pippin. Of kitchen Apples the following are good, viz., Alexander, Baron Ward, Beauty of Kent, Bess Pool, Blenheim, Cellini, Cox's Pomona, Dumelow's Seedling, Gloria Mundi, Golden Noble, Hambleton Deux Ans, Hawthornden, Keswick Codlin, Lady Henniker, Lord Derby, Lord Suffield, Northern Greening, Peasegood's Nonsuch, and Gooseberry Apple. Moorpark and Shipley Apricots are average crops. Cherries of the following kinds are very good, viz., Bigarreau, Black Eagle, Black Tartarian, Elton, Empress Eugénie, Late Duke, May Duke, Nouvelle Royal, and Morello. Of Nectarines, Elruge, Hunt's Tawny, Lord Napier, Pine-apple, Pitmaston Orange, Prince of Wales, and Violette Hâtive are good. Peaches are very good indeed; our best are Alexandra Noblesse, Barrington, Bellegarde, Chancellor, Condor, Dr. Hogg, Early Grosse Mignonne, Early Rivers,

Grosse Mignonne, Late Admirable, Lord Palmerston, Noblesse, Princess of Wales, Salway, Sea Eagle, Stirling Castle, Teton de Venus, and Violette Hâtive. Of Pears the following are bearing heavy crops, viz., Alexander Lambre, Baronne de Melo, Bergamote d'Esperen, Beurré d'Amanlis, Beurré d'Anjou, Beurré d'Aremberg, Beurré Bachelier, Beurré Berckmans, Doyenné Boussoch, Doyenne du Comice, Duchesse d'Angoulême, Josephine de Malines, Louise Bonne de Jersey, Marie Louise, and Uvedale's St. Germain. Plums are a very poor crop. We grow Angelina Burdett, Belle de Septembre, Coe's Golden Drop, De Montfort, Duke of Edinburgh, Rivers' Early Prolific, Green Gage, Jefferson, Kirke's, Orleans, Pond's Seedling, Prince Englebert, Prince of Wales, Victoria, Washington, and Magnum Bonum.—THOMAS HOPGOOD.

**Montreal, Sevenoaks.**—With respect to fruit in this part of Kent, there has not been such a show for many a year, and I thought all was going on well till May 12, when the thermometer fell to 28°. That told upon us wonderfully, and saved us the trouble of thinning our fruits. They fell by thousands. Gooseberries, indeed, were left very thin, but we have a fair crop of other fruit. There are more Pears on an old Jargonelle than we have had for years all put together. Winter Nelis, the old Colmar, *Knight's Monarch*, Ne Plus Meuris, Napoleon, Passe Colmar, Beurré Bosc, Beurré Capiaumont, Beurré d'Amanlis, Beurré d'Aremberg, Beurré Rance, B. Diel, B. Easter, Gansel's Bergamot, Swan's Egg, Chaumontel, Williams' Bon Chrétien, Glou Morceau, Beurré Clairgeau, Marie Louise, Seckle, and old Crassane are all well set with fruit except Gansel's and Easter Beurré, both of which have failed. I have marked in italics those that do best here as standards. I have only found two kinds of Apples to fail; they are Ribston Pippin and Golden Knob. Most of the Plums here are on a west wall and seldom fail to yield heavy crops; they are Washington, Jefferson, Emperor, Green Gage, Blue Gage, Coe's Golden Drop, Diamond, Victoria, Magnum Bonum, and Pond's Seedling, which only does well on a north wall. This neighbourhood is famed for Strawberries; one grower has more than 100 acres of Strawberries alone, and sends several tons to the London markets every day. The kinds which he grows are Eleanor, Sir J. Paxton, Elton Pine, President, British Queen, and Frogmore Late Pine.—E. SMITH.

**Redleaf, Penshurst.**—The Apple crop here is a good one, although at places in the neighbourhood Apples are thin, especially in low-lying districts. Lying high as we do and well sheltered from the north and east, we often escape late spring frosts, while our neighbours suffer very much from them. Trees that bore a good crop last year seem generally to have the least on them this. Among other good orchard sorts may be mentioned Waltham Abbey Seedling, a strong grower and good bearer; I have not known it to miss a crop during the last ten years at least; it is an excellent cooking fruit, large and fine looking. Bramley, a kind not met with so often as it should be, is one of the best for sauce; Gooseberry and Lemon Pippins, Mère de Ménage, Hambleton Deux Ans, Golden Noble, and Winter Queening are good reliable sorts for orchards, but for an "all round" Apple we have nothing to beat Blenheim Orange, which seems to be yearly gaining in popularity. Most varieties of Apples do well here, but Cox's Orange Pippin and King Pippin are not good croppers, and the same may be said of Beauty of Hants. Bush trees on Grass and in the kitchen garden are not quite so full as some others, but we shall have finer fruit; Frogmore Prolific as a bush is one of the best kitchen Apples I know; it is equal to Lord Suffield in cropping, but not so early; Cellini, too, is a most useful sort; Cox's Pomona here is very fine, Bedfordshire Foundling, Echlinville, Hawthornden, Alfriston, and Worcester Pearmain are good, the latter very handsome; Hoary Morning is very fine and handsome, but not a good bearer; Scarlet Nonpareil is a prolific and handsome little Apple; Pitmaston Pine-apple is fine in flavour, but rather small. The soil here is wealden clay on sandstone. Pears generally are a heavy crop—on walls especially so; bush trees in the kitchen garden are good, but on Grass thin; these are, however,



rather more exposed to the north and east than the others, and that may make the difference. Doyenné d'Été as a standard bears heavily, but does not keep long; Williams' Bon Chrétien, Beurré de Capiaumont, and Eyewood are bearing best this year; the latter is a delicious Pear here; Pitmaston Duchess is showing well; last year we did not have a fruit. The following may be mentioned as being excellent Pears—viz., Durondeau, Marie Louise d'Uccle, Beurré Bachelier (very fine), Madame Trevey, Marie Benoist (a very fine and large Pear), Doyenné Boussoch, and Brockworth Park (large, but poor in flavour); Louise Bonne of Jersey is very fine here, and Forelle or Trout Pear is both handsome and delicious. Apricots, Peaches, and Nectarines are about an average crop. Mildew has attacked some Peach trees badly this season. Plums on walls are below the average, while bush trees and standards are bearing scarcely any fruit; Early Orleans, Emperor, Prince of Wales, and Mitchelson's are among the best; Coe's Golden Drop and Transparent Gage are not worth the ground they occupy as bush fruit; Green Gages are good on walls, but very bad in the open. Small fruits are about an average crop, but need rain very much. Gooseberries are a pretty fair crop, but a mile from here, owing to the frosts, they are a failure; our best sort is the Red Warrington. Strawberries are plentiful, but owing to the drought have not swelled out well. Filberts and Cobs are a heavy crop; the Red Filbert exceptionally so. Altogether the fruit crop this year may be considered to be a good one.—W. HOLAH.

**Smeech Paddock, Ashford.**—As regards the fruit crop here, Apricots are only half a crop. Peaches almost a failure, except the Salway, which is bearing a good crop. Nectarine trees are much blistered, and the fruit does not swell out well, blight being plentiful, especially on Pine-apple and Prince of Wales. Old Green Gages on bush trees are quite failures. Plums generally on walls are good, especially the autumn Gages and Black Diamond and Victoria. Pears are a fair crop, except Duchesse d'Angoulême. Flemish Beauty, Vicar of Winkfield, Marie Louise, Beurré Diel, Beurré Clairgeau, and Winter Crassane on walls are good crops, but on standards failures. Of Louise Bonne of Jersey we have half a crop. Plums that have failed are Kirke's, Washington, Victoria, Green Gage, Coe's Golden Drop, Jefferson's Gage, and Orleans. Morello Cherries are a heavy crop, but do not seem to swell out. They are much affected with black fly and honeydew. Apples are a heavy crop, but the trees are very much blighted. As regards the neighbourhood, I think, on the whole, there will be good crops of Apples and Plums generally in sheltered situations, and in some places good fair crops are to be found of Peaches and Nectarines. There are, as a rule, fair crops in the orchards in this neighbourhood and also on small Morello Cherries.—WILLIAM KIMPTON.

**Linton Park, Maidstone.**—The fruit crop here is fairly good, except Strawberries, which are almost a failure. Apples are a fair crop. Keswicks, Quarrendens, Stone's Apple, or Loddington Seedling, Wellingtons, Grahams, Lord Suffield, Warner's King, and Echlinville are carrying heavy crops. Other varieties are thinner. During the severe drought last summer we heavily watered some trees, and also in the winter we emptied several large sewage tanks upon the roots of trees in an old orchard here. We carefully marked the trees thus watered, missing one here and there, and we find that the watered trees are carrying an abundant crop, while those missed have only a thin crop. Pears are very fine. Peaches we always have to thin and we never protect; we trust more to judicious thinning and ripening of the wood in the autumn. Plums are a fair crop. Damsons very good. Gooseberries are a good crop. Currants, black, red, and white, a fair crop, and Raspberries good. In our immediate neighbourhood, where fruit is grown largely, Apples are a thin crop. Pears a good crop. Plums, where trees were washed last year and the foliage saved, are carrying good crops. Cherries for a time looked plentiful, but they have dropped very much of late. Nuts are plentiful and good.

POTATOES so far look well and are very free from disease, but we seldom get much disease before next

month, especially in such dry weather as we are having now.—JOHN MCKENZIE.

**Preston Hall, Aylesford.**—The fruit crop this year is a success. If anything is not so good as another it is small fruits, notably Gooseberries and Currants, which hereabouts are thin. Apples are an average crop, and promise to be good; Pears, too, are a good crop and swelling well. I have more Catillacs than I have had for some years; Plums are a little under the average, except Damsons, which are plentiful. Cherries, too, are a good crop, especially late ones and Morellos. Nuts are a heavy crop, especially Filberts, which, contrary to the rule, are fruiting better than Cobs; Raspberries are a good crop, but small on account of the dry weather we experienced during the last month. Peaches and Nectarines are full crops; Apricots are rather thin. Whence, let me ask, arises all this fruitfulness? Certainly it is not owing to the warm spring, for it was as cold or colder than in seasons when there is very little fruit, and it was more prolonged than usual. The secret, I think, lies in the wood being thoroughly ripened last year. It was a hot and dry summer which arrested growth and fully developed the fruit buds. The rainfall here during May, June, July, and August was only 4'99, and did not penetrate into the soil more than 3 inches during the ripening period. Our subsoil, too, is gravel and Kentish rag, so that the drainage is rapid.—A. WATERMAN.

**Pains Hill, Cobham.**—Apples here are plentiful, and we have a moderately good crop of both early and late Pears. An excellent crop of Gooseberries, and a full crop of Red, White, and Black Currants, but that is not general in the neighbourhood. Strawberries were much injured by frost while in bloom; consequently, except Sir Chas. Napier, there is not an average crop of them, Sir Charles being rather late in blooming escaped the severe spring frosts. Plums where they escaped the frost are plentiful; Apricots with us are a very full crop, and Peaches and Nectarines a fair crop. In some sheltered places there is a good show of Walnuts, but the frosts which we had late in June caused many to fall off. Filberts and Cob Nuts are magnificent; the trees are covered with them. Cherries are not much grown in this neighbourhood, but the few trees in our garden are bearing a fair crop. We have a good crop of Raspberries, but such is not general in this neighbourhood.—W. SUTTON.

**Cobham Hall, Gravesend.**—Apples here are a bad crop, except kitchen varieties, such as Manks Codlin, Keswick Codlin, and Lucombe Seedling, which never fails, even on our light gravelly soil. Of Apricots we have an average crop, but there are not many grown. Of Cherries we have about half a crop. Red and Black Currants are under the average. Figs are a good crop, Gooseberries an average crop, and Peaches and Nectarines good. Cobs and Filberts are good. Walnuts almost a failure. Plums, too, are a bad crop. Of Pears we have an average crop on walls. Strawberries are good on heavy ground, but poor on light gravelly soil.

EARLY POTATOES are good, but a light crop. Late sorts want rain very much.—F. DEUXBERRY.

**West Dean Park, Chichester.**—Apples, Cherries, Figs, Raspberries, Strawberries, Gooseberries and Currants are full average crops; Peaches and Plums vary; in some gardens there is a full crop; in others it is very thin. Peaches here are an average crop; Plums under the average. Pears are a heavy crop; Apricots very light (under the average); Nectarines not grown outside here. On walls Pears give the best result and Apricots and Plums the least. With us the late spring frosts generally destroyed the crop.—GEO. BROOMFIELD.

**Goodwood.**—Fruit crops in this locality are remarkably good, especially Apples, Pears, Apricots, Peaches, and Nectarines, all of which as far as I have seen will be excellent. Apples and Pears are remarkably promising; Plums on standards with a few exceptions are very thin, but a fair crop on walls. Cherries are plentiful, Morellos especially; Currants of all kinds are fair average crops, but in some places very much blighted. Gooseberries in places plentiful; in others very thin, owing principally to bird depreda-

tions. Strawberries and Raspberries are good average crops and excellent in quality; Figs are thin, principally owing to the cold nights which we have had, causing them to drop their fruit. Filberts and Cobs are plentiful; Walnuts very thin indeed.—F. RUTLAND.

**Posingworth.**—The following remarks refer to the parishes of Waldron, Framfield, Uckfield, Buxted, and Maresfield. Apricots are an average crop, but not much grown hereabouts. Plums are under the average, except such free-bearing sorts as Victoria; Cherries are under the average; Peaches and Nectarines excellent, and the trees less affected with blister than usual; Apples do not come up the average; Pears on walls good, but very few on standards and pyramids; Strawberries are a full crop, but suffering from continued dry weather; Gooseberries barely half a crop; Currants and Raspberries a full average crop; Nuts over an average. Frost and hail on May 7 did great damage to the bloom, and in some instances quite riddling the leaves. Being surrounded by young plantations, we suffer greatly from bird depredations. If not netted, they would clear off most kinds of fruits before they were half ripe. The Wild Bird Preservation Act is a mistake.—ALEX. REID.

**Muntham Court, Worthing.**—The market growers hereabouts were quite sanguine as to the yield of Apples being a heavy one, and up to June 10 their hopes were fully verified; then came three frosts in succession, which not only proved ruinous to the fruit, but caused serious havoc with the foliage, many trees having the appearance of autumn, so brown and scorched were the leaves; late varieties suffered most. On varieties such as Wellington and Norfolk Beaufin scarcely a fruit remains; these are generally heavy croppers in this district, as is also the French Crab; then come Blenheim Orange, Cellini, Lord Suffield, Hawthornden, Manks Codlin, Keswick, Warner's King, and Downton Pippin. The following are very uncertain croppers with us, but now and then yield a few fruit, viz., Court Pendu Plat, Ribston, Sturmer Pippin, Golden Harvey, Yellow Ingestrie, King of Pippins, and Margil. Apricots are a very disappointing crop generally, and are seldom planted in this district, and the same may be said of Cherries; the later kinds set a good crop, but the fruits are small and lacking in flavour; May Duke, Governor Wood, and Morello I find to be the best varieties for this soil. Currants, both Red and Black, are a fine crop, and the same may be said of Gooseberries, which are carrying a heavy crop of fine berries. Figs are abundant and give promise of being exceptionally large and earlier in ripening than usual should the weather continue favourable. Madagascar, Brunswick, and Black Ischia do well here in the open as standards, and generally mature good crops of fine fruit. Mulberries are heavily laden. Medlars under average this year, but as a rule crop well here. Nectarines and Peaches are above the average, but the foliage is very much blistered and the trees are making but little wood. Peaches are generally a good crop in this locality, but not so the Nectarine, which has a tendency to drop its fruit; Lord Napier and Elruge succeed best; and of Peaches I prefer the following, viz., Royal George, Barrington, Hale's Early, Noblesse, Grosse Mignonne, and Walburton Admirable; Princess of Wales crops well and is well adapted for outdoor culture. Pears are a good crop, especially early varieties, such as Jargonelle, Williams' Bon Chrétien and Summer Bergamot. Pears are not, however, largely grown in this neighbourhood; the following sorts I find to be the best for our soil and climate—viz., Autumn Bergamot, Catillac, Doyenné du Comice, Beurré Bosc, Beurré Rance, Beurré de Capiaumont, and Clairgeau, Gansel's Bergamot, Marie Louise, Swan's Egg, Passe Colmar, Winter Crassane, Winter Nelis, and White Doyenné. Plums are abundant both on wall and standard trees, and up to the present free from aphides; the following sorts are generally grown in this district, viz., Kirke's, Green Gage, Victoria, Diamond, Orleans, Pond's Seedling, Jefferson, and Coe's Golden Drop. Strawberries are an average crop, but rather small. I find the following to be the best croppers outdoors—viz., President, Vicomtesse Héricart de Thury, Sir C. Napier, Sir Joseph Paxton, and White Pine. Raspberries are a heavy crop, but small at present; they



want rain badly. Walnuts and Filberts are about an average crop.—P. CONWAY.

**Danesbury, Welwyn.**—Fruit crops hereabouts do not quite come up to the average. The promise was good, but drought and cold biting winds have thinned them severely. Apricots are a good average, especially Royal, Henskirk, and Pêche Tardive. Moorpark and Orange are very thin. Plums are very good indeed; the best are Green Gage, Kirke's, Victoria, Denniston's Superb, Jefferson's, Coe's Golden Drop, and Oullins. Orleans, Belle de Septembre, Transparent Gage, Early Prolific, Black Diamond and Prince Englebert are very thin. Cherries are a fair average, especially May Duke, White Heart, and Bigarreau; Morello and Kentish are thin. Peaches and Nectarines are good crops, especially Violette Hâtive, Magdala, Royal George, Acton Scott, and Barrington Peaches. Of Nectarines Elruge with us is the best. Small fruits are good and plentiful, especially Currants and Raspberries. Gooseberries are rather under the average, but the fruit is good. Of Apples we have a fair crop. The kinds that seem to do best here are Keswick Codlin, Wellington, Blenheim, Lord Suffield, Warner's King, King of the Pippins, Wyken Pippin, Cockle Pippin, and Brabant Bellefleur; Cox's Orange Pippin, Dutch Mignonne, Fearn's Pippin, and Rymer generally bear well, and the fruit is usually good. Pears are good average crops, especially Josephine de Malines, Ne Plus Meuris, Glou Morceau, Seckle, and Jersey Gratioli; Doyenné du Comice, Williams' Bon Chrétien, Souvenir du Congrès, and Marie Louise are usually good, but they are especially so this season. Strawberries are under the average, and the season being so dry they are rather small. Nuts are a very good crop with the exception of Walnuts, which are thin. Everything is suffering on our gravelly soil through drought.—ROBERT SAWFORD.

**Northaw, Herts.**—Fruit crops in this neighbourhood are, on the whole, very good. Peaches, Nectarines, and Apricots are excellent, and the trees are healthy and clean. Plums in places are good. Of Damsons we have none. Apples and Pears are good crops, and bush fruits are abundant and fine. Strawberries are also good, but owing to the dry weather will soon be over. Cherries are under the average, and the trees are much blighted. Walnuts are a failure. Filberts and Cobs are the best we have had for years.

POTATO crops look promising. No disease has as yet appeared.—JOSEPH MAY.

**The Hoo, Sydenham Hill.**—Pears are generally a pretty good crop in this locality, but Apples are rather scarce. The following succeed well on our clayey soil. First and above all, Hawthornden and Rivers' Improved. They are good croppers, good in appearance, and good keepers. Pears do pretty well if not allowed to get into the clay. Cherries, except the Morello, do not succeed well. Gooseberries, Currants, Raspberries, and Strawberries all good. Our best Apples are Hawthornden, Blenheim, Cox's Orange Pippin, Cockle Pippin, Irish Peach, King of the Pippins, Lord Suffield, Ribston Pippin, Keswick Codlin, and Golden Nonpareil. Pears which succeed best are Beurré d'Amanlis, B. Bosc, B. Diel, B. Rance, and B. Superfin, Gansel's Bergamot, Glou Morceau, Jargonelle, Louise Bonne of Jersey, Marie Louise, Passe Colmar, Williams' Bon Chrétien, Winter Nelis, and Josephine de Malines. Of the last I cannot speak too highly, but it requires to hang on the trees as late as possible.—G. ROACH.

#### MIDLAND DIVISION.

**Clumber.**—Peaches and Nectarines on walls, protected by Eddy's half-inch mesh tanned netting, that have borne heavy crops for the past three years are this season bearing very few fruits indeed. They suffered much when in bloom from sharp frosts and severe piercing winds. The sorts carrying most fruit are Barrington, Dr. Hogg, Early Louise, Early Albert, Grosse Mignonne, Prince of Wales, Red Magdalen, Sea Eagle, Walburton Admirable, and Lord Napier Nectarine. Apricots are abundant. Pears more variable. Late blooming sorts suffered most from late frosts, whereas such kinds as Easter Beurré, Williams' Bon Chrétien, Beurré Giffard, Doyenné

d'Été, Seckle, Winter Nelis, Louise Bonne of Jersey, Marie Louise, Marie Louise d'Uccle, Crassane, Jargonelle, Huyshe's Prince of Wales, Ne Plus Meuris, Buerré d'Aremberg, and Beurré Hardy (root pruned last autumn and for the first time bearing a heavy crop) are all loaded with fruit. Bushes or standards never do well here. The following Apples are good—viz., Alfriston, Claygate Pearmain, Calville Blanche, Court of Wick, Cox's Pomona, Dutch Mignonne, Lord Suffield, Charleston Pippin, Cluster Pearmain, Cellini Pippin, Cox's Orange Pippin, King of the Pippins, Bishop's Thumb, Kirke's Fame, Downton Nonpareil, Sleeping Beauty, Omar Pasha, Margil, Maltster, and Hoary Morning. Plums are a fair crop; Victorias and Golden Drop good. Cherries, including Morellos, set well, but as usual in this garden many of the fruit dropped off when stoning. Raspberries never do well with us. Gooseberries are a very light crop. Black, Red, and White Currants are abundant, but rather small and hard. Strawberries are plentiful.

THE POTATO crop, so far, is very promising.—M. GLEESON.

**Thoresby Park, Ollerton.**—Of Apricots we have a good crop, but the fruit is dropping off more than we like to see it, and the same remark applies to Pears. Plums are an average crop; Cherries good; Peaches, none out-of-doors; Apples are a fair average, but many have dropped off during the last few days; small fruits are plentiful and fine, although later than usual. We shall have fair average crops all through, but not the quantity that was expected judging by the amount of bloom in spring. On the morning of June 26 we registered 2° of frost, and although nothing suffered in the garden here, the Bracken in many parts of the park is all black, and many of the cottagers round us have had their Potatoes, Kidney Beans, and Scarlet Runners killed.

POTATOES look well where not touched with frost. I have as yet seen no signs of disease.—A. HENDERSON.

**Welbeck.**—Apples here are a good crop, so much so that nearly every variety in a large collection requires to be thinned. They escaped much of the cold, sunless weather which did so much mischief to Pears and Plums. Apricots are an average crop. Pears are under the average. They flowered profusely, and the flowers were remarkable for their size. There is scarcely a fruit on standard and pyramid trees, and I see but little difference on walls between trees protected and trees unprotected. Many are now flowering freely a second time. Plums, Peaches, and Nectarines are thin, but the foliage is healthy. Nuts are a fair crop. Gooseberries are a very heavy crop; I have had three parts of the fruit taken off, and now they are a heavy crop. Currants and Raspberries are good crops, as are also Strawberries. All are a little later than usual.

EARLY POTATOES are a fair crop. Second early and late varieties look remarkably well.—R. CARR.

**Lenton Hall.**—We occupy a high position southwest of Nottingham 2½ miles; though high, however, we are fairly well sheltered by wood, Wollaton Park lying to west and north of us. Our hardy fruit crop is, taking it as a whole, a sprinkled crop; few orchard trees are absolutely barren, but on none is there a large crop. We shall have a fair store of Apples and Pears, not so good of Plums, and less good of Damsons. For safety I will localise my remarks to our own place, and say that Apples that do well are Keswick Codlin, Lord Suffield, Alexander, Duchess of Oldenburg, Minchal Crab, Caldwell, Pott's Seedling, Barton Freebearer, Pike's Pearmain, Wollaton Pippin, New and Old Northern Greening, Yorkshire Greening, Irish Reinette, and fairly Ribstons and Blenheims. There are other sorts that do moderately well, but these one can depend upon in the average of seasons. To Lord Lennox and Besspool one can never trust, not even in fairly prolific seasons. Of Pears, Huntingdon or Windsor, Jargonelle, Beurré d'Amanlis, Louise Bonne, Williams' Bon Chrétien, Thompson's, Comte de Lamy, Beurré d'Aremberg, Green Chisel, Doyenné d'Été, Glou Morceau, Beurré Diel are good; amongst little fruiting varieties of Pears may be named Conseiller de la Cour and Easter Beurré—two that I can speak the least for. Apricots are a fair crop this year, and Ambrosia and Moorpark

are sure bearers; Breda is small and poor; outdoor Peaches we do not go in for much; Princess of Wales crops well generally. Of Plums, Victoria is the only reliable one, and perhaps as an early variety Rivers' Early Prolific; as Plums get age on them here they become increasingly barren. Strawberries are a full crop, but swelling off small from want of a good soaking of rain. Raspberries are a good crop. Gooseberries are a middling crop, especially so on old trees, many buds not having opened; on young trees the crop is better. Currants, Red, White, and Black, are all good. The year's performances in the way of fruit will not, when reckoned up, be a disappointment—at any rate to people of moderate expectations and desires.—N. H. POWNALL.

**Chatsworth, near Chesterfield.**—Apples, Strawberries, Morello Cherries on walls, and small bush fruit generally are good average crops. Owing to our district being so late and cold and the situation being so low—only a few feet above the level of the river Derwent, close to the side of which it is situated—I am sorry to say we seldom get a crop of the more tender fruit, such as Peaches, Apricots, Pears, and Plums, and this season, I regret to say, is no exception to the rule.—OWEN THOMAS.

**Hardwick Hall, Chesterfield.**—Apples here are abundant. The best sorts are Lord Suffield, Keswick Codlin, Blenheim Orange, Hawthornden, Beauty of Kent, and Bess Pool. Pears are also abundant, especially on Marie Louise, Bishop's Thumb, and Jargonelle. Plums are a light crop; Orleans and Victoria are the best. Damsons (of which great quantities are grown hereabout) are a light crop, late frosts in May caused them to drop off. Cherries are a light crop; Morello and White Heart are the best. Of Strawberries we have heavy crops of Sir J. Paxton, Duc de Malakoff, and President. Gooseberries are a heavy crop, especially in the case of such kinds as Warrington, Whitesmith, and Stockwell. Raspberries are a heavy crop; Carter's Prolific and Magnum Bonum are the best sorts. Red Currants Raby Castle and Victoria are bearing heavy crops. Black Currants consist of Black Grape, which is bearing a heavy crop. Filberts are a good crop, and on Walnuts there is good show at present.—E. WILSON.

**Borrenton Park, Shrewsbury.**—Apples are only a partial crop; on many kinds there is scarcely a fruit, and it is remarkable that this occurs principally on espaliers and bush trees while many large old standards are bearing heavy crops. Two exceptions worth notice are an old espalier King of the Pippins and old Golden Pippin; these two trees bear heavy crops every year; in fact, King of the Pippins, of which we have several old standard trees, never fails us. It is one of our most beautiful Apples, highly coloured and of delicious flavour; it is known by the name of Atchley in this neighbourhood. The following kinds are bearing good crops, viz., Minchal Crab, Hawthornden, Cat's-head, Lemon Pippin, Hereford Pearmain, Irish Codlin, and Lord Suffield. Pears are almost a failure; Peaches and Nectarines are plentiful, but the trees have suffered seriously from continued cold, and are just beginning to recover; late growths, however, unless the autumn is very fine, seldom ripen. Of Apricots we have a large crop, and both trees and fruit are remarkably healthy and free from caterpillar. Plums and Damsons are a complete failure; Cherries were a fine crop, but the June frosts destroyed the greater part of them; the White Heart is an especially tender kind. I was in hopes that the Morello, being more shaded from bright sun, might have escaped, but I am sorry to say that it has, during the last few days, assumed a yellow, sickly appearance, and the fruits are fast falling off. Gooseberries of all kinds are abundant and free from caterpillar, as are also Strawberries. Currants, Red, White, and Black, are abundant; the bushes of the latter look yellow and blighty, but are, I think, recovering; Raspberries are very promising, but late.—HENRY ECKFORD.

**Eastnor Castle, Ledbury.**—The fruit crop, although fairly good, is extremely partial, and, on the whole, not quite up to the standard which the magnificent display of blossom led many people to anticipate. But when we take into account the heavy crops borne by our orchards last year, the intensely



hot weather which prematurely ripened up the blossom buds before they were properly formed, and the cold sluggish spring which acted disastrously on fertility, the result is by no means surprising. Add to these combined causes the well-known fact that an intense blossom is not often followed by a prolific harvest, and your readers will gather that my early spring prediction was not founded on fallacy. In this county alone, where orcharding runs into many thousands of acres, it is hardly necessary to say the Apple crop is of immense importance to the farmer as well as the gardener, and that total failure represents a very heavy loss, which the owner of a few trees in many parts of the country cannot estimate, while, on the other hand, a very heavy crop means low prices, great labour, and much waste. Neither of these conditions, fortunately, are likely to be realised, as we find many trees in almost every orchard laden with fruit, while a large percentage, notably the choicer kinds which bore well last season, are this year barren, or nearly so. Blight is very prevalent, and owing to imperfect fertilisation, combined with a sluggish condition of the sap, the dropping of all kinds of fruit is in excess of anything we have experienced for some years. Yet, withal, if aided by much-needed showers, we may yet find many richly furnished orchards where the rich red and gold show up the fruit, while thinness in others will be compensated for in superior size and increased value. Viewed from this point, it is not improbable that a valuable Apple harvest is in store for us. Pears have set more freely than Apples, particularly such kinds as were thin last year, and like them they are dropping in large quantities, but where a "set" has been secured they will be abundant, and to all appearance very fine. With us the three popular kinds, Williams' Bon Chrétien, Louise Bonne of Jersey, and Pitmaston Duchess, stand pre-eminent. Jargonelle, Crassane, Red Doyenné always good. Josephine de Malines, Knight's Monarch, Beurré d'Amanlis, Conseiller de la Cour, Passe Colmar, and Winter Nelis are also good. Marie Louise is shy, having borne heavily last year. The Apricot crops generally are thin and irregular. The trees cast many of their buds when the size of small pears. With us this fruit is so unsatisfactory, that we purpose replacing the trees with Peaches. Of Cherries, all the sweet kinds as well as Morellos set an abundance of fruit, but we hear great complaints of blight, want of size, and dropping. What are termed lucky orchards, *i.e.*, elevated plantations on suitable soil have produced good crops. Our own on walls are plentiful, but owing to the dry forcing weather, they are rather small, and black fly has been very troublesome. Good ordinary kinds of Plums like Victoria, Belgian Purple, and Gisborne's are very plentiful. Choicer kinds, including the Gages, Jefferson, and Coe's Golden Drop, are very partial. On the whole, the Plum crop promises better than it has done for some years past, and if we are correctly informed, the Pershore growers have quite sufficient to make a valuable return. Peaches in this part of the country are an excellent crop, the trees healthy and the fruit fine. Our own trees never looked better, and although we had a thin blossom, every flower set, and gave just sufficient thinning to leave an even spread of good fruit. We check the roots annually, give a little fresh, but rather poor, loam, and ram firmly. Old mortar rubble is used as a mulching, and the borders are copiously hoed before the flowers open. Bush fruits, Gooseberries and Currants, red and white, are very abundant. Currants were slightly touched by frost, but they are still too plentiful. Many complain of birds, now so numerous, destroying the buds. We make up a mixture of fresh lime, soot, and a small piece of soft soap; run it through a fine sieve, and apply with an old syringe before the buds begin to swell. Birds desist, and grubs do not appear. Black Currants are thin and badly blighted. Raspberries did promise well, but the drought is now telling upon them, and the same may be said of Strawberries, now baking up where they cannot be well attended with water. Want of size this year is the general complaint, and mildew is spreading. Apparently the surface roots were much injured by heat and drought last autumn. Nuts and Walnuts are a fair crop in some places; in others they are a complete failure.—W. COLEMAN.

**Willey Park, Broseley.**—Apricots here are above the average. Peaches and Nectarines are average crops. Apples, too, are up to the average. Pears are under the average. Plums average. Cherries and Strawberries are over the average, and so are Nuts. Small fruits plentiful. Of fruits that succeed well in this neighbourhood I may name Moor Park Apricot; Bellegarde, Royal George, and Alexander Noblesse Peaches; Elruge and Lord Napier Nectarines; Apples—Keswick Codlin, Hawthornden, Blenheim Orange, Cox's Orange Pippin, Ribston, Lemon Pippin, and Cellini; Pears—Green Chisel, Jargonelle, Marie Louise, Beurré Diel, Colmar, Napoleon, Beurré Sterckmans, General Todleben, and Catillac; Plums—Coe's Golden Drop, Jefferson, Rivers' Early Prolific, and Victoria; Cherries—Black Eagle, May Duke, and Early Red Bigarreau.—JOHN PENSON.

**Stoke Edith Park, Hereford.**—Fruit crops this season are much better than last year. Apricots protected with frigi domo during the blooming period set well, and there has been plenty of thinning to do. Peaches and Nectarines had the same protection, and the following Peaches have set good crops, viz.: Stirling Castle, Barrington, Bellegarde and Prince of Wales. Of Nectarines there is a nice sprinkling. Plums and Damsons have suffered most severely from the depredations of birds; they not only stripped the trees of their fruit buds, but also partly stripped them of wood buds, and the trees in some cases are nearly ruined. Morello, Kentish, and May Duke Cherries have set excellent crops. Some fine bush trees of Morello which we have here suffered in a singular manner from the frost of May 4. In addition to the blooms being killed, quite half of the young wood was also killed. The night before the trees were in a perfectly healthy condition, and next morning, after the frost was gone, the young shoots first drooped and then finally withered, and in consequence the trees are very much disfigured. Pears on walls have set well, and the majority of pyramids and bush trees also, and the fruits in a great many instances promise to be exceptionally fine. Apple trees bloomed most profusely, but have not set so well as one might have expected; but, notwithstanding, there is a good crop of fine fruit. Lord Suffield, Lord Grosvenor, Warner's King, Hanwell's Soring, Ribston Pippin, Seek-no-further, and Pott's Seedling are bearing heavy crops. Currants, both Black and Red, are very heavy crops. Raspberries are also bearing well. Strawberries are a very heavy crop, Sir J. Paxton being particularly fine. The fruits are very large and the flavour all that one could wish for. Gooseberries are a good average crop. So that with the exception of Plums and Damsons, of which (thanks to the birds) we have none, there will be an abundance of fruits of all kinds.—ARTHUR WARD.

**Walcot Park, Lydbury North, Salop.**—Apricots are good. Plums very thin. Sweet Cherries a failure. Morellos under average. Peaches thin. Apples a fair crop. Pears under the average. Bush fruits average crops. Strawberries about an average crop.—HUGH S. SENSECALL.

**Shobdon Court, Leominster.**—Apricots, under average; Plums and Cherries, average; Peaches and Nectarines, under the average; Apples and Pears, also under the average; small fruit and Strawberries, good; Nuts, very good.

POTATO crops, good at present.—E. C. GASELTINE.

**Capesthorpe, Chelford.**—Apricots, over average and very good; Plums, scarce; Cherries, abundant and good; Peaches and Nectarines, average; Apples and Pears, average; small fruits, slightly under the average; Strawberries, abundant and very good; Nuts, under the average. Outdoor Peaches and Nectarines are not grown very extensively in this part. We find a difficulty in getting the wood properly ripened, the atmosphere naturally being rather moist. Plums, especially Damsons, are very largely grown, but the frost nipped them when in bloom; consequently there were very few this year. All the others above mentioned do very well in this part.—ALEX. DEWAR.

**Ettington Park, Stratford-on-Avon.**—Apples here are under the average. Sorts that give

the best result are Lord Suffield, Blenheim Orange, Adams' Pearmain, Peasegood's Nonsuch, Warner's King, English Codlin, Annie Elizabeth, Cox's Pomona, Hawthornden, Hollanbury Pippin, Frogmore Prolific, Sturmer Pippin, Kissington Pippin, and Duke of Wellington. Sorts that do not succeed are—Cornish Gilliflower, Emperor Alexander, Ilugh's Golden Pippin, Magnum Bonum, Cox's Orange Pippin, and Northern Spy. Pears are an average crop. Sorts that give the best result are—Williams' Bon Chrétien, Marie Louise, Brockworth Park, Beurré Rance, Easter Beurré, Glou Morceau, Beurré de Capiaumont, Jargonelle, and Doyenné du Comice. Sorts that do not succeed are—Beurré de l'Assomption, Dr. Trousseau, Gen. Todleben, Beurré Superfin, and Beurré Bachelier. Plums are under the average. Sorts that give the best results are—Victoria, Magnum Bonum, Jefferson, Coe's Golden Drop, and Early Favourite. Sorts that do not succeed are—Green Gage and Early Orleans. Damsons are under the average. The only sort grown is the old common Damson. The Bullace does not succeed. Cherries are under the average. They do not succeed well in this district; the sort grown here is the Morello. Peaches and Nectarines are under the average; they do not succeed in this district, the soil being too heavy for them. Strawberries are under the average. The sorts that give the best result are—President, Sir Joseph Paxton, and Dr. Hogg. Sorts that do not succeed are—Elton Pine, Keen's Seedling, and Duc de Malakoff. Currants are an average crop; all varieties do well here. Gooseberries are abundant; all varieties do well in this district; Red Warrington is the general favourite. Raspberries are under the average. The sort that gives the best result is the Fastolf. Apricots are under the average. During the last three seasons the crop has been very light; therefore am unable to say which variety gives the best result. Walnuts and Filberts are average crops.—W. HAYLOCK.

**Impney Hall, Droitwich.**—On the whole, the fruit crop hereabouts may be considered to be good, though here and there we meet with some failures, owing, I consider, to the cutting winds which we had during part of the blooming season. The leaves of both Peaches and Nectarines became blistered in places very badly, but good clean growth is being made now. Of Apricots we have good crops. Apples are plentiful, also Pears, especially upon walls. Plums in sheltered positions are plentiful, notably the Pershore Plum. Cherries are very full crops both on walls and standards. Bush fruits are plentiful, but not so much so as last season. The following Apples and Pears we find to be the most reliable for this district, viz.: Apples (kitchen)—Lord Suffield, Warner's King, Echlinville, Stirling Castle, Cox's Pomona, and Cellini; dessert—King of the Pippins, Golden Pippin, Kerry Pippin, Irish Peach, Blenheim Orange, and Court Pendu Plat. Pears—Beurré Rance, Beurré Diel, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess (wall), Glou Morceau, and Winter Nelis.—RICHARD PARKER.

**Alton Towers, Stoke-on-Trent.**—We had an abundant bloom on all kinds of stone fruit, but in most cases, except where high and dry, all has been killed. Of Apples we have a wonderful crop. Pears are under the average. Strawberries and Gooseberries are unusually heavy crops. Currants half a crop. Raspberries a very heavy crop. Nuts fairly good.

POTATOES are looking healthy and vigorous as yet.—T. H. RABONE.

**Ingestre, Stafford.**—Fruit crops here and in this neighbourhood are generally good. Apples, such as Keswick Codlin, Lord Suffield, Hawthornden, Warner's King, Worcester Pearmain, King of the Pippins, Nonpareil, Blenheim, and Cox's Orange Pippin, are full crops. Apricots are excellent all round and trees healthy. Peaches and Nectarines under the average, although the wood was well ripened last autumn and they were protected this spring when in bloom. Pears on walls, such as Marie Louise, Louise Bonne, Winter Nelis, Knight's Monarch, Glou Morceau, and Jargonelle, are average crops; on pyramids thin. Plums, including Damsons, are thin. Cherries average, fruit small. Small fruits, such as Strawberries, Raspberries, Currants, &c., over average and good. Nuts plentiful.



EARLY POTATOES are turning out well, although the tubers are rather small. Late kinds in garden and field promise well and no sign of disease as yet. —EDWARD GILMAN.

**Madresfield Court, Malvern.**—The blossom everywhere was abundant, but the results are not nearly proportionate; possibly such a heavy bloom, assisted by a long spell of dull, cold weather, with frosty nights, up to the middle of May, is the cause of the apparent debility and wholesale dropping off of the fruit; nevertheless there is still left a good average crop all round. Apricots are a fair crop, but large branches continue to die off yearly. Of Apples the best bearers are Blenheim Pippin, Stirling Castle, Echlinville, Lord Suffield, Cellini, Keswick Codlin, Hawthornden, Flanders Pippin, Golden Spire, Golden Noble, Warner's King, Peasegood's Nonsuch, Worcester Pearmain, Cox's Orange, and Ribston Pippin. We grow seventy-five kinds. Of Pears there is an average crop, and the fruit is clean. Marie Louise, Glou Morceau, Knight's Monarch, Ne Plus Meuris, and Gratioli of Jersey are bearing extra good crops. Plums are most uneven; in places Victorias and Early Prolifics are breaking down the trees, in other places none at all. I suspect birds have something to answer for in this matter, seeing that wood buds and all have been taken out. Of Pershore Plums and Damsons we have an average crop. Gages are scarcer. Peaches and Nectarines very thin with us. A dull, cold easterly wind prevented the bloom opening properly. The trees are now making extra growth accordingly. Cherries are a very fair crop, although uneven, some trees being heavily laden, others nearly barren; Morellos good. Of Raspberries, Gooseberries, and Currants, we have full average crops. Strawberries heavy crops, but drought is telling against them. Early Prolific was the first to ripen, being some eight days before Vicomtesse d'Hericart de Thury. President is our main crop kind. Elton Pine we grow for preserving and Oxonian for late work, with a few British Queens. Both Walnuts and Filberts are average crops.

POTATO crops are most promising, and there are no signs of disease. —W. CRUMP.

**Normanton Park, Stamford.**—Fruit crops in this district mostly a fair average, but greater abundance was expected. On May 16 we had a severe hailstorm which did considerable damage. Of Peaches and Apricots we have a fair average crop; also of the following sorts of Apples and Pears—viz., Keswick Codlin, Stirling Castle, Lord Suffield, Northern Greening, Small's Admirable, Jolly Beggar, Warner's King, Cellini, Cox's Pomona, King of the Pippins, Reinette du Canada, Dutch Mignonne, and Cox's Orange Pippin. Pears—Duchesse d'Oldenburg, Easter Beurré, Bergamote d'Esperen, Beurré Hardy, Huyshe's Victoria, Prince of Wales, Beurré d'Amanlis, Marie Louise, Van Mons Léon Leclerc, Beurré Bachelier, Knight's Monarch, Winter Nelis, Beurré d'Aremberg, and Glou Morceau. Plums are quite a failure. Red and Black Currants are an average crop, the latter much infested with aphides. Gooseberries are a heavy crop where protected from birds. Strawberries and Raspberries are excellent crops, but suffering from want of rain. Morello Cherries are also plentiful; trees difficult to keep clean owing to the prevalence of black fly. Nuts promising. —JOHN GREY.

**Burghley, Stamford.**—Of Apples I cannot report more than half a crop. The varieties which we find to do best here are, first early dessert sorts—Cox's Pomona, Maltster, Red Juneating; late dessert—March Queen, Cox's Orange and King of the Pippins; early kitchen kinds—New Hawthornden, Keswick Codlin, and Lord Suffield; late kitchen sorts—Dutch Mignonne, Annie Elizabeth, and Wellington. Pears both on walls and standards are good crops. The trees, too, are looking healthy and the fruit is swelling well. The best earlies are Williams' Bon Chrétien, Beurré d'Amanlis, and Fondante d'Autonne. Late sorts—Glou Morceau, Bergamote d'Esperen, and Passe Colmar. Plums good on standards, such as Victoria, Prince Albert, and Pershore; these we use for preserving purposes. Green Gage, Golden Drop, and other late dessert Plums are scarce. Peaches are good; outside trees looking well. Apricots—only Moor Park grown, and

it is bearing a very heavy crop. Gooseberries and Currants are good crops. Strawberries partial; Sir Charles Napier the best. Figs showed remarkably well, but most have dropped. Walnuts and Nuts generally are under the average. —R. GILBERT.

**Stockwood Park, Luton.**—Apples are a moderate crop. Our best sorts are Lord Suffield (always good), Blenheim Orange, Golden Pippin, Cox's Orange Pippin, Keswick Codlin, King of the Pippins, and Bedfordshire Foundling. Ribston Pippin does not do well here. Apricots are very thin; the best sorts are Moor Park and Kaisha. Peaches and Nectarines are all protected with glass, under which we have good crops. Pears very thin, also Plums. Bush fruits plentiful, Strawberries very good. Nuts and Filberts good. —JOHN DAVIS.

**Keele Hall, Newcastle.**—Out-door fruit here is good. Apples I never remember seeing so full of bloom, and some varieties are loaded with fruit, especially bush trees on the Paradise stock. Cellini Pippin, Lord Suffield, Small's Admirable, Hawthornden, Dumelow's Seedling, Keswick Codlin, and Manks Codlin are the best and most prolific here. Cox's Orange Pippin, Ribston, Lord Lennox, Blenheim, and some of the choicer dessert varieties are very shy bearers. Pears are a good average crop, and likely to be good in quality. Apricots are a thin crop both inside and out. Peaches are very unsatisfactory outside, and but very few are grown on open walls. Plums are a fair average crop, and Cherries are excellent, especially Morellos, on bush trees, which are far more prolific than on walls, and scarcely ever fail to bear a crop here. Strawberries and Raspberries are very good crops, and the same may be said of Gooseberries; also Black, Red, and White Currants. —J. WALLIS.

**Wing Rectory, Oakham.**—In my own garden and orchard Apples are more than usually plentiful; Pears not quite so abundant; but Plums are a failure. Out of some five and twenty varieties I have, Rivers' Early Prolific is the only one that bears an average crop. Next come the common Damson and the Prince of Wales. Such ordinarily good bearers as Diamond and Guthrie's late Green Gage and Victoria have produced scarcely any fruit. Strawberries and small fruits generally are plentiful and good. —CHARLES BOYS.

**Thornycroft Hall, Chelford.**—Apricots, good; Plums, very poor crops; Cherries, very good; Peaches and Nectarines, very bad, and trees much blighted; Apples, very good; Pears, an average crop; Gooseberries, good; Currants and Raspberries, under the average; Strawberries, very good; Lord Suffield, Orange Pearmain, Pott's Seedling, and Keswick Codlin are good here generally, and of Pears, Jargonelle, Louise Bonne, and Marie Louise are very good here as a rule; Damsons are largely grown here, but we have had only poor crops for some years; Peaches on open walls are quite a failure so far as I have seen this season. We have a large wall here, but most of the trees are either dead or much blighted. Gooseberries and most kinds of bush fruit do well about here, Gooseberries being especially good. —J. HARRISON.

**Hewell Grange, Bromsgrove.**—Plums, average; Cherries, over the average; Peaches and Nectarines, under the average; Apples, over the average and very good; Pears, average crop and good; small fruits, excellent; Strawberries, over the average and very good. Apples that seldom fail to bear a good crop here are Duchess of Oldenburg, Echlinville Seedling, Hawthornden, Kerry Pippin, Keswick Codlin, Lord Suffield, Manks Codlin, Red Astrachan, Ringer, Summer Golden Pippin, Wormsley Pippin, Blenheim, Cellini, Claygate Pearmain, Cox's Orange Pippin, Cox's Pomona, Emperor Alexander, Golden Noble, Kentish Fillbasket, Lady Henniker, Lord Clyde, Maltster, Margil, Mère de Ménage, Nelson's Glory, Stirling Castle, Waltham Abbey Seedling, Yorkshire Greening, Alfriston, Beauty of Kent, Calville Blanche, Dumelow's Seedling, Dutch Mignonne, Lamb Abbey Pearmain, Lewis' Incomparable, Northern Greening, Pott's Seedling, Tower of Glamis, Warner's King, Annie Elizabeth, Boston Russet, Sturmer Pippin, Winter Peach, and King of the Pippins. They are dwarf trees on the Paradise

stock. Pears on walls that generally and are bearing good crops are Doyenné d'Été, Jargonelle, Souvenir du Congrès, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Superfin, Colmar d'Été, Fertility, Beurré Clairgeau, Beurré Diel, Beurré Berckmans, Beurré d'Aremberg, Beurré Sterckmans, Chaumontel, Duchesse d'Angoulême, Durandau, Louise Bonne of Jersey, Marie Louise, Napoleon, Pitmaston Duchess, Seckle, Thompson's, Beurré Bachelier, Glou Morceau, Josephine de Malines, Vicar of Winkfield, Winter Nelis, Bergamote d'Esperen, Beurré Rance, and Ne Plus Meuris. Marie Louise I consider the most useful of all, planted on warm and cold aspects on walls, and by gathering a few at a time the season of this Pear can be prolonged, the latest being left hanging till quite sharp frosts set in, and none are more appreciated for dessert. Pyramids seldom bear any fruit worth eating. —EDWARD WARD.

**Biddulph Grange, Congleton.**—Crops in the garden here are under the average, but the following will be nearly correct as regards the district: Apricots average; Plums under the average; Cherries average; Peaches and Nectarines under the average; Apples average; Pears under the average; small fruit good in some places; Strawberries good. The following sorts of Apples seem to do pretty well in general, viz., King Pippin, Lord Suffield, Pott's Seedling, Warner's King, Cellini, Ribston Pippin, Keswick Codlin, and Stirling Castle. Of Pears the best are Easter Beurré, Louise Bonne of Jersey, Marie Louise, and Williams' Bon Chrétien. —R. BASS.

**Abney Hall, Cheadle.**—The Apple crop this year is most abundant. Pears are but a moderate crop; some kinds that bore abundant blossom, Beurré Clairgeau, for instance, have but very few fruits. Jargonelles are a good crop. Beurré d'Aremberg is covered with fruit. On Louise Bonne of Jersey there is a moderate crop; on Marie Louise very few. Plums are next to a failure. Cherries, both Dukes and Morellos, moderate. Raspberries promise to be good, but rain is needed to swell the fruit. Red Currants are about an average, but black kinds are very poor. The latter have been affected a good deal by gouty buds, which wherever they appear seem to be at the expense of fruitfulness. Strawberries are a good average crop, but rain for them also would do good. For a heavy crop in this part Myatt's Prolific is one of the best; for general dessert purposes, President we find very good. Gooseberries are an average crop, and up to the present are of very good quality. The few Apricot and Peach trees grown outside here have very little fruit on them. —ROBERT MACKELLAR.

**Great Tew Park, Oxon.**—Fruit crops, I regret to say, will not be good here this season. Of Apricots we have none. Cherries (Morellos) good. Peaches and Nectarines none. Plums under the average. Pears the same. Apples good and also small fruits. Strawberries and Nuts abundant. The sorts that give the best results in our district are Apples, Pears, Apricots, Plums, small fruits, and Strawberries. Those that do not well are Peaches, Nectarines, and dessert Cherries. —G. PARKER.

**Apley Park, Bridgenorth.**—Apples here are about half a crop; not nearly so many as was expected. Apricots very thin. Cherries full crop, but late ones are suffering very much from black fly. Currants of all sorts are a full crop, but not large. Figs are a full crop. Gooseberries, not a full crop, suffered very much in early spring from blight. Mulberries half a crop. Nuts a full crop everywhere. Peaches outside half a crop. Nectarines the same. Pears on walls very good; on standards half a crop. Plums very thin indeed; trees suffered very much from blight, except the Victoria, which is bearing a full crop; it is the only kind we can depend on for a crop. Damsons, half a crop, suffered from cold winds in May; all stone fruits are thin about here. Quinces half a crop. Raspberries full crop and Strawberries the same, but suffering from hot, dry weather. Walnuts very thin indeed. The only Pears that do well here are Marie Louise, Williams' Bon Chrétien, and Beurré Rance. Most of the Beurrés do well. Of Apples, the best are the old varieties, which do better than I find some of the new ones. —WILLIAM WILSON.



**Holme Lacy, Hereford.**—Pears, Apricots, Figs, Strawberries, Raspberries, Currants, Gooseberries, Nuts, and Walnuts are all heavy crops, and good. Apples are rather under the average; and the same may be said of Peaches and Plums. Out of a large collection of Apples, the following seem to do best, viz.: Blenheim Orange, Cox's Orange Pippin, Crimson Queening, Devonshire Quarrenden, Dumelow's Seedling, Echlinville Seedling, Golden Noble, Hawthornden, King of the Pippins, Lemon Pippin, Lord Suffield, Margil, Mère de Ménage, Scarlet Nonpareil, Ribston Pippin, Stirling Castle, Waltham Abbey Seedling, Warner's King, Winter Greening, Worcester Pearmain, and Wormsley Pippin. Among Pears the following are the best: Bergamote d'Esperen, Beurré Bachelier, Beurré Diel, Beurré Hardy, Beurré Superfin, Doyenné du Comice, Emile d'Heyst, Gansel's Bergamot, Glou Morceau, Louise Bonne of Jersey, Maréchal de Cour, Marie Louise, Monarch, Olivier de Serres, Thompson's, Williams' Bon Chrétien, and Winter Nelis.—C. DENNING.

**Castle Ashby, Northampton.**—Fruit crops here generally are good, with the exception of Apples, which are a failure this season. Pears are abundant, necessitating thinning. The pyramid trees were all root-pruned last autumn, a practice which I strongly recommend, as it tends to increase the production of fruit. Amongst the most promising varieties are Althorpe Crassane, Beurré d'Aremberg, B. Bachelier, B. Benoist, B. Bosc, B. Clairgeau, British Queen, Clapp's Favourite, Conseiller de la Cour, Crassane, Marie Louise, Louise Bonne of Jersey, Williams' Bon Chrétien, Winter Nelis, Napoleon, Zephirin Grégoire, &c. The varieties not very productive are Bergamote d'Esperen, Blanquet Claude, Beurré Sterckmans, Beurré Baltet Père, Chaumontel, Duchesse d'Angoulême, Fondante d'Automne, Madame Millet, Josephine de Malines, Urbaniste, &c. Of Apricots we have a fair average crop. Plums plentiful, especially Coe's Golden Drop. Cherries (dessert) under average; Morellos fair. Peaches and Nectarines average crops. Strawberries the same, but fruit small. Red and Black Currants plentiful. Gooseberries very good. Mulberries also good. Nuts promising. Walnuts very abundant.—HENRY BIRCH.

**Sandon Hall, Staffs.**—Fruit crops in this neighbourhood are better this season than they have been for the last twenty years. Apples and Pears are much over the average; Apricots, Peaches, Plums, and all small fruits are a good average. Strawberries plentiful, and Nuts a fair crop; everything is very late. The trees are healthy and more free from blight than usual. The Apples that I find to do best are Blenheim, Early Margaret, King of the Pippins, Juneating, Nonpareil, Lord Suffield, Cellini, Keswick Codlin, Hawthornden, Beauty of Kent, and Yorkshire Greening. The best Pears are Louise Bonne of Jersey, Marie Louise, Napoleon, Seckle, Thompson's, Glou Morceau, Winter Nelis, Williams' Bon Chrétien, Beurré de Capiaumont, &c. On the whole this is not a good locality for fruit growing out of doors. We have little sun, and often a deal of rain and cold autumns, the consequence of which is that the wood does not ripen sufficiently to produce good crops.—W. DAVIDSON.

**Garnstone, Weobly.**—Plums hereabouts are under the average; Apricots are good; Cherries an average crop; Apples average; Pears under the average; Peaches and Nectarines not grown outside, small fruit good; Strawberries a good average; Nuts average.—M. BIGGS.

**Osmaston Manor, Ashbourne.**—Apples about here appear to be a plentiful crop. The following are bearing heavy crops—viz., Warner's King, Court of Wick, Duchess of Oldenburg, Keswick, Lord Suffield, New Hawthornden, Betty Gesson, Cox's Pomona (which has not fruited here for some years past), Northern Greening, Winter Hawthornden, Irish Peach, Braddick's Nonpareil, Allen's Everlasting, Alfriston, Nornanton Wonder, Manks Codlin, Queen of the Kitchen, Golden Pippin, King of Pippins, Court Pendu Plat, and Devonshire Quarrenden. Apricots are very thin, and so are Plums and Cherries, except Morellos, which are a good crop. Of Pears we have almost none. Currants,

Gooseberries, and Raspberries are heavy crops; Strawberries rather thin; Nectarines and Peaches on open walls are an average crop.—W. SHERWIN.

**Envile Gardens, Stourbridge.**—Of Apricots we have average crops; Plums, a fair crop; Cherries, average, much blighted; Peaches and Nectarines, under average; Apples, over average, good; Pears, heavy crops on walls and pyramids; Currants, heavy crop, but much blighted; Gooseberries, average; Strawberries, very good; Nuts, over the average. The following are a few sorts that do best with us—Jargonelle, Williams' Bon Chrétien, Hessel, Louise Bonne of Jersey, Marie Louise, Seckle, Doyenné du Comice, Glou Morceau, Winter Nelis, and Ne Plus Meuris Pears; Lord Suffield, Stirling Castle, Bedfordshire Foundling, Cellini, Waltham Abbey Seedling, Dumelow's Seedling, Mère de Ménage, Tower of Glamis, and Warner's King kitchen Apples; and of dessert sorts the best are—Adams' Pearmain, Worcester Pearmain, Cox's Orange Pippin, King of the Pippins, Court Pendu Plat, and Sturmer Pippin.—G. H. GREEN.

**Cole Orton, Leicester.**—Apples here bloomed well, but have not set a very heavy crop. Queen Caroline, Lord Suffield, Keswick Codlin, Manks Codlin, Northern Greening, King of Pippins, besides several local sorts, are the best for this neighbourhood. Annie Elizabeth promises to do well, and is a good keeping Apple. Blenheim Orange does fairly well, but has not become highly coloured. Pears, as a rule, are thin; Louise Bonne of Jersey and Jargonelle have set the best. Sweet Cherries are thin. Morellos are fair crops. Plums, with exception of Victoria, are very thin. Damsons were very full of blossom, but we have very little fruit. Peaches, Nectarines, and Apricots are looking well and set a very heavy crop under the protection of Yew boughs. Currants of all kinds are good, but want rain badly. Gooseberries good. Strawberries are very good here, but I have heard complaints in the neighbourhood of their going blind. Walnuts are a good crop for this part; other Nuts only thin. The soil here is of a varied character, a great deal of it having been disturbed years ago in getting coal.—G. C. MAYNARD.

**Woburn district, Beds.**—Apricots here are below the average; Apples are an average crop, but the trees look starved and checked through drought; Wellingtons, King of the Pippins, Bess Pool, Hawthornden, Prince Albert, and Manks Codlin are kinds generally to be depended on. Pears are below the average; our heaviest croppers are Marie Louise, Williams' Bon Chrétien, St. Germain, Louise Bonne of Jersey, and Beurré de Capiaumont. Peaches and Nectarines are below the average; few are grown out-of-doors; Plums are below the average; Diamond, Coe's Golden Drop, Green Gage, and Victoria are our best croppers; Strawberries below average; Lucas, Keen's Seedling, and Elton generally succeed well; Cherries, dessert kinds, few grown; Morellos below the average and much infested with aphides; Gooseberries and Currants average; Raspberries below the average. On the whole the brilliant prospects of our fruit crop in May have not been maintained. They were first checked by continuous low temperatures, and now they are attacked by aphides and drought.—M.

**Althorpe Park, Northampton.**—Apple trees suffered very much from blight whilst in bloom, which has made the crop on the whole very light. The following are our best this year, viz.: Bess Pool, Blenheim, Court Pendu Plat, Cox's Pomona, Fearn's Pippin, Golden Pippin, Grenadier, Hawthornden, Jolly Beggar, King of the Pippins, Keswick Codlin, Lord Grosvenor, Manks Codlin, Northern Greening, Norfolk Beefing, Peasgood's Nonsuch, Ribston Pippin, Ringer, Warner's King, Wyken Pippin, and three or four varieties of local Apples that always bear well, but the names of which are unknown to me. Pears, on the whole, are above the average. The following are the names of those that have succeeded best here this year: Althorpe Crassane, Autumn Bergamot, Baronne de Melo, Bergamote d'Esperen, Beurré d'Amanlis, Beurré d'Aremberg, Beurré Clairgeau, Beurré Diel, Beurré Sterckmans, Brockworth Park, Comte de Lamy, Dr. Trouseau, Duchesse d'Angoulême, Doyenné d'Été, Fusée d'Hiver, Louise

Bonne of Jersey, Marie Louise, Maréchal de la Cour, Napoleon, Ne Plus Meuris, Passe Colmar, Prince of Wales, Pitmaston Duchess, Suffolk Thorn, Seckle, Vicar of Winkfield, Williams' Bon Chrétien, and five or six varieties the names of which are unknown to me. British Queen, Beurré Rance, and Gansel's Bergamot seldom bear here. Plums are under the average. The following on walls are very good this season, viz.: Prince of Wales, Pond's Seedling, Perkins' Seedlings (White and Purple), and Victoria. Green Gage is bearing a few fruit, but Damsons are a failure. Cherries are an average crop; Morellos very blighty. Peaches and Nectarines are average crops. Small fruits good. Strawberries, all varieties, in abundance. Filberts and Walnuts promising.—C. COLE.

#### SOUTH-WEST DIVISION.

**Prideaux Place, Padstow.**—Apples and Plums here are under the average; Apricots not grown; Pears, an average crop, both on walls and low bush trees; Peaches are a good crop, especially where sheltered on south walls; Cherries are almost a total failure, and the trees are dying off badly; Strawberries plentiful and of good quality; Red, White, and Black Currants are a fair crop, and the same may be said of Raspberries; Gooseberries only half a crop; Figs, on old slow-growing trees are carrying good crops, and the fruit promises to be fine. Our soil is light, resting on a soft slaty subsoil, which drains the soil quickly; consequently in dry seasons we suffer considerably from drought.

EARLY POTATOES are excellent and good in quality. All late sorts also promise well, and are at present free from disease.—W. BROWN.

**Melbury House, Dorchester.**—Fruit crops in this locality are variable. Pears and Plums are scarce; of the former we grow amongst others Doyenné d'Été, Jargonelle, Ambrosia, Williams' Bon Chrétien, Marie Louise, Beurré Diel, Huyshe's varieties, Passe Colmar, Crassane, Ne Plus Meuris, Josephine de Malines, and others. Of Plums we have mostly Green Gage and Coe's Golden Drop on walls. Apples though covered with blossom suffered severely from blight; still, with a favourable season fair crops are expected. We grow quantities of Manks Codlin and Hermitage Pippin (a local fruit), also Lord Suffield, Hawthornden, Tom Putt, Beauty of Kent, Emperor Alexander, Dumelow's Seedling, Northern Greening, Norfolk Beaufin; for dessert we like Irish Peach, Kerry Pippin, King of the Pippins, Cox's Orange, Blenheim, Ribston, Nonpareil, Adams' Pearmain, and Sturmer Pippin. Cyder orchards exist all round here. Amongst other good cider Apples may be named Bitter Sweets, Kingston, Black Jerseys, Horner's (the last a late flowerer much prized and a good cropper, sometimes called Hangdowns). Cherries are much blighted. Bush fruits promise well. Gooseberries lighter, owing to the buds having been bird-pecked. Strawberries were backward in swelling owing to continued dry weather, but a good watering with the littery manure they had been covered with before flowering has enabled them to give us excellent crops. The last registered rain here was on June 24. We have had slight showers lately, but not enough to moisten the ground.

EARLY POTATOES are very good, but late ones want rain. Trees on walls and also standards want a good washing.—T. C. ELLIOTT.

**Nuneham Park, Abingdon.**—Apples are scarcely an average crop; the show of bloom was enormous, but cold nights and blight did great mischief. Apricots are a good average; they look healthy and promise fruit of good quality. Pears are looking remarkably well, and are bearing a fine crop of fruit. Peaches and Nectarines are very late and much below an average crop; their foliage is also unhealthy and blistered. Plums generally are carrying heavy crops, but the weather is much too dry for them, and blight is getting hold of the trees very fast. Cherries are all that we could wish for, the crop much above the average. Morellos on north walls look equally well. Strawberries are the worst crop we have had for years. Mildew took hold of the foliage early in the season. The weather is much too dry for them and the fruit never swells properly,



Gooseberries are a good crop and fine in quality. Currants (Black, Red, and White) are almost a total failure, and the blight on the trees is something dreadful, so much so that the small quantity of fruit on the trees is scarcely fit for use. Raspberries promise to be a full average crop, but much depends on the weather, which is much too dry at present.—ISAAC WATSON.

**Chalfont Park, Gerrard's Cross.**—Fruit crops hereabouts are under the average. Apples are scarcely half a crop; several were in full bloom on May 8, when we experienced 8° of frost. The best bearers are Keswick Codlin, Small's Admirable, Cellini, old Nonsuch, King of the Pippins, Hawthornden, and Emperor Alexander. Lord Suffield and Tower of Glamis, usually two of our best croppers, are fruitless, the bloom which opened earlier than on some varieties being cut off by frost. Pears on walls are very good, but on standards a failure; the bloom, and in many instances the young growths, were destroyed by May frosts. Of wall trees, Jargonelle, Citron des Carmes, Marie Louise, Glou Morceau, Beurré de Capiaumont, Napoleon, and Easter Beurré are all bearing heavy crops; while Duchesse d'Angoulême, Chaumontel, St. Germain, and Williams' Bon Chrétien are almost fruitless. Peaches and Nectarines generally are bearing good crops; of the former Grosse Mignonne and Sea Eagle are very good. Apricots are a good average, but many of their branches are dying. Of Plums, Victoria and Kirke's are carrying heavy crops; Green Gage and other varieties light ones. Cherries growing in sheltered situations are bearing a fair crop, and Morellos on walls are good. Bush fruits, especially Gooseberries and Black Currants, suffered much from birds and late frosts, and are very light crops indeed. Strawberries, of which Keen's Seedling, Sir J. Paxton, President, and Frogmore Late Pine are our reliable varieties, are a good average crop, but suffering much from the recent hot and dry weather. Raspberries promise to be abundant, also Cob and Filbert Nuts; Walnuts are very thin.—C. HERRIN.

**Farnham Castle, Surrey.**—Apricots here are a medium crop, but what we have are good. Plums are a light crop. Cherries scarce. Peaches and Nectarines an average crop, but very much blighted, owing to so much easterly winds during May. Of Apples we have a very fair crop. Pears light, the bloom being cut off by late frost. Small fruits good. Strawberries good, but late in coming in; the varieties grown in the neighbourhood are mostly Keen's Seedling, Sir Joseph Paxton, President, and Dr. Hogg. Nuts I do not grow, but where grown they are good crops.—W. SMITH.

**Highclere Castle, Newbury.**—Apples here are a fair crop, but not so heavy as seemed probable at one time; some sorts, notably Lord Suffield, King of the Pippins, Juneating, Blenheim Orange, and Summer Golden Pippin, are heavily laden, whilst others have none at all. Pears are good, above the average; trees that have not borne for years are carrying heavy crops of clean, healthy-looking fruit, though both these and Apples are later than usual. Apricots are fairly good, but, as far as I have seen, not quite up to the average. Peaches set well, but the foliage of trees out of doors has blistered badly. Both Cherries and Plums are good. Strawberries very good indeed. Raspberries, Gooseberries, and Black Currants abundant; Red Currants rather short. Figs on walls, the best I have seen for years.—WM. POPE.

**Mount Edgecumbe, Plymouth.**—Apples, Pears, and Plums here are average crops; Peaches and Nectarines, below the average; Strawberries, a good crop; Raspberries, good; Gooseberries and Currants, below the average. The varieties generally grown and proved to be the most prolific are of Apples—Blenheim Orange, Keswick Codlin, Cornish Gilliflower, Gravenstein, Irish Peach, Juneating, Lord Burghley, Lord Suffield, Cox's Orange Pippin, and Kerry Pippin. Pears—Winter Crassane, Autumn Bergamot, Beurré Bosc, B. Brown, B. Clairgeau, B. d'Arenberg, B. d'Amanlis, B. Capiaumont, B. Diel, Bon Chrétien (Williams'), Catillac, Chaumontel, Glou Morceau, Huyshe's Victoria, Knight's Monarch, Louise Bonne,

Marie Louise, and Winter Nelis. Plums—Orleans, Victoria (Denyer's), Golden Drop (Coe's), Goliath, Green Gage, Magnum Bonum, Prince of Wales, and Washington. Cherries—May Duke, Bigarreau, White Heart, and Morello. Nectarines—Pitaston Orange, Violette Hâtive, Claremont, Roman, and Victoria. Peaches—Admirable, Noblesse, Stirling Castle, Royal George, Red Magdalen, and Barrington. Strawberries—British Queen, Dr. Hogg, Keen's Seedling, Sir Charles Napier, and Sir Joseph Paxton. The rainfall here has been very little for the past month and every plant, tree, and bush are in want of it.—GEO. WRIGHTON.

**Greenlands, Henley-on-Thames.**—Wall fruits here are fairly abundant except Apricots and Plums, which are under the average; Apples and Pears are good; Gooseberries and Currants very good, as are also Strawberries. The frost which we had in May did not harm us much, as our trees were then full of foliage.—H. PERKINS.

**Leigh Park, Havant.**—The fruit crop in this district as a whole is very satisfactory. Apples with us are a fair crop, though some few trees which bore heavily last year are rather thin. Pears are a good crop, and very even throughout this district; Strawberries abundant; Peaches and Nectarines on walls fairly good, but have suffered from blight; the trees are now improving fast, and the fruit is swelling satisfactorily. Plums are a light crop; Gooseberries and Red and Black Currants are medium crops. We have had much heavier crops than we are having this year. The bloom on Apples, Pears, and Plums was exceedingly fine, but blight came and thinned down the fruit to a considerable extent, in some cases quite clearing the trees; nevertheless, we may, if all goes well now, look forward for a well-filled fruit room in the autumn.—C. PENFORD.

**Basing Park, Alton.**—Apples are about the average, but the trees are very much blighted and have dropped their fruit very much; the best crops are on Keswick Codlin, Irish Peach, Boston Russet, Striped Juneating, Cellini, King of the Pippins, Cox's Orange, Worcester Pearmain, Lord Suffield, Manks Codlin, Lamb Abbey, Wellington, and Warner's King. Pears are a good average crop; on walls they were most abundant, but they have dropped a good deal. Plums dropped after the May frosts; we have a fair crop of them on walls. Where protected Peaches are good; of Apricots we have very few; early Cherries are also scarce, trees much blighted; Morellos are a good crop; small fruits are most abundant, but all much later this year than last.

POTATOES are good and free from disease; early kinds are small; all late Potatoes look well in the fields, but want rain.—W. SMYTHE.

**Dropmore, Maidenhead.**—Apricots are good here; Plums are not an average; Cherries good; Peaches average; Apples are a light crop; Pears in some places are very good; Nuts good; Walnuts not an average crop; Currants very good; Gooseberries not an average crop; Strawberries average, but small; Raspberries very good; Nectarines an average crop.

THE POTATO crop up to the present time I believe is free from disease. I have not heard of a single case, but everything is suffering very much from the continuance of dry weather, especially on the gravel, which abounds in this part. The soil is mostly light and sterile, but produces excellent crops in moist seasons where well cultivated.—PHILIP FROST.

**Tedworth, Marlborough.**—Apples in this neighbourhood are a good average crop, especially early varieties. Late kinds, when in bloom, suffered a good deal from cold, north-east winds. This is not a good locality for Apples, our soil being thin, on chalk. Our best varieties are Cockle Pippin, King of the Pippins, Lord Suffield, and Golden Noble. Pears are generally good crops, young trees lifted in autumn carrying satisfactory crops. The best are Glou Morceau, Seckle, Doyenné du Comice, Bon Chrétien, and Josephine de Malines. Plums are not a good crop, with the exception of a few trees. Cherries good, especially Morellos, which are abundant, but much infested with blight. Our best crop of Apricots is on an old tree which had no pro-

tection, although we had 5° and 6° of frost several nights in succession when it was in bloom. Raspberries, Gooseberries, and Currants are good crops. Red Currants planted between young Pear trees are bearing fine crops and are easily protected; they also come in much earlier than in open quarters. Strawberries are plentiful, but owing to drought will soon be over. Figs on walls are good, Brown Turkey being much the best cropper.—G. INGLEFIELD.

**Wycombe Abbey, South Bucks.**—Hereabouts we have the promise of an abundance of most kinds of fruit. Gooseberries and Currants, Black ones especially, were somewhat affected by frost. Apricots and Plums are about an average crop; the latter are plentiful on trees in some places, whilst on others they are scarce. Cherries are more than an average crop; orchards of these abound in this part, and consist of the following sorts—viz., May Duke, Bigarreau, Black Buds (a variety excellent for tarts), Black Heart, and others; the best varieties for garden walls include May Duke, Governor Wood, Elton, Black Circassian, Bigarreau, and Bigarreau Napoleon. Peaches and Nectarines promise to yield fair crops; the first Peach to ripen here is Early Beatrice, about the middle of July; this is quickly followed by Early York and Hale's Early, a fine variety out-of-doors; other sterling kinds are Bellegarde, Grosse Mignonne, Barrington, Lord Palmerston, Violette Hâtive, and Stirling Castle. The best kinds of Nectarines are Elruge, Lord Napier, Pine-apple and Violette Hâtive. Apples are very plentiful, but the trees in some places are much blighted. For gathering for early use or market purposes the old Keswick Codlin is still a good variety, and several of the newer kinds as Lord Suffield and Grosvenor; Beauty of Kent, Peasgood's Nonsuch, and Echlinville Seedling should be extensively planted for early culinary use; others to succeed the kinds just named should include Lord Derby, New Hawthornden, Cox's Pomona, Nelson's Glory, Emperor Alexander, Mère de Ménage, Golden Noble, and Kentish Fillbasket; among still later sorts are Winter Greening and Rosemary Russet, but Wellington Pippin is still unsurpassed as the latest and best variety in cultivation. Another late kind here which is not met with in general is Bringewood Pippin, a very fine looking Apple which keeps as long and as sound as the Wellington Pippin. Amongst dessert kinds the best here is Cox's Orange Pippin, Ribston, King of the Pippins, Margil, Claygate Pearmain, Scarlet Pearmain, Quarrenden, and Blenheim Orange. Pears are more than an average crop; choice kinds succeed well in the fertile valleys in this county; the best sorts for a successional supply are named in the order in which they ripen here—viz., Doyenné d'Été, Williams' Bon Chrétien, Beurré de Capiaumont, Jargonelle, Fondante d'Automne, Comte de Lamy, Louise Bonne of Jersey, Marie Louise, Pitaston Duchesse d'Angoulême (a grand variety), Doyenné du Comice (the finest sort in cultivation), Passe Colmar, Knight's Monarch, Huyshe's Victoria, Winter Nelis, Glou Morceau, Easter Beurré, and Beurré d'Alençon and Rance. Nuts are fairly plentiful, but Walnuts not so in this district. Among small fruits, if we except Gooseberries and Currants, that were injured by frost, the rest are above an average crop. Raspberries are very fine. Strawberries are abundant and good where they have been kept watered. Amongst the many kinds of these we have in cultivation I chiefly rely on the following for general use; they ripen in the order named. The earliest and best with us are Vicomtesse Héricart de Thury (this variety is likewise one of the best for preserving), President, Sir Joseph Paxton, Dr. Morier (a somewhat newer kind), Sir Charles Napier, and as a large kind James Veitch; for late fruiting Oxonian and Elton Pine are the best; these two kinds should be planted out in a well enriched border having a north aspect, and then they will come in late and give a prolonged supply.—G. T. MILES.

**Heckfield Place, Winchfield.**—So far as this district is concerned, fruit prospects are better than they have been for several years. Apples are a full crop; the varieties that are heaviest laden are Blenheim Pippin, Cellini, Lord Suffield, Hawthornden, Deux Ans, Cockle Pippin, and Ribston Pippin. Pears are much above the average; the fortnight of



very cold weather which occurred in the second and third weeks of May, when for several nights in succession we had from 5° to 8° of frost, thinned the fruit on standards considerably; still there is ample for a crop of nearly all kinds. On walls which were protected there is an exceptionally heavy crop, and many fruits have been taken off. Winter Nelis, Marie Louise, Beurré de l'Assomption, Duchesse d'Angoulême, Beurré de Capiaumont, Durandau, Glou Morceau, and Josephine de Malines are our best bearing varieties, and without exception all are of the highest quality. Apricots are extra fine and a full crop. Much thinning out of fruit has been done, and copious waterings are given at intervals of a few days; these keep the trees clean and vigorous. Peaches and Nectarines have never been more numerous or the trees more healthy. They were regularly protected with thick canvas coverings till the May frosts were ended. Plums are less satisfactory; they flowered profusely, but though protected with Spruce and other evergreen branches, the fruit dropped persistently, and now they cannot be called more than a third of a crop, and on many trees there are none. Early Orleans, Victoria, Autumn Compôte, and Jefferson are the best fruited kinds. Early Cherries have been fair crops. Morellos are extra heavy, and though they have been much blighted, the trees are now clean. Strawberries could not possibly be a better or heavier crop, but the present scorching weather will make their season a very short-lived one. Currants of all kinds are good. Gooseberries thin, the cause being, not frost, but birds pecking out the buds. Nuts (Cobs, Filberts, Wood, and Walnuts) promise to be average crops.—W. WILDSMITH.

**Hackwood Park, Basingstoke.**—Apricots here are not more than half a crop. Plums good; our best are Early Orleans, Victoria, Green Gage, Washington, and Magnum Bonum. Of Cherries we have very few, with the exception of Morellos, which are good. Apples on dwarf trees are good crops; on standards in the orchard much under the average. Our best are Lord Suffield, Warner's King, Wellington, and Keswick Codlin. Pears good on some trees; the best are Marie Louise, Winter Nelis, Pittmaston Duchess, and Doyenné du Comice. Peaches and Nectarines are fair crops. Strawberries very good. Raspberries, Gooseberries, and Currants plentiful. Filberts a grand crop.—J. BOWERMAN.

**Lockinge, Wantage.**—Apples are a good crop hereabouts. The sorts that do best are King of the Pippins, Blenheim Orange, Lord Suffield, Fearn's Pippin, Hanwell Souring, French Crab, Berkshire Glory, Claygate Pearmain, Alfriston, Bess Pool, Mère de Ménage, Wellington, and Small's Admirable. These sorts are grown extensively in this locality for the London market; the following sorts are grown here, but they are not satisfactory as a rule, viz.: Cockle Pippin, Gravenstein, Irish Peach, Lamb Abbey Pearmain, Margil, Northern Spy, Ribston (fairly good last year), Manks Codlin, and Norfolk Beaufin. Apricots are a fair crop in this locality, but they do not do well with us, being so close on the chalk. They do a great deal better in the valley, about 6 miles off. There are only about three sorts grown—Moor Park, Kaisha, and St. Ambrose. Of Cherries we have none; but the crops in the parish of Hanwell, some 6 miles off, are heavier than they have been known to be for years. Morellos here are a good crop on a north wall. Currants, both Red and Black, are only half a crop, and they are badly blighted; they suffered from the frost in May. We registered here 8° on the 12th; also 1° on the 8th of June. Figs are not much grown here outside, but what we have are a good crop. At Buckland Park, near Faringdon, there are some very old standards which do uncommonly well, and produce heavy crops every season. The sorts grown are Brown Turkey and White Mar-seilles. Gooseberries are a heavy crop here. White-smith, Champagne, Washington, Crown Bob, and Red Warrington are good sorts. Nectarines and Peaches are poor crops. Of Filberts we have none. Of Pears, the following sorts are bearing a fair crop, viz.: Beurré Diel, Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise d'Uccle, Jargonelle, and Thompson's. The following sorts of Pears also succeed

here, viz.: Uvedale's St. Germain, Verulam, Madame Millet, Napoleon, Marie Louise, Doyenné d'Été, Josephine de Malines, and Beurré d'Amanlis. There are a few Pears grown as standards in the orchards hereabouts which promise to yield a fair crop. Of Plums, the following sorts are good on walls, viz.: Jefferson, White Magnum Bonum, Denyer's Victoria, and Coe's Golden Drop. Other sorts are about half a crop, such as Early Transparent Gage, Green Gage, Guthrie's Late Green, Kirke's, Orleans, Washington, and Late Rivers. Standards are a failure. They suffered from frost in May, although they set fine crops. I find that most sorts of Plums do well here. Walnuts are good crops, and so are Raspberries and Strawberries. The sorts doing best are Keen's Seedling, President, Hélène Gloede, Alice Maud, and Vicomtesse Héricart de Thury. Other sorts will not do well with us, our soil being too light. I may add that there are a few Apples locally named which do very well; one in particular, called Jack's, a small Apple, keeps till August. The Sugar Apple comes into use in August, but it will not keep long.—J. ROSE.

**Portnal Park, Ascot.**—Fruit crops in the garden here, owing to its situation, are very liable to be cut off by spring frost. The soil, which is about 2 feet deep, is light and sandy on a subsoil of wet sand containing a large percentage of oxide of iron. Apples, of which there is a good crop this year, do well for a few years, but on the roots getting into the subsoil, the trees become cankered; the same applies to Pears, of which there is a good crop this year. The Pears that do best here and generally produce a crop are Beurré de Capiaumont, Beurré Diel, Bishop's Thumb, and Chaumontel; Marie Louise and Williams' Bon Chrétien do fairly well. All are grown on walls. Of Morello Cherries there is a good crop; they seldom fail. Plums bloomed and set well, but the entire crop was destroyed; they are grown on walls. Gooseberries and Red and Black Currants were severely damaged. Peaches and Nectarines are thin; not many are grown outside. Apricots will not do at all. Of Raspberries there is a good crop; also of Strawberries. The two Strawberries that do best here are Alice Maud and President; the former is, I think, but little known; it is a good early forcer, and not to be beaten for preserving; it is of the Keen's Seedling type. There seems to be an abundant crop of all kinds of fruit in this neighbourhood, of which report speaks well.—T. MAY.

**Welford Park, Newbury.**—Fruit crops in this neighbourhood are not generally so abundant as was at one time anticipated; as the wood was thoroughly well ripened last year, trees of all sorts were covered with healthy bloom, but on the morning of May 8 we had 7° of frost, which proved too much for Plums and Gooseberries, the crop of both of which is very much under the average. Of the former especially there is scarcely any on standards, and fruit is very partial on walls. In one garden near here there is a fair crop on the east aspect, but none on the west; Denyer's Victoria is most plentiful. Apples will not be much over a third of a crop; the sorts bearing most and which seldom fail are Cox's Orange Pippin, Mr. Gladstone, Mannington's Pearmain, Cornish Aromatic, Lord Raglan, Sturmer Pippin, Keswick Codlin, Echlinville Seedling, Stirling Castle, Lane's Prince Albert, Worcester Pearmain, and Brabant Bellefleur; we seldom get a crop of Early Harvest, Ribston Pippin, Gloria Mundi, Gravenstein, Hoary Morning, or Bedfordshire Foundling. Although a good many Pears have dropped, there is still a fair average crop left; the best are Jargonelle, Marie Louise, Passe Colmar, Bergamote d'Esperen, Beurré Rance, and Catillac; there are very light crops on Knight's Monarch, Beurré d'Amanlis, B. Superfin, British Queen, Doyenné du Comice, and Ne Plus Meuris. Apricots, Peaches, and Nectarines are under the average, and the leaves of the two latter are much blistered; Figs are about an average, and looking well; Red and White Currants promise well, but the leaves are now covered with honeydew and smut; many are dropping, and also the fruit; Black Currants are a good average, clean and healthy; Raspberries about an average crop; Strawberries abundant and very good; Walnuts are a full crop. In the woods there is an enormous crop of

Beech mast, and there will be plenty of Holly berries for Christmas this year.—CHARLES ROSS.

**Royal Gardens, Windsor.**—Fruit crops, generally speaking, are the best we have had for several years in this district. Apricots are an average crop; Plums, a heavy crop; Cherries, a good average crop, though much affected with black fly; Peaches and Nectarines very good, and the trees making good growth; Apples are a full crop, but the trees are in many cases more blistered, and the growth more stunted than I have seen for some years; Pears are a moderate crop on standards, good on walls; small fruits are abundant, and the bushes clean; Raspberries, very good; Currants and Gooseberries, plentiful; Strawberries, good, and flavour excellent, but unless rain comes soon the season will be a short one. The Countess, La Grosse Sucrée, Sir J. Paxton, Lord Napier, and Frogmore Late Pine succeed best on this stiff soil. Walnuts are a heavy crop; Nuts, moderate.—T. JONES.

## GARDEN IN THE KYLES OF BUTE.

GLEN CALADH HOUSE and grounds are the property and summer residence of Mr. Stephenson, a nephew of the celebrated railway engineer of that name, situated in the Kyles of Bute. As will be seen, the mansion is backed up by much sylvan beauty and rugged grandeur. It is an example of numerous picturesquely situated houses on the Firth of Clyde belonging to (for the most part) the merchant princes of Glasgow. To those of our readers who are unacquainted with the royal route to the Highlands, or, in other words, who have not sailed from Glasgow on board perhaps the finest river steamer in the world, the Royal Mail "Columba," and seen on a fine day this beautiful place, a few words of description may not be amiss. The Kyles is the narrow pass which separates the island of Bute from the shores of Argyshire. Sailing from Rothesay, one is struck with the fine wood along the water way, especially on the estate of South Hall, the seat of Colonel Campbell.

The subject of our illustration is near Tighnabruaich village, which is nearly through the straits; but just at Glen Caladh the winding course of the strait is most deceptive, as the rising hills seem to shut in the water on all sides, apparently transforming the channel into a lake. The variety of scenery here is most remarkable, and the absence of arable land reminds the southern visitor that he is in the Highlands—"land of the mountain and the flood."

Hugh Macdonald, in his book entitled "Days at the Coast," says: "We question if in all Scotland there is anything more lovely, more deliciously varied, or in every respect more bewitching than the Kyles of Bute. To our mind the Kyles comprise the very quintessence of landscape beauty," and, again, describing the spot which is the subject of our illustration, "here the channel narrows and is further encumbered, if we may so speak, with the bosky beauty of four small islands."

[The photograph from which our engraving was prepared was kindly sent to us by Mr. Alex. Borthwick, of Mount Florida, Glasgow, to whom we are also indebted for the above account of the place.—ED.]



## FLOWER GARDEN.

## OPIUM POPPIES.

Of all annual plants, perhaps, the varieties of *Papaver somniferum* stand foremost in decorative value. They possess a stately habit and a rich variety of both gorgeous and quiet beauty; variety both in form, from the singles with four broad petals to the fullest doubles, and in colour from the palest milk-white to the deepest purple approaching black. It is well worth the trouble to observe and mark for seed every year the very best flowers, looking at them not only close, but also at a little distance, for plants

little straps, stiff and ugly in all stages, and especially when just bursting into bloom.

The large Poppy-head of chemists' shops produces fine single white flowers, well worth growing; then there are half double whites of great beauty, of semi-spherical shape, with large guard petals and half-transparent bluish white colour, and grand whole doubles with broad divisions, of thicker texture and of a warm cream colour; then the most delicate pinks, passing to rose colours, scarlets, dark reds and purples. A space set apart for Poppy culture, and a little care in grouping the colours, would ensure a noble flower picture. In many gardens there are rather

ground between the rows mulched with short stable manure and be freely supplied with water at the roots; the foliage, too, might be syringed about five in the afternoon; this will keep red spider from injuring it. Where the spikes are showing a constant watch must be kept for caterpillars; they hide themselves in the axils of the leaves in the daytime, and come out at nightfall to feed upon the flower buds before they have pushed from their sheaths. It is easy to catch them just at dusk or later by the aid of a lamp. The spikes, too, should be supported by neat sticks, otherwise they not only get damaged themselves, but sometimes the plants get broken over close to the ground. It is not generally known how easily seedlings may be raised and flowered within sixteen months from the time of sowing. It is of course of the utmost importance that the seeds sown should be saved from the very best varieties. I question whether there is any way by which the florists' type of *Gladiolus* can



A garden in the Kyles of Bute.

so large have a distinct landscape value in a garden. It will be observed that of the doubles the most really beautiful are those that retain the broad guard petals, and whose inner petals have a certain breadth, and are not packed too closely together.

These form some of the largest flowers, and in the strongly coloured ones this loose arrangement of the inner petals, which are more or less curled and twisted, seems to allow of the greatest possible play of light and shade, and to invite and display the utmost brilliancy of colouring that sun and flower can combine to show. These freely-shaped, broad-petalled flowers are always more graceful and beautiful than the very tight doubles, which are often mere mops of

out-of-the-way spaces where a good breadth might be grown, and where the gorgeous picture might be come upon as a surprise. To have Poppies in their full strength they should be autumn-sown; they are strong feeders, and will repay liberal treatment.

G. J.

## GLADIOLI AND THEIR HYBRIDS.

THESE fine autumn flowers promise in a few weeks to be in beautiful condition. They are not often cultivated in pots, but they do well in them, and for this purpose the common cheap varieties should be selected. I saw the other day plants of *G. brenchleyensis* flowering finely in pots in the greenhouse at Cannizaro House, Wimbledon, where they had an excellent effect, associated with fronds of such Ferns as *Lastreas* and *Polystichums*. During hot dry weather in July the varieties of *G. gandavensis* ought to have the

be better improved than by hybridising the various fine varieties of *G. gandavensis*. The points to be aimed at should be augmenting the number of flowers open on the spikes at one time and increasing the size and substance of the individual blooms. The finest spikes of *Gladioli* ever seen, perhaps, were those staged at the Crystal Palace on the 5th of September last year. Some of them were 26 inches in length, and bore as many as twelve flowers fully open at one time. So far, the greatest advance in the quality of the flowers has been made in the rose, rosy lilac, or rosy purple tinted forms; those who would be abreast of the times should select the following varieties for cross-breeding, viz.—*De Mirbel*, rose flowers well formed and spike long; *Sylvia*; *Clemence*, in which the spikes are longest of all; and *giganteus*, rich rose. I have seen this with twelve open flowers on one spike. *Camille* also forms a very handsome spike of beautifully flamed and feathered lilac flowers. Any of these may be used as seed or pollen-bearers, according to fancy. Of deep reds, crimsons, or scarlets, *Horace Vernet* has held a leading place for



many years; it is rich crimson in colour, but it has been surpassed by a very fine variety named Lord Wolseley, raised and exhibited at the Crystal Palace last year by Messrs. Kelway; Maréchal Bazaine, light scarlet with white lip is very distinct; Bicolore, red with white blotch, is also distinct; Madame Desportes, white, is beautiful in form and has a handsome spike. To these I would add Gloire de Fontainebleau, Amalthea, Carnation, and Lafayette. The last has a beautiful pale yellow colour with a crimson blotch on the lip, and is evidently a hybrid from *G. purpureo-auratus*. The mention of this variety leads me to allude to another phase of the question, viz., the probability of raising distinct and

GOOD HYBRID FORMS from the original species. This is not quite a new field for the hybridist. Dean Herbert raised a great many hybrids in his garden at Spofforth seventy years ago, where Gladioli were grown as hardy plants, their roots being left in the ground year after year. They were even allowed to remain for twenty years without being disturbed. When division of the roots was attempted, it was done in April, and the plants grew away freely afterwards. If the work of dividing the clumps was done in November, many of them would die during the winter. The natural soil of Dean Herbert's garden was a good, yellowish, light loam, but the Gladioli succeeded equally well in peat and sand. To those who would like to try any of these crosses, the following quotation from Herbert's "*Amarylhidaceæ*" may be useful: "These hardy crosses are between *G. cardinalis*, *blandus*, *carneus*, *inflatus*, *angustus*, and *tristis*, and they vary with every shade of colour from white to scarlet, rose, coppery, and blackish purple, and some are exquisitely speckled in consequence of the cross with *tristis*." During recent years many handsome new species have been introduced, including several of distinct yellow, or yellow and red colours. The most recent is *G. Quartinianus*, figured in the *Botanical Magazine* (tab. 6739). It is of a distinct yellow colour, and would do well to cross with *G. purpureo-auratus*; its flowers are not very closely placed on the stem. Here, then, is a new field for the hybridist to work up a class of garden hybrids of a rich yellow colour, with the scarlet of *G. Quartinianus*, and the maroon-purple of *G. purpureo-auratus*.

SAVING AND SOWING seeds are simple operations, but those who have little or no knowledge of the details of gardening may readily miss their way. The seed pods will be ready for gathering in a month or less after the flowers fade. Gather the pods as soon as they burst open; lay them out on clean paper to dry in an airy place; each cross should be carefully kept separate from the others and have a label attached to it. Sow the seeds about the first week in April; they vegetate most freely in a gentle hot-bed. Fifty seeds may be sown in a 6-inch or 7-inch pot. When the plants appear above ground, which they will do in two weeks, ventilate the frame more freely, but allow the pots to remain in the bottom-heat. In the course of six weeks or so the lights may be removed from the frame altogether. The plants will grow freely through the summer and autumn months, and form good bulbs to plants out-of-doors the following season. They will also flower well. J. DOUGLAS.

**Campanula G. F. Wilson.**—Referring to your notice of this *Campanula* in a recent number, I wish to ask wherein lies the difference between it and *Campanula Balfouri*? I got *G. F. Wilson* this year from Messrs. Backhouse, and have grown *C. Balfouri* for three years. Both are now in bloom, and on a very careful comparison I cannot distinguish the slightest difference in colour, shape, size, or habit. Under any name it is an exquisite little thing; but still I should have liked to have got for my 3s. 6d. something that I had not already. I wonder who is responsible for giving names. Is it the *bona-fide* raiser of a variety or discoverer of a species? Or does each one give a name as it pleases him to a plant that happens to be new to him? The latter plan is more satisfactory to the trade than to the public. How well it would be if there were some kind of floral House of Lords to decide the right of many pretenders and claimants to disputed titles. As it is,

many of the names in catalogues would fitly find place in some such list as that to which Mr. Foster gives the name "chaos" in the end of his "Peerage and Baronetage."—FREDERICK TYMONS.

#### DOUBLE ICELAND POPPY.

(*PAPAVER NUDICAULE FLORE-PLENO.*)

A LONG time has elapsed since this beautiful Poppy was introduced, and, singularly enough, it has until lately retained the single form of its flowers. Now, however, the lovers of double flowers have the satisfaction to see a truly double variety of it, an illustration of which accompanies this note. As may be seen, the flowers are really double, and in this particular variety are of a brilliant orange-red. A short time ago we received a perfectly double white form from one of our readers. It was very beautiful, and we noticed that it endured longer than the single flowers we received at the same time, though it is remarkable how long these retain their petals when cut and in water. Now that Iceland Poppies have shown a tendency to become double, we may soon



Double Iceland Poppy.

see a race of double forms similar to the double Opium Poppies and the beautiful double varieties of *P. Rhæas*, or French Poppies, as they are termed. For our part, we think that the form of the single Iceland Poppy is so beautiful, that it seems a pity to attempt to spoil it.

#### SHORT NOTES.—FLOWER.

**Anemones from seed.**—Whether Anemones are annuals or perennials we will leave others to decide, but the old plan of sowing seeds of a similar character to those of the Anemone appears to be forgotten. It is as follows: Take double the bulk of silver sand that there is of seed, rub the seed to be sown with it, and the mystery is solved; in sowing no difficulty need then be experienced.—S. A.

**Hoop-petticoat Daffodil.**—I found the same difficulty as Mr. Muirhead describes in getting this Daffodil established. Imported bulbs bloomed well the first year in the open border, and then disappeared. But having raised it from seed, which it ripens freely, I have found it flower regularly and increase, although this year its foliage was much hurt by late frosts.—SALMONICEFS.

**Double Poet's Narcissus.**—This plant does not exist; there is no double variety of *Narcissus poeticus*. The *Narcissus poeticus* of Ovid and others (a Mediterranean species) appears to be confounded with an English species, *N. patellaris* of some of our earlier English botanists. In *THE GARDEN* of June 27, Mr. Krelage gives the correct name of the kind in dispute—i.e., "Double White Sweet-scented *Narcissus*," or *Narcissus patellaris plenus*.—S. A.

**Crown Imperials.**—That these noble plants thrive, increase, and flower annually in a cool, moist climate I can emphatically corroborate, having grown and enjoyed them for many years on the west coast of Scotland. The finest mass I have seen this year was in a river-side garden near Henley, where, on the turf under some Apple trees, stood masses of both kinds, with clusters of coppery and yellow blooms.—SALMONICEFS.

#### RANUNCULUS LYALLI AT HOME.

I AM glad to find that people are interested in this remarkable alpine plant. Through the entire length of this island we have a range of mountains from 3000 feet to 14,000 feet in altitude sloping on the western side to the sea, but on the eastern side into undulating or plain country. In penetrating this range from the Canterbury side, the almost destitute aspect of the slopes and valleys is very unprepossessing at the first glance. Forest trees are absent, and the whole country seems to be given up to the Tussock Grass and sheep. Some of the ravines and banks of deep watercourses contain a little scrubby vegetation, but to the ordinary traveller the scene, as far as vegetation is concerned, is uninviting. But the botanist on leaving the valleys and ascending some of these mountain prominences is at once surprised and delighted with the herbaceous flora covering the ground immediately below the snow-line—*Celmisia* excelling in beauty of foliage and flower thousands of other plants in cultivation in Europe; *Ourisia*, *Gentians*, *Aciphyllas*, *Veronicas*, *Ranunculi*, and numerous other families in great variety abound on every hand, and make the higher altitudes of these—what appear to be in the distance—barren wastes perfect gardens of alpine plants. Occasionally places in these heights become partially flattened out, and constantly receiving moisture from the mountain-tops are soon converted into beds of *Sphagnum*, *Fern*, &c. In time the accumulation of *debris* and vegetable matter transforms these mountain bogs into a layer of peat mixed with stone resting upon a very wet clay bottom. On this formation *Ranunculus Lyalli* shines forth in perfect beauty, and makes these solitary mountain passes quite enchanting. Mixed with hundreds of other lovely alpine plants, away from the shade of trees with no protection, this plant throws up every spring its leathery shield-like foliage, displays its white flowers on long peduncles, seeds, withers, and retires to rest in the shape of succulent tubers, buried in peat at a depth of from 3 inches to 6 inches, where the hard and prolonged frosts and snows of winter cannot affect it. Planted in a damp part of a rock garden free from the shade of trees, this *Ranunculus* should flourish. I have seen rock gardens in London with a stream of water running from them. Close to running water amongst peat and stones in its own home I find the largest plants, and certainly think those rock gardens with running water should be all they desire. My London agent will be receiving casks of tubers of this *Ranunculus* from me during this season, and lovers of alpine plants will have an opportunity of possessing this queen of the Southern Alps.

CHRISTOPHER MUDD.

Christchurch, New Zealand.

**Chrysanthemum Etoile d'Or.**—In my notes on the species of *Chrysanthemum* in *THE GARDEN* of November 22 last year (p. 443) I expressed my belief that *Etoile d'Or* is not purely a variety of *C. frutescens* as generally understood, and I promised to endeavour to settle the question as soon as I had a specimen in flower. I said that in the Cambridge herbarium I found a specimen of *C. ochroleucum*, and that, as far as my consideration went, *Etoile d'Or* might be a hybrid between *C. frutescens* and that species. From want of complete material it has been impossible for me to form any other opinion in the matter, and so I forwarded a specimen for examination to Kew. Mr. Baker, to whom horticulturists are indebted in many ways, kindly wrote me as follows: "Pyrethrum *Etoile d'Or* is just half way between two wild Canarian types, which you will find figured in Webb and Bertholet's large book on 'The Botany of the Canaries'—viz., *Argyranthemum frutescens* and *A. ochroleucum*. *Etoile d'Or* has the leaf and general habit of *frutescens* and the yellow flower of *ochroleucum*. Whether it is a wild intermediate type or a garden hybrid I do not know." Mr. Baker's conclusion, therefore, agrees with mine. I think, however, that it takes some departure from *C. frutescens* in foliage, but that only strengthens our conclusion, and we must now regard it as a garden hybrid, or as a wild intermediate type, according to Mr. Baker's opinion. Of course, other similar yellow-flowered forms fall in with *Etoile d'Or* under



this consideration of origin. Can anyone say that a yellow-flowered frutescent species was ever introduced so as to account for their origin as garden hybrids? It is unlikely that these frutescent kinds would cross with others not frutescent; and if they did, they would probably show some signs of such a cross. Not being garden hybrids, they come from some wild intermediate type unknown botanically—still, possibly hybrid.—R. IRWIN LYNCH.

#### CROWN IMPERIALS.

We have settled the cultivation of Crown Imperials to our hearts' content, I should think. Mr. Wood will continue to grow them in calcareous soil in the sun, and I shall put them in light, moist, rather rich soil in partial shade, as heretofore. I do not think it is worth while to pursue the matter further, and I would only in conclusion say that I cannot follow Mr. Wood at all in some things he has said in his last letter—e.g., about Hotham, and he has otherwise misapprehended me. It occurred to me this afternoon to hunt up what opinions I could find on this matter, and I will give them *in extenso*. I had no idea that I had so much Crown Imperial literature at hand.

The very useful index of THE GARDEN which I possess gives us the opinions of leading gardeners over a space of ten years. I find in Vol. VI., p. 423, a statement to the effect that Crown Imperials should be grown in deep rich soil well drained, and that a good dressing of well-decomposed manure may be added to it. In Vol. XV., p. 348, we are told that they are not particular as to soil, but a light deep loam suits them best. Not a word is said in THE GARDEN, over the space of time just indicated, about their love of calcareous soil, and what is said points the other way. In the *Gardeners' Chronicle*, April 13, 1872, I read: "A deep rich soil that is pretty well drained is the kind of thing in which the Crown Imperial flourishes; and when the borders are forked over a dressing of rotten manure will prove highly advantageous, and a thorough mulching of the plants with the same is to be commended." Mulching is a device to keep the ground moist.

Miller in his Dictionary, under the head of Fritillary, tells us that they delight in a light soil not too wet nor very full of manure, which is a very different thing, indeed, from prescribing dryness for them. Thompson writes in his Hand-book on the Flower Garden, "they thrive well in a rich, sandy, and deep soil." Note the word "rich." And last, but not least, there is a statement in vol. vi. of the *Botanical Magazine*, p. 195, to this effect: "The Crown Imperial, though a native of a much warmer climate than ours, is a hardy bulb, and not very nice in regard to soil. It succeeds best in such as is stiffish, enriched with manure, and placed in a sheltered situation." I submit that a stiffish soil enriched with manure would not be far different from a light, moist, and rather rich one, and a sheltered situation is the equivalent of partial shade. It was a question, I think, of "Salmoniceps" which started this correspondence. I hope his Crown Imperials will somehow get some advantage from it, and that Mr. Wood will continue to grow them to his full satisfaction, though it be in a way that is different from mine. H. EWBANK.

P.S.—Since writing the foregoing it has occurred to me to consult the "English Flower Garden," in which I find the following sentences: "The Crown Imperial thrives best in a rich, deep loam, and will be better if the bulbs remain undisturbed for years. It is best perhaps on the fringe of the shrubbery or group of American plants." This points exactly the same way with the other extracts I have given, and I can well understand how a group of American plants would just afford that broken shade which is so beneficial. But really Mr. Wood and I are not in a position to contend about this matter. When he assumes that scaly bulbs cannot be injured by the sun at a depth of 6 inches in the ground, it is clear at once that he is not very conversant with what goes on in the south. Mr. Wolley Dod some time ago exhorted your readers to remember that cultural notes are not of much value unless the latitude is given for which they are meant, and I am persuaded that so accurate an observer as Mr. Wood would have modified some

of his assertions if he had been writing from this place. All I mean to assert is that after all only general rules can be laid down about anything, and we must in a great measure think for ourselves.

Ryde, Isle of Wight.

H. E.

#### THE MEALY SAGE.

(SALVIA FARINACEA.)

THERE are so many beautiful Sages hardy enough to be grown in the open air, that it is a difficult matter to say which is the finest, but the one of which we give herewith a little illustration is unquestionably among the choicest, being graceful in growth and possessing a quiet beauty peculiarly its own. The engraving shows well its manner of growth; a finely-grown plant measures from 3 feet to 4 feet high, with each stem terminated by a long, slender spike, covered with a white mealy powder so densely, that it looks as if dusted with flour. The thickly-set flowers are of a delicate lilac colour, and are arranged in close whorls. It is a native of Mexico, but as it



Salvia farinacea.

reaches northward to Texas it is harder than most other Mexican Sages, and may be grown successfully in the open air from the end of May till October; indeed, it thrives much better when planted out than grown in pots. As in the case of *S. patens*, porphyranthera, Grahame, leucantha, and others possessing a similarly hardy constitution, it is best to lift the plants in October, pot them, and store them out of harm's way till planting-out time again in May. *S. farinacea*, though an old plant in this country, is only just beginning to be known in a general way, and seeds of it and similar species may be bought from the Continental seed houses if not in this country.

#### IRIS SUSIANA.

As Mr. P. Grieve puts it now, there is very little to dissent from in his remarks about *Iris susiana*. It is certainly well that those who are without glass should not be deterred from attempting its cultivation. He had before, however, suggested that glass might be even "injurious" to it, and a reference to the number of THE GARDEN, February 9, 1884, will show that he wrote: "I am inclined to think that no one need hesitate to grow this beautiful *Iris* on account of any supposed difficulty that may be likely to be found in its culture." I hope Mr. Grieve read the leading article of one of your recent impressions in which Mr. Muirhead wrote that he could not succeed in blossoming it at all, and that he intended to have recourse to Professor Foster's plan. I am sure there

are very many in different parts of the country who find themselves in his case. It comes then to this—all those who are contented with their success about *Iris susiana* may let well alone, as Mr. P. Grieve does; but others, whose lot is not so highly favoured as his, need not despair, and they will do well to avail themselves of a method which is sure to improve it. Before, however, a conclusion in any case is finally struck, I would suggest that quality as well as quantity of blossom should be considered. The blossoms of *Iris susiana* are capable of great difference in point of size and general striking effect. I should have no difficulty in saying how I think that really fine flowers can best be secured. S.

#### PANSIES AND SIMILAR FLOWERS.

THE GARDEN for many years has taken a foremost part in patronising hardy flowers. At the same time I should like to be permitted to say that it has not constantly kept before its readers the imperative necessity of annual propagation. This is the substance of a complaint made to me yesterday by one of its readers. It arose in this way. Some time since he got collections of good things noticed in its columns, but, like most amateurs, he did not propagate them, thinking, from the fact that they were perennial and hardy, they would take care of themselves; and so they will, as a rule, for a time, but not perpetually. Let us by way of illustration take a few examples. Every lover of outdoor flowers grows Pansies. Leave a bed or border of them uncared for for a second year's growth; what is the result? Some of the very best show and fancy kinds have an unaccountable habit of rotting off at the junction of the stem and soil. Until the mischief is done, one never suspects that anything is going wrong. Cuttings taken then—hollow stems of the worst kind can generally only be had—rarely root. This happens in June, July, and August. Some maintain that they bloom themselves to death, and I certainly find the most select floriferous and expensive kinds most liable to go off. A small dark slug will frequently be found the predisposing agent. I never find this happen during April and May, so I take then either cuttings or small, wiry shoots from the centre; these are always certain to root, and I am thus prepared for an emergency. In any case, I never fail to give Pansies a new bed for the following season's growth, throwing away the old stools. From this time forward those propagated new plants may be thus transferred with a ball of earth. I like to have them established well before winter, as this is the secret of an early spring bloom. Beds that contained the spring Narcissi and other things may now be lifted, and will be available. Take, again, Carnations, Picotees, and Pinks; so far as annual propagation is concerned, they may be taken together. Now I have at least 150 varieties, principally my own seedlings, and a few novelties, for which I am indebted to Mr. Douglas. All of these do admirably sheltered, though fully exposed, and every one has been propagated by cuttings. I have no patience with those who give, and insist on, elaborate directions for propagation by layers indoors, in heat, &c., thus discouraging numbers, who thus lose a great attraction. I never saw them look more promising than at present. Most of the best Phloxes must be propagated, or the stem gets woody; so of Pentstemons. Anemones are always best the first year; Antirrhinums and the shrubby Calceolaria must be grown from annual made cuttings to give satisfaction. Dahlias, Petunias, Chrysanthemums, Pelargoniums, Verbenas, &c., with many others, may be added. In short, it is impossible to get on without some plan for renewing one's stock in some well organised way.

Clonmel.

W. J. MURPHY.

**Potentilla nitida.**—This very distinct *Potentilla* grows on the southern Tyrolean Alps and on the southern side of Monte Rosa. It seems to avoid damp soil and to prefer sun and dry places. It grows at a height of from 6500 feet to 9700 feet, and particularly on calcareous soils and rocks. It does not form such rich and wide tufts as the other kinds of *Potentilla*, but it is the finest of them all. Its large rosy flowers, set off by the white, silky foliage, are very effective. It likes good, rich soil and a place where its roots



can pass between stones very deeply. It flowers in May, June, and July. It is easily raised from seeds.—H. CORREVOY, *Geneva*.

#### MARKET GARDEN NOTES.

**Arum Lilies.**—The demand for these has been unprecedented in Covent Garden this last spring. A salesman there told me that he could have sold thousands of them on the day preceding Good Friday. At that time they realised 1s. each, and during the spring they sold for 8d. and 10d. each. The fact seems to be that in spite of the immense quantity of white flowers grown there are times when the supply can scarcely be met, and this is especially the case with Arums, which are indispensable for church decoration. I used to think that the only way to grow them well was by planting them out in summer, and that blooms of high quality could only be had from single crowns. I find this to be a mistake, for some of the largest blooms I ever saw were on plants that had been several years in the same pots. They were heavily top-dressed with cow manure, and were of course liberally watered. But the largest specimens I ever saw, and which had a really gigantic appearance, were in a market garden at Tottenham. They were in very large pots, in which they seem to have been some years, many of them being 5 feet in height, with leaves of proportionate size and substance. They looked so different from all other Callas I had ever seen, that I had doubts for a moment as to their identity. They were not in bloom when I saw them, but it was easy to conjecture what the quality of the flowers borne by such plants must be like. Until I saw these giants I never realised what a truly noble plant the Calla is; the, in comparison, puny specimens one generally sees give no idea of it. I suppose this is the size they attain under the most favourable circumstances in their native land. Those who have large conservatories to decorate should endeavour to develop the Calla in this way. A plant 4 feet or more in height and bearing a score of its large white trumpets must be a grand sight.

**Richardia albo-maculata.**—I do not know if this variegated Arum Lily has been grown for market. I think not, for although it is offered by one or two London nurserymen, it is not yet much known. It grows much in the way of the common Arum Lily, but is, of the two, more graceful, and the foliage is so distinctly blotched with white as to render it no mean rival to Caladiums, over which it has the advantage of being remarkably easy to grow and of an enduring nature. Last summer I grew a few in 6-inch pots, and everyone who saw them admired them, and now I have several hundreds of good roots imported direct from the Soudan. They are mostly in good condition and starting into growth. I feel sure that this variegated Arum will be popular amongst decorators when it becomes known, on account of its really handsome appearance, hardy nature, and easy culture. If stored in a dry cool place, the roots keep like Potatoes, and they can be thus started in batches to come in as wanted. They start quickly and grow rapidly, some that were potted last year in the beginning of July having grown into good specimens by September. I am told that this *Richardia* is a really valuable plant for summer bedding, standing our climate well, and, owing to its lively variegation and graceful growth, creating, either alone or associated with other things, a most pleasing appearance.

**Lilium Harrisii.**—There can be no doubt as to the value of this Lily for market work; it is undoubtedly destined to take very high rank amongst plants grown for the London markets. I lately saw a house more than 100 feet long and 12 feet wide full of it in all stages of growth, the owner evidently intending to work up a large stock of it. This appears to be an easy matter, as offsets are produced so freely, and quite small bulbs yield flowers. Contrary to what is often the case, the first description of this plant contained no exaggeration, the perpetual flowering of it being an established fact. I was shown plants which had given three crops of bloom this year, the first blooms realising 1s. each, the later ones from 8d. to 10d. each. This ought to be a paying price, the more so that being of slender growth the

plants can be stood thickly. Various opinions have been offered as to the origin of this Lily, but some good authorities consider it but a variety of longiflorum. This may be, but it is certainly very distinct from the latter, the flowers being longer and more elegant in shape, the foliage more slender, and there is the important difference of its being a perpetual bloomer. Whether it be descended from longiflorum or not matters but little to the market grower, who may be assured that for him it is a totally distinct and altogether more valuable plant. I write with greater authority from having seen a houseful of longiflorum in full bloom alongside of Harrisii. When they are seen in quantity in close proximity the characteristic differences are better perceived. Up to the present the price of Harrisii has been in a measure prohibitive, but owing to its ready increase we shall probably get it as cheap in the course of time as any Lily in cultivation.

**Roses.**—A few years ago Maréchal Niel was probably the best paying Rose grown, but the fate which befalls many things grown for market overtook it. It was overdone—some large growers, notably Mr. Ladds, producing it in such large quantities as to defeat their ends, by so glutting the market that eventually the blooms fetched a mere nothing. The effect of this was that those who had been the greatest growers of it gave it up, and I believe that Mr. Ladds grows scarcely any, whilst Messrs. Beckwith do not market a blossom of it now. I am told, however, that this season something like old prices have been obtained for the Maréchal, and I know that a grower in this neighbourhood did very well with his blooms, and that a special request from a Covent Garden salesman was sent to him guaranteeing a good price for well-grown blooms. The fact probably is that over-production has been followed by a dearth; many have done away with this Rose, and few have planted it, but those who kept it are now probably doing well. The great fault of the Maréchal is the short season it affords; the blooming time does not last much more than a month, whereas with Niphetos the same plants will yield several crops of bloom in the year. I know of a grower who took three crops from his plants by the end of May. Give this Rose about two months' rest, in July and August, and then it may be pushed along into growth again. The finest stock of Niphetos I have ever seen was in a house quite 40 feet wide and over 100 feet long. That house contained 30,000 plants, little and big, and all were the picture of health. The young ones were grafted on the seedling Brier, and were destined to stock some very large structures in course of erection. No doubt this Tea Rose is paying well now, but in a few years, like the Maréchal, it will probably be overdone. Baroness Rothschild appears to be gaining favour as a market Rose. It is, of course, cut in the bud state, the soft delicate tint of the opening petals being just what is required for many purposes. This is one of the best of Roses for pot culture, as its habit is good and the foliage is abundant and vigorous.

**Peas.**—This is probably the most abundant Pea year that we have had for a decade or more. It is remarkable for the large amount of Peas coming in at a comparatively early date. They are as abundant now in the London markets as they generally are two or three weeks later. There also seems to have been a remarkably short interval between the coming in of the earliest sowings and the later ones. A large grower in this district, who begins gathering as early as anyone, only began to pick a fortnight ago, and now Peas are so plentiful as to be within the reach of the many. The explanation of this rather abnormal state of affairs appears to be that the earliest sowings were retarded very much by the ungenial weather, whilst the second earliest came into bloom just as the weather changed for the better, and, being helped by genial showers, came along quickly without check. A friend of mine sowed a field with the Kentish Invicta to come in as second early. I never saw Peas grow so rapidly as they did after they came into bloom. There seemed to be filled pods almost before the last flowers set. My friend thought of making £10 per acre, but he had some difficulty in finding a customer at £7 per acre, although the crop was an excellent one. But the Pea crop seems to be everywhere alike; there is an abundant yield and no blight.

**Gooseberries.**—These must be an extraordinary crop, for at the present time (June 24) they are selling in Covent Garden at from 2s. 6d. to 4s. per bushel. It is probable that such low prices have not been realised for Gooseberries for many years. With us they hang on the branches like ropes of Onions.

**Strawberries.**—I never remember but one later season than this for Strawberries, and that was the year when the Shah of Persia paid his first memorable visit to this country. Then July was far advanced before the main crop came in, which will be the case this year. The Cornwall Strawberries did not come in this season till the first week in June, and I have known them to be quite over by that time, so that crops generally are quite a fortnight later. There is, however, every prospect of their being heavy, but if there should be no rain the berries will hardly be so large as usual. The leading market Strawberry is still Sir J. Paxton, and it will be long ere one is found to excel it.

J. C. B.

#### GARDEN FLORA.

##### PLATE 501.

##### THE KENNEDYAS.

(WITH A PLATE OF *K. MARRYATTIANA*.)

At one time this pretty genus of the Pea family, in common with other New Holland shrubs, was very popular in gardens, but now the more easily grown plants, even if less graceful or beautiful, have in a great measure supplanted them. The Kennedyas belong exclusively to Australia, or that part of it commonly called New Holland, and years ago nearly all the species, which number about nine, could be found in gardens; but now only two or three are grown, the best known being *K. rubicunda*, *nigricans*, *coccinea*, and *Marryattiana*, the last the subject of the annexed plate.

When properly treated Kennedyas are both graceful and effective. One point in their favour is, that they will bear cutting-in freely, which is an advantage in winter, when as much light as possible is required by the plants grown underneath. This is a consideration not sufficiently kept in sight in the selection of the kind of plants to be grown for roof-climbers, between which and the things that occupy the body of the house there must necessarily always be a compromise, as there is no question that the climbers do more or less injury to the other plants, and are simply allowed to occupy their position to give a general effect to the house. There is a great difference in the strength of growth and general appearance of the different species of Kennedya, the smaller growers being more suitable for clothing a pillar than training to the roof. The strongest growers can with advantage be used for covering a back wall, in which situation they will succeed, even in partial light, much better than many things of a more tender character; they are easily grown, make rapid progress, and are not liable to get out of order at the roots to such an extent as many plants are, but, like some other subjects of a similar nature, they do best when planted out. They are much better for being kept in a pot for a time until they have acquired sufficient strength





KENNEDYA MARRYATTIANA.







of root to enable them to lay hold of the soil in a reasonable time after they are turned out.

Kennedias strike from cuttings of the young shoots taken off with a heel in spring, when about 3 inches or 4 inches long, put singly in little pots in sand, and kept in an intermediate temperature, close, moist, and shaded; when well rooted, move them from the propagating frame, but encourage growth by a genial temperature, a little shade, and a moderately moist atmosphere. By midsummer they should be moved into 6-inch pots, and growth assisted afterwards by a continuance of the treatment hitherto advised. Each plant will require a stick to support the single shoot which it will have. Towards autumn give more air, disperse with shading, and lower the temperature down to about 40°. In March or April the plants should have a 2-inch or 3-inch shift, according to the quantity and condition of their roots. Kennedias will thrive in either peat or loam; it is better to use the former for the weaker-growing species, as it will impart a freer disposition of growth, and to confine the strong growers to loam, which should be good in quality, containing plenty of vegetable matter. They are comparatively strong rooters, and do not require the soil broken very fine; add to it a fifth or sixth of sand, according to its nature; drain the pots sufficiently, as from the vigorous character of the plants they will need a good deal of water in the growing season. After potting, place them for a few weeks, until the roots get hold of the soil, in an atmosphere a little closer than that of an ordinary greenhouse; keep the atmosphere rather moist during this time, and afterwards give more air in the early and middle part of the day; close the house in good time and syringe overhead. Give water to the roots as required, and when in active growth they will take a good deal. Continue this until the middle of August, when the plants should have more air, and syringing should be stopped to discourage further growth and ripen up the wood.

At the time of potting, half a dozen sticks, 3 feet or 4 feet long, should be inserted in the soil just within the rims of the pots; round these the shoots ought to be kept closely and regularly trained, as if allowed to twine to the supports, or become entangled with each other, they are difficult afterwards to regulate without injury. They should be kept through the autumn and winter in a temperature of from 35° to 40° in the night, and 10° or so warmer in the day, but not so high as to excite any growth, or they will suffer when the roots are disturbed in planting out, which should be before growth begins early in the spring; the border in which they are to be planted may be from 1 foot to 2 feet in width, according to the space to be covered. It should have 4 inches of drainage in the bottom, consisting of crocks, broken bricks, pebbles, or anything of a similar nature, on which place an inch or two of fibrous material; over this put 10 inches or 12 inches of soil, which should have a good quantity of sand mixed with it, and a sprinkling of crocks or charcoal will be an additional assistance in keeping it sweet. In planting, disentangle the roots so far as can be done without injuring them, spread them out and make the soil tolerably firm. Do not give water until it is required, which, if the soil at the time of planting is in right condition as to moisture, will not nearly so soon as in a pot. Train the shoots in their places. Nothing has been said about stopping—the necessity or otherwise for this will depend upon the number of shoots the plants have and the requirements of the situation. A single shoot to each wire will, in most cases, be preferable to more. They will require little further attention except water at the roots as needed, keeping the shoots from getting entangled, and a sufficient use of the syringe during the growing season to keep down aphides and red spider. When they have filled their allotted space the shoots must be reduced from time to time during summer and in autumn, cutting in as far as requisite. When the soil gets at all exhausted, an inch or two each spring may be removed and replaced with fresh, and manure water during the growing season will also be a great assistance to them.

The nine species of Kennedias are *K. coccinea*, *K. mixima*, *K. glabrata*, *K. microphylla*, *K. macrophylla*, *K. nigricans*,

*K. parviflora*, *K. procurrens*, *K. rubicunda*, and *K. Stirlingi*. There are various other so-called Kennedias in cultivation, but these belong to other genera, such as *Hovea* and *Hardenbergia*, and for this reason they are omitted here. The most desirable species are the following:—

**K. COCCINEA.**—A slender-growing plant, with trifoliate leaves and smallish flowers of a beautiful scarlet, produced in dense clusters of from fifteen to twenty flowers. The kinds known as *inophylla*, *sericea*, *angustifolia*, and *heterophylla* are either synonymous with this species or in near affinity to it. A variety called *coccinea major* has larger flowers than the type and is a more robust grower.

**K. MARRYATTIANA.**—This species, which is figured herewith, is known at once by its silky trifoliate leaves and large deep scarlet flowers, much more brilliant than our plate represents them. Similar to it is *prostrata* and *stipularis*. It flowers in midwinter, and is, therefore, valuable, particularly for cutting from at that season.

**K. RUBICUNDA** is, perhaps, the commonest of all now in gardens. It is a handsome twiner, producing in early spring numerous spikes of large deep red flowers, which in contrast to the dark green foliage produces a pleasing effect in a greenhouse. There is a variety called *superba* which has brighter coloured blooms and is superior in other respects. *K. rubicunda* is a very old garden plant, having been figured in the *Botanical Magazine* so long ago as 1794.

**K. NIGRICANS** has pretty small purple and white flowers produced in clusters, also in spring and early summer. Being a quick grower, it soon covers a pillar or rafter. The names *K. bimaculata*, *Comptoniana*, *ovata*, and others represent plants belonging to other genera.

## GARDEN IN THE HOUSE.

### PACKING CUT ROSES.

THE abundance of Roses everywhere will doubtless have materially increased the work of the post office officials, numbers being constantly sent from the country to town friends, and many of the consignments, I am afraid, do not reach their destination in good condition, owing principally to the thoughtless manner in which they are packed. Unless properly packed, those who receive them, whether after a short or long journey, will find them of little value. Some judgment is required in cutting the blooms; none that are more than half blown are suitable for packing. Then, again, if it is impossible to cut and pack these half-opened blooms in the morning while yet the dew is on them, the least that can be done is to cut them and place them in water in a cool dark room for a few hours in order to fortify them for their trying ordeal. To cut them and pack them straight from the bright sunshine is altogether wrong, yet many unthinkingly adopt this practice. One lady who came to me for advice had discovered that several boxes of Roses sent up to town had arrived in a miserable plight, and that, too, in spite of great pains taken with them. All had been cut and at once packed in cotton wool, than which there exists no worse material for packing flowers, especially when used in a dry state. Cotton wool absorbs moisture from the flowers, which turn out of it withered and nearly spoilt. The material used should, on the contrary, be capable of preserving moisture, if not actually supplying it, and only a little is needed. I find Spinach leaves best for packing. The Roses should be laid closely, evenly, and flatly in these; another layer of leaves should be placed on the top, and the lid should fit down tightly on them. Thus packed it is surprising how beautifully fresh the blooms will turn out. We are packing postal boxes with Roses and other choice flowers nearly every day, and no complaint is ever received respecting them—quite the reverse. Yet Spinach leaves is the principal and oftentimes the only packing material employed. Cabbage Lettuce leaves if not too coarse will answer nearly as well, and slightly damped common Fern fronds are also available for the purpose and can be turned to good account when their destination is reached. Fresh clean Moss and also *Selaginella*

*Kraussiana* are frequently used for packing flowers, and with excellent results—any springy moist material, in fact, being preferable to cotton wool. If the latter must be used, a layer of damped silver or tissue paper should be placed between it and the flowers, and this will protect them from the absorbing power of the wool.

BOXES that will crush easily ought not to be employed, and as light, handy boxes can be purchased cheaply at most confectioners', these I would recommend for small quantities of Roses, and grocers' boxes for larger quantities. Single layers, provided the lid fits closely on them, are best; if a double layer is packed, a layer of leaves, Fern fronds, or other material should separate them. The parcel post is not always so expeditious as we could wish it to be; we, therefore, frequently employ the letter post, and shall do so oftener now that we are allowed to exceed a weight of 12 ounces without the high charges enforced up till this month. The letter postage charges now are—for the first ounce 1d., for two ounces 1½d., for all greater weights ¾d. for every two ounces plus 1d. At this rate, a box above twelve ounces and under fourteen ounces would be 4½d., above fourteen ounces and under sixteen ounces 5d., &c. This I consider a decided boon. W. I. M.

### TABLE DECORATIONS.

THE remarks which appeared in THE GARDEN (p. 11) in reference to exhibits of dinner-table decorations and similar arrangements will, let us hope, do good. In no household where good taste prevails would those everlasting tall stands of the past be tolerated. Yet it almost invariably happens at the leading exhibitions where floral arrangements of this kind are made a special feature that high, out-of-place stands filled in the ordinary laboured style are preferred, to the exclusion of the productions of any competitor who has the courage to exhibit a simple tasteful arrangement; the inevitable result is that those who can see the mistake of giving preference to a style that in actual practice is manifestly as much out of date as it is opposed to the fitness of things either refuse to compete altogether, or fall in with that which in reality they do not approve of. At a recent exhibition in one of the southern counties, noted for the extent of this class of exhibits, where the principal prize is for three pieces for a dinner-table, the first award was made to three long-stemmed glass trumpets rising from the usual base; the centre one was 25 inches high, the two standing right and left 23 inches each. As a natural consequence, with a view to something like proportion, the exhibitor had put in flowers, Ferns, and Grasses that added something like 2 feet more to the whole—over 4 feet in all. If the glasses had been let through the middle of the table, with their bottoms on the floor, the whole affair would obviously have been something more suitable, but still much too high. The second prize arrangement, infinitely superior, consisted, as often seen, of two little plants of *Cocos Weddelliana*, about 10 inches high, with a few Ferns and flowers round the bottom. The centre group was a glass about as high as the Palms, loosely filled with a few suitable flowers, Grasses, and Ferns. As might be supposed, the award was approved of by few. At another place recently, where a whole tent was occupied by exhibits of this kind, there being over a dozen tables, some of which were characterised by the simplicity of the materials used and by the few kinds of flowers and few colours present in them, still these had to stand aside before three of the stereotyped trumpets, which were ablaze with red Poppies and other things of a like description, so that it was enough to burn one's eyes to look at them. The only thing that was conspicuous on this table was the evident total absence, on the part of whoever had arranged it, of any knowledge as to the right disposal, where used at all, of high-coloured flowers, by putting far too many of the Poppies in the top of the tall centre glass, where, if employed at all, they should have been used sparingly, and at the base instead of the top.

If exhibitions of this kind and everything else appertaining to gardening are not carried out in a way to make them educational by illustrating what should be done and what should be avoided, they become



worse than useless. Fortunately, good cultivation in plants, fruits and vegetables asserts itself, and the standard upon which the awards are made is too generally known and accepted for mistakes, such as instances, to be often committed in their case. At the Regent's Park the names of the judges in each department used to appear on a board in the garden immediately the awards were made, along with the names of the successful exhibitors. At agricultural shows, dog and poultry shows, the names of the judges are invariably made public, and appear in the papers with the accounts of the shows. I venture to suggest that it would be no bad plan if this course was generally adopted in reference to horticultural exhibitions. Some committees now print the names of the judges who are to officiate at the show in the schedule—a course which has this merit, that it acts as a guide to exhibitors to enable them to form an opinion as to the competency of the judges to adjudicate on the productions with which they have to deal. This sort of proceeding is not likely to meet with favour by those who are suspicious that collusion

Mr. Brockbank speaks of *N. Horsefieldi* as being considered sterile. This is a mistake; it bears seed with me in most seasons, and I have many seedling plants from it. Mr. Wolley Dod also finds that it ripens a good deal of seed in his soil and climate, which are very different from mine.—G. H. ENGLEHEART, *Appleshaw, Andover.*

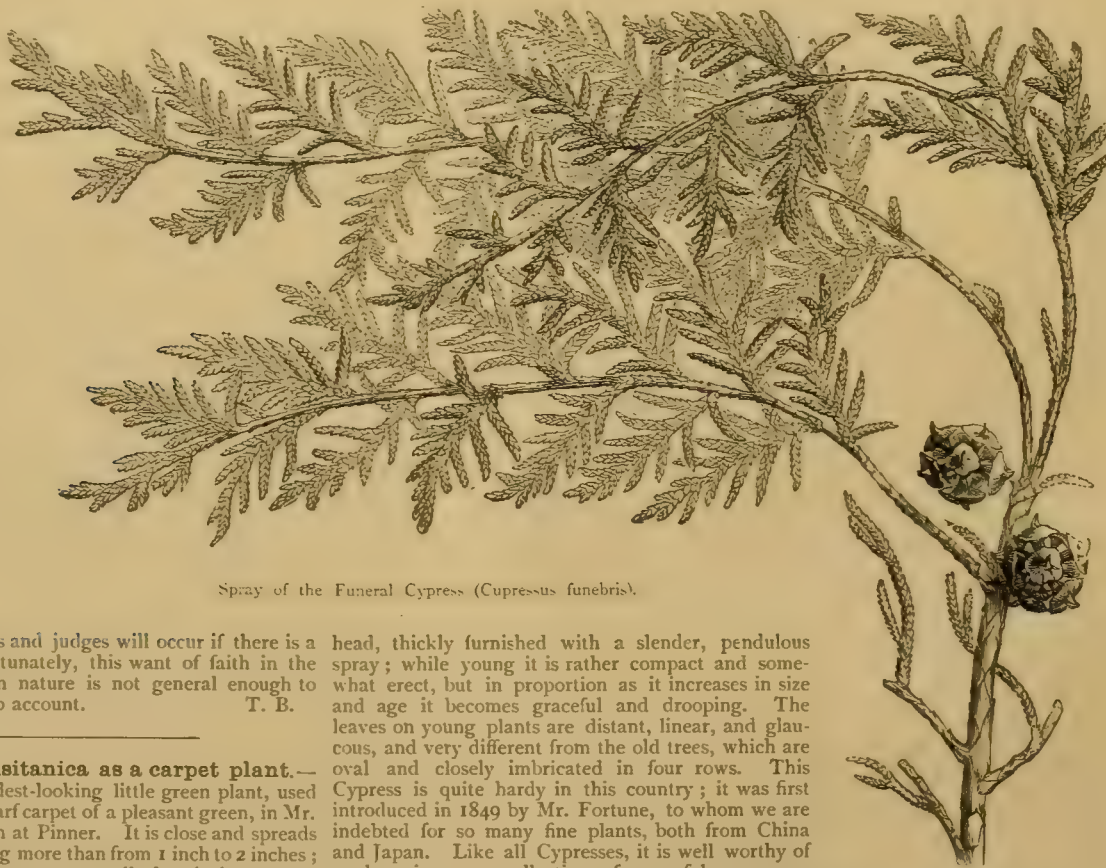
## TREES AND SHRUBS.

### THE FUNERAL CYPRESS.

(*CUPRESSUS FUNEBRIS.*)

THERE are three Asiatic Cypresses, namely, *funbris*, *Corneyana*, and *torulosa*, all of which have a pendulous habit when old, and bear considerable resemblance to each other. In the countries where they grow they are known by the name of Weeping Cypresses. The Funeral Cypress is a native of the north of China, and when full grown forms a tree 60 feet high, with forked branches and a spreading

fully carried out, Hollies of large size may be transplanted with great success without showing the effects of their removal, except in a minor degree. Those who are in the vicinity of commons or woods where Hollies grow naturally would find great advantage in establishing new places by transplanting them in quantity; one reason they are not frequently removed from nurseries at this time of the year is the delay in transit, and also the fact that few are sent out with balls of earth attached. As a result of my experience, I may mention that I transplanted two years ago 122 very large plants, of which but one died, and five only showed any serious effects of their removal, and are now becoming rapidly re-established. As to the remainder, it would be impossible to say they had been so treated by their appearance. They were used partly for blinds and partly as specimen plants in prominent places, and have given very great satisfaction. As to the cost of purchasing, it was trifling, only sixpence each being charged by the lord of the manor. The greater expense laid in the cost of removal, which I estimated at about twelve



Spray of the Funeral Cypress (*Cupressus funebris*).

between exhibitors and judges will occur if there is a chance. But, fortunately, this want of faith in the morality of human nature is not general enough to require taking into account. T. B.

#### **Parietaria lusitanica as a carpet plant.**—

We notice this modest-looking little green plant, used as a very close dwarf carpet of a pleasant green, in Mr. Kingsmill's garden at Pinner. It is close and spreads freely, not reaching more than from 1 inch to 2 inches; it bears a little flower, so small that it is not seen unless sought for by sharp eyes. It is distinct in aspect from any other plant we have seen used in a like way.

**Giant Poppies.**—To the four sorts of Poppies described by the Rev. Mr. Wilks a fifth must now be added. It has been imported from Irun by an Austrian exploring party, and although it may be but a variety of *P. bracteatum*, yet horticulturally it is a distinct plant. It flowers the earliest of all—about the end of May; its blossoms are a little smaller than those of *P. orientale*, but their colour is the deepest of all—a dark brilliant blood-red. It comes true from seed.—MAX LEICHTLIN, *Baden-Baden.*

**Seeding of Daffodils.**—Mr. Brockbank states that he has obtained seed of *N. gracilis*. Is he certain of this? I ask because Dean Herbert, a most painstaking and cautious observer, found this plant to be sterile in his own experience, and could obtain no record of its seeding, either here or on the Continent. For several seasons I have myself grown it in some quantity and watched it carefully for seed, but have always found the ovules to be entirely abortive.

head, thickly furnished with a slender, pendulous spray; while young it is rather compact and somewhat erect, but in proportion as it increases in size and age it becomes graceful and drooping. The leaves on young plants are distant, linear, and glaucous, and very different from the old trees, which are oval and closely imbricated in four rows. This Cypress is quite hardy in this country; it was first introduced in 1849 by Mr. Fortune, to whom we are indebted for so many fine plants, both from China and Japan. Like all Cypresses, it is well worthy of a place in every collection of graceful evergreen trees. As yet few examples of it in this country are above 20 feet high, but these sufficiently prove that the older it gets the more graceful it looks. It somewhat resembles, except in colour, old trees of *Cupressus torulosa*. With the Chinese it is a great favourite for planting about tombs in burial grounds.

#### TRANSPLANTING HOLLIES.

DURING the next two months is the best and safest time for transplanting Hollies, and this applies especially in the case of very large plants, up to 25 feet in height, which have never been moved before. The only rules necessary to be observed in order to insure success are, first, that they should be taken up with a reasonable ball of earth; secondly, that the least time possible should be lost in transplanting them; thirdly, that good sandy soil be put in quantity around their roots; fourthly, that there should be no stint of water at the time of transplanting, and as often as may be necessary according to the weather subsequently; fifthly, a good mulching of well-decayed manure. These conditions well and care-

shillings each, the distance being about a mile. No difficulty is experienced in retaining earth about the roots where Hollies are growing on commons amongst Heath and Ferns, the fibrous and underground roots of the latter assisting materially in this respect, although the soil may be sandy.

C. D.

**Hardy species of Eucalyptus.**—In the "Bulletin de la Société d'Acclimatation," M. Tourasse, of Pau, describes an Eucalyptus which has withstood five successive winters without injury. It came up amongst some seedlings of *E. coriacea*, but bears a rather close resemblance to *E. pilularis*. Of fifty-five species of Eucalyptus which M. Tourasse has experimented upon this is the only one which has shown itself to be quite hardy in the climate of Pau, where the thermometer went down last winter below zero. If this tree should live and produce seed, we might after all be able to add the Blue Gum to the list of our hardy trees, a result much to be desired, as it is so distinct from anything in that way that we now possess. The failures which have hitherto attended



the attempt to acclimatise the Eucalyptus in the more northern portions of Europe should not too much discourage us. There may yet exist species much harder than any that we are acquainted with. In the case of the tree above mentioned growth is much less rapid than is the case with such kinds as are well known to European growers, a circumstance that may in a measure account for its greater hardiness.

### PLANTING AVENUES.

WHEN the terms are properly understood I do not think there is any great difference of opinion between "A. D." and myself. When limited areas and short distances are mentioned, the reference must be taken relatively. Speaking generally, in grounds that are really of small extent I should not advocate the planting of avenues, but even this cannot be governed by hard and fast rules. In some situations in small grounds an avenue may be admissible when a proper arrangement and with suitable trees is effected, but on other sites of similar area it may be quite out of place. Much must depend on the place itself and on the surroundings. Whatever style is adopted, stiffness and formality must be guarded against, as there is about as much effect in the way in which some, what would be really ornamental trees, are planted as there would be in a brick or stone wall. If artificial precision is wanted, let us have it with artificial material, but not drag the beautiful in Nature down to this level. Apart from this, a mistake easily fallen into by the inexperienced is planting too closely. When this is merely in the row the error is more easily remedied by removing a portion of the trees, but when the mistake is committed in the distance of the rows apart, when the avenues are formed of single lines of trees it is fatal. I could point out an instance of this kind that has lately come under my notice. This is where a new road has been formed through a gentleman's estate and a row of trees planted each side. The undertaking, I have no doubt, was considered to be so simple as to make it unnecessary to consult a practical planter. The consequence is that the distance between the rows is so small that it is almost painful to contemplate what the result will be when the trees come to maturity, as they are principally Elm and Horse Chestnut. On another portion of this estate a number of clumps were some few years ago laid out by one of our best landscape gardeners, with the result that they are already adding greatly to the appearance and value of the demesne, and will continue to do so as each year rolls on. In a few years the avenue planted without due thought must develop into a mere tunnel, to the exclusion of light and air. Your correspondent spoke of obstructing the view; this would not be the case with the trees planted in clumps. It would, if I may use the term, merely split up the view into a number of divisions, and this, instead of destroying the effect of the landscape, would in many cases add to it, as each vista would possess an attractiveness of its own.

Y.

### THE BIRD CHERRY.

(PRUNUS PADUS.)

THIS tree occurs rather plentifully in various parts of Britain, notably the north of Scotland. It is a very ornamental tree, rather more leafy than the Gean, and produces a valuable timber much sought after by cabinet makers on the Continent. The following measurements of Bird Cherries growing at Darnaway, near Forres, have been kindly furnished to me by Mr. Scott, the wood manager there, and represent the largest trees now growing—No. 1: height fully 40 feet; girth of stem at 1 foot and 4 feet respectively, 5 feet 2 inches and 5 feet. No. 2: from 38 feet to 40 feet in height, and girthing at 1 foot and 4 feet, 4 feet 6 inches and 3 feet 6 inches respectively. No. 3: girth 6 feet 2 inches at 1 foot up (no height given). No. 4: 36 feet in height and 5 feet 8 inches in girth at 4 feet up.

These measurements represent very fine trees indeed, and almost equal to the Wild Cherry alongside which they are growing. The Bird Cherry on this estate is, comparatively speaking, a rare tree, in most cases only attaining shrub height. One very fine specimen which I had measured last week is 30 feet

in height; girths—at 3 feet, 4 feet 1 inch; and at 5 feet, 3 feet 9 inches in circumference of stem. This tree is growing at a considerable elevation above sea level, and in rather damp ground adjoining a mountain rivulet. The exposed situation has told somewhat severely upon it, for many fine limbs have been torn off by the force of the wild mountain blast, which at times sweeps along the valley with terrific fury. It is, however, still an object of veneration, and attracts by its dilapidated and weather-beaten appearance the few travellers who pass over the primitive Welsh bridge near which it grows. A. D. WEBSTER.

*Penrhyn Castle, North Wales.*

**Establishing *Pinus maritima*.**—This rapid growing Pine is one of the worst, if not the worst of all, to transplant. The plan I adopted some years ago is that of sowing the seeds where the trees are to grow. The process is simple, and consists in turning a spit of soil, scraping a little aside and sowing three or four seeds, and covering them to the depth of 1 inch. As the seeds are large, this is not too much. It grows so rapidly that it is not at all unusual to meet with one-year-old plants from 4 inches to 9 inches high; thus it very soon gets up out of the way of Grass and weeds when a year old. One or two of the weakest may be pulled up, and when two years old all but the strongest plants may be pulled away. The best time to sow is March.—T. S.

***Eucryphia pinnatifolia*.**—This is one of the most beautiful of shrubs of recent introduction, and valuable on account of its flowers being produced about the end of the summer, when blooming shrubs are getting scarce. It is deciduous, somewhat upright in habit, with pinnate leaves, and large white flowers about 3 inches in diameter. The blossoms are in form much like those of an *Hypericum*, to which the cluster of prominent stamens adds another point of resemblance. It is of rather slow growth, but has withstood the last three winters in the neighbourhood of London; therefore it may fairly be classed as hardy. This *Eucryphia* can only be satisfactorily propagated by means of layers, which will, to a certain extent, account for its scarcity. It is a native of Chili, and was introduced by Messrs. Veitch.

***Berberis japonica*.**—This in good soil produces large pinnate leaves about 2 feet long, and is very handsome. The flowers, which are lemon-yellow, are borne in erect spikes overtopping the foliage. When cut they last a considerable time in water, and when used along with large dark green leaves have a good effect in vases. The chief point of importance in connection with this *Berberis* is its flowering early in the year, when for a couple of months, if the weather is very favourable, it is very conspicuous. The blossoms, too, are succeeded by large berries of a bluish purple colour, overspread with a fine bloom. To the taste they are sharp and sour, but, nevertheless, I find that birds often destroy them. This shrub belongs to the *Mahonia* section of the *Barberries*; indeed, it is frequently known as *Mahonia japonica*.—A. L.

***Cytisus Laburnum serotinus*.**—Some time since M. Carrière, in the *Revue Horticole*, drew attention to this variety of *Laburnum*, which he described as a remarkably handsome shrub, with unequal leaflets, frequently smaller than those of the common *Laburnum*, and slightly turned up at the edges. The flowers are of a fine yellow colour, very numerous, and disposed in compact clusters. They do not begin to appear until some time after the common kind has burst into bloom, and they last for some time longer; hence the specific name *serotinus*. M. Carrière remarks that this variety is sometimes confounded with *C. L. trilobus* or *longiracemosus*, but the latter flowers earlier, and its clusters of flowers are much longer in shape and fewer in number. *C. L. serotinus* has the rare merit (as a shrub) of being a suitable and ornamental subject for flower-beds, as, no matter how much it may be cut back, or how dwarf it may be trained, it always produces a profusion of flowers.

***Azara microphylla*.**—This is probably the hardiest of all the species of *Azara* which have yet been introduced to British gardens; at any rate it

is the one which suffered least at Kew and elsewhere in the neighbourhood of London during the hard winters of 1878, 1879, and 1880. Both in the open nursery and against a wall in the picturesque nursery of Messrs. Veitch, at Coombe Wood, specimens are now in flower, and, inconspicuous as the blossoms are individually, the profusion in which they are produced adds not a little to the beauty of the slender drooping Fern-like branches. I believe that the small orange-red fruits, which add to the ornamental qualities of this elegant plant, have not hitherto been developed by the Coombe Wood plants, but in some other parts of the country they have been ripened. *A. microphylla* was introduced from Valdivia some years ago by Messrs. Veitch, of Chelsea.—G.

**The Swamp Oak (*Quercus palustris*).**—This Oak, as its name implies, grows more abundantly in swamps and low grounds than elsewhere, but it will thrive in any good rich soil, and its general form, when given plenty of room, is all that could be desired. It also possesses the additional merit of being valuable for its wood, either for fuel or timber. It thrives admirably in England, and we have seen some fine tall specimens of it in Surrey recently.

***Aucuba berries*.**—I notice that berries of the *Aucuba* on plants in the shade and sheltered retain their bright colour much longer than those on plants growing in exposed situations. The latter get dark on the exposed side, but whether this is caused by the action of the sun upon them or frost, or whether it is the wind which beats them against each other and causes the discoloration in question, I do not know. Something certainly spoils their beauty much earlier in the season than in the case of sheltered and shaded plants.—J. C. C.

**The Ailantus.**—Many complaints have been made of the overpowering and offensive odour of the flowers of the *Ailantus* trees planted in the streets of Paris and other large cities. According to M. E. André, it is only the flowers of the male trees which exhale this unpleasant scent, and he recommends that none but female trees should be for the future planted in public or other places where the peculiar odour of the males might be offensive. This would seem an important point for Americans and others who plant the *Ailantus* largely as a street tree.

***Pernettyas in flower*.**—These have been profusely laden this season with their small white wax-like bells, which, especially where somewhat shaded, remain in beauty a long time. The flowers last a long while in water, especially if cut before fully expanded. The small glossy deep green foliage of the *Pernettyas* is the best setting for their tiny wax-like bells and richly-coloured berries in autumn. They succeed best in spots such as suit *Rhododendrons*, *Azaleas*, and their allies, yet they will thrive under the same conditions as the ordinary run of shrubs, providing the situation be not too hot and dry.—A.

***Pinus radiata*.**—This Pine bears a great resemblance to *P. insignis*, and at one time was thought to be a variety. It has proved, however, to be quite a distinct species; the foliage is rather stouter and scarcely so long, and the cones much larger in size than that of *insignis*. Neither of the two, however, can be said to be perfectly hardy, as I have had them both killed by frost when planted on low-lying ground subject to late spring frosts. The timber of this tree is said to be of good quality, but of this we have no direct proof as yet from trees grown in this country; meantime it is worthy of a place in all collections for ornament and embellishment, and should be planted on rich, dry soil of rather a light texture, and on situations not apt to be affected by late spring or early autumn frosts. Although both trees prefer a little shelter, yet in all cases where really fine specimens are the object in view they should never be confined, and may be planted at a distance apart of from 30 feet to 35 feet, by which means they will have proper space for development.—J. B. W.

**A giant Oak of Monmouthshire.**—A fine specimen of British Oak is to be seen in one of the meadows on the farm of Mr. Rees Keene (Llanhenosk, near Caerleon). It is known in the neighbourhood and all throughout the county as the Corona-



tion Oak. It obtained this name owing to the proclamation being announced therefrom on a king or queen being crowned. The coronation of our present sovereign was announced from under the spreading boughs of this grand old tree. I am well acquainted with an old gentleman who attended the above meeting, and he, with many others, says that the tree cannot be less than a thousand years of age. I measured the above tree on December 26, 1884, and I found its di-

**CARPENTERIA CALIFORNICA.**  
THIS beautiful shrub promises to be useful both out-of-doors and for coolhouse treatment. Of three seedling plants received two years ago from Mrs. Davidson, one was planted out in a cool greenhouse, one out-of-doors against a west wall, and the third near the same wall. The one against the west wall has been slightly protected with a little dry Fern; the third had no protection. The two out-of-doors have received no injury whatever during the last two winters,

cultivation into the bargain, it only requires attention being called to it to ensure a due recognition of its merits. It will grow in any place where the common Raspberry will thrive, and demands no more, if as much, care. Loudon's name—the sweet-scented-leaved Bramble—seems hardly so appropriate as that adopted by Dr. Asa Gray in his "Manual of the Botany of the Northern United States," viz., the purple-flowering Raspberry. Under favourable conditions, the purple-flowering Raspberry will attain a



Flower-spray of *Carpenteria californica*. Flowers white (slightly reduced). From a photograph taken at Munstead in June.

mensions to be as follows: The trunk is 15 feet high from the ground to where the branches spread out, but there is a branch at 8 feet from the ground and it runs out to a distance of 18 yards. The tree has ten branches, some of them going up to a height of 50 feet, and the others spreading out as the branch below, which I have mentioned above. The circumference of the trunk in its largest part is 38 feet 6 inches, in the middle 32 feet 1½ inches, and in the smallest place 27 feet 6 inches. The branches are from 2 feet to 6 feet in circumference. May I be allowed to say that this is only one out of many large Oaks which we have still standing in Monmouthshire? The soil is red clay on marl.—A. P., *Newport, Mon.*

but though these winters have not been severe, we may hope that this fine shrub may be considered hardy. The flower from which the photograph was taken is from the plant in the greenhouse.  
*West Surrey.*

G. J.

**Rubus odoratus.**—It seems somewhat strange that a plant so accommodating as this, and one, moreover, so thoroughly worthy of a place in any garden, should not be more frequently met with. Although introduced at the very commencement of the eighteenth century, it is still unknown to a considerable number of the gardening world. Being thoroughly hardy, and a handsome plant of the easiest

height of nearly 6 feet, and will produce a succession of its beautiful purple-rose blossoms, which measure about 2 inches in diameter, from June to September. The name *odoratus* was bestowed on the species on account of the very grateful fragrance of the foliage.—G.

**Hymenanthra crassifolia.**—Before the present planting season passes it may be worth while to call attention to this curious New Zealand shrub, which in the Coombe Wood Nursery and elsewhere in the south of England has proved itself hardy. The inconspicuous flowers resemble those of the Violet in structure; indeed, *Hymenanthra* is, practically speaking, in spite of its superficial dissimilarity, a shrubby Violet. During the autumn months the pure white berries which succeed the flowers render the plant



particularly attractive and ornamental. The rigid, much-branched, ashy-coloured branches clothed with alternate or tufted small leathery leaves, and the compact habit of the bush, render it distinct enough from any other hardy shrub. Grown in company with some of the smaller Cotoneasters and other berry-bearing plants, it forms very striking contrast.—N. G.

**The Liquidambar, or Sweet Gum** (*L. styraciflua*).—The very name has always had a charm for us, and there is that about the tree—in its star-shaped fragrant leaves, its queer, corky bark, its shapely elegant form—that heightens the charm and really inspires a feeling of attachment. It is found in moist woods from Connecticut to Illinois and southward, but our readers must not, therefore, conclude it will thrive only in moist soils. One of the best specimens we have ever seen grows in a sandy soil with a sandy sub-soil so little retentive of moisture that the Grass burns up in the summer. In fact, it may be said there are no trees which will not grow to finer proportions in a well drained soil than in one upon which water stands or from which it slowly disappears. The superb hues which Liquidambar foliage assumes in autumn have often been referred to. The sexes are in different flowers. This is not an easy tree to transplant. As in the case of the Tulip Tree, young trees should, as a rule, be selected, and, unless the roots are uninjured, the stems should be severely cut back.—N.

## ROSE GARDEN.

FROM THE PRESIDENT OF THE NATIONAL ROSE SOCIETY TO THE WRITER OF AN ARTICLE ENTITLED "ROSES, REAL AND IDEAL," IN THE *Saturday Review* OF JULY 11, 1885.

MAY I not admire a minuet (as the Ellslers danced it), or a Scotch reel (as Highlanders dance it), because "children are graceful"? May I not come from my worship of the hedgerow Roses, never more beautiful than in this year of grace? May I not forget awhile the half-dozen Roses which I loved in childhood, and regard with adoration the marvellous developments of patient cultivation, such as the very Roses which you yourself select, La France, Maréchal Niel, and Charles Lefebvre?

You say, "the poet's flower has suffered strange transmutation by scientific culture." Would he deserve the name who could look on a bed of the Roses which you prefer, and say that they were "vulgarised" or "gross"? As for "cold, crude, purple tones," these surely can be only seen in the faded specimens of the Rose show, for I have not yet found them in the border. "The broomstick height of standard Briers" has long ago been condemned by all true rosarians.

The lover who gave his sweetheart the choice between ancient and modern Roses, the old China, Damask, Cabbage, Austrian Brier, or York and Lancaster, and the more recent Niphetos, Catherine Mermet, Comtesse de Nadaillac (and these Teas are not to be excepted from the catalogue of cultural development), or Madame Lacharme, Marie Baumann, and countless other Hybrid Perpetuals, would speedily find that the latter would have the preference. I claim to admire distinct forms of beauty without disparagement of any, finding room for all in my garden and in my heart.

The National Rose Society (of which, as Mr. Swiveller said of the Glorious Apollos,

"I have the honour to be Perpetual Grand") has not done anything to "denaturalise," but to develop the Rose. It has published a very carefully selected list of "garden" as well as "exhibition" Roses, and I am not aware that any of its members have the slightest ambition to force the queen of flowers "to assume the guise of the Camellia, or Pæony, or Savoy." We consider that we are still in advance of "the artificial flower manufacturer," and need not copy him just yet; and we promise that, if the writer of "Roses, Real and Ideal," will favour us with a list of the Roses shown at South Kensington which he considers to be "ugly eccentricities," "coarse and staring prodigies," we will submit his *index expurgatorius* to the next meeting of our committee.

**Button-hole Roses.**—I often wonder that gardeners do not look more to these than they do, especially for winter use. By way of illustration I may mention that I planted a good plant of Safrano inside a pit in a space 10 feet long and 6 feet wide twelve months ago last November. I allowed it to have pretty much its own way until last autumn. I then pruned it, and I found that I had wood enough to cover the space just named. I then gave it a top-dressing of earth closet refuse, and gave it a night temperature of about 50°, more or less according to weather, shutting in plenty of sunheat when I could, and being very careful in admitting air so as to avoid all cold draughts. I commenced cutting buds on the 1st of January last and continued to do so till the end of May, when I found I had cut in all 700, all fine button-hole Roses. I have since picked all buds off in order to allow the plant to make wood to lay in for the coming winter's use.—R. HALL, Fox Warren, Cobham.

## WORK DONE IN WEEK ENDING JULY 14.

### JULY 8.

It is not very often that in reference to our British climate we can conscientiously give vent to the expression that it is a treat to get a dull day; this, however, has been my state to-day, and the pleasure would have been much enhanced if the said dullness had been accompanied by rain, but as none comes we continue the watering of outside Vine and Peach borders. Washed Pear and Apricot walls with hose, which watering served two purposes at the same time, viz., washing and watering of the fruit trees and the recently planted Cauliflowers, and last sowings of French Beans that have taken the place of early Potatoes, Lettuce, and Radishes, that were grown on the borders a few feet in front of the trees. Finished potting Pines, and got them all replunged in pits. The atmospheric moisture for all except fruiters approaching maturity will for a fortnight or so be increased, but no water will be applied directly to the roots, the object of this treatment being to allow the roots to get a grip of the new soil before it gets soured by an over-dose of water; shading will also be regularly done for about the same period, and in fact this will be continued should the sun be as scorching as it has been of late. Pulled up Pea haulm, also Broad Beans, and cleaned the ground by hoeing and raking preparatory to re-cropping it with late Broccoli. Mulched with long stable litter Scarlet Runner Beans and midseason succession of Peas. Pulled up seedling Salsafy roots and thinned out the plants, which were left too thickly at the first thinning; 9 inches distance is quite near enough in good ground. Remainder of day has been taken up with gathering Strawberries for preserving.

### JULY 9.

Extremes have met to-day. Our self-registering thermometer marked at 6 a.m. the low temperature of 38°, whilst at noon the mercury stood at 87° in the shade. In low-lying positions no doubt but that there was actual frost, for even on our high and dry

ground the tender foliage of Coleus is a little disfigured, as if by frost. Surface-dressed with new soil Fuchsias and Bouvardias, and gave them more growing space, and plunged all of them in ashes for the double purpose of preventing the plants being blown over and to lessen the labour of watering. Planted out shrubs, Spiræas, and Callas that had been forced through the winter and spring, and which ought to have been put out long ago, but over-pressure of work hindered. All were well soaked before planting, and afterwards they had other supplies to settle the soil about them. The Callas were pulled to pieces, and only the strongest or those certain to throw up flower were planted. Muscat Grapes do not colour well with us this season, and I think that perhaps it is because there has been an unusually redundant growth of laterals, and they have been allowed to remain in too great a quantity, that the house has been darkened; at any rate we have taken for granted that this is the cause of lack of colour, and consequently the laterals have been thinned out considerably, and further, the larger leaves nearest some of the best bunches have been tied aside to admit more light to the fruit. Golden Queen Grape we have served in the same way. Hamburghs, as a rule, finish most perfectly when thickly shaded with foliage. Potted on Poinsettias, and also potted off those last struck. They are all grown in frames that are kept rather close, and are shaded with tiffany during the hottest part of the day. Hoeing amongst kitchen garden crops. Picked seed-pods off Daisies, Polyanthus, and Primroses that are used for spring bedding; Mignonette is sown between the rows of these plants, and after well watering the border it was thinned to 6 inches from plant to plant. Pegging down plants, clipping *Herniaria* edgings, and cutting round the Grass verges of flower beds.

### JULY 10.

Very hot; 89° in the shade. The heat is too much for Strawberries, and we are making a virtue of necessity by gathering the fruit as it ripens, and waste is thus reduced to a minimum. The thick mulching and deeper rooting of Raspberry-canecan keep that fruit from injury, but close netting up is more than ever required, for the drought is making the birds desperate. Our first picking of Raspberries was made to-day—nearly a fortnight later than in the generality of seasons. Did more hoeing in kitchen garden, thinned out the growths of Marrows and Gherkins. Tied up single Dahlias, staked large plants of Marguerites, cut all the flowers and seed-pods off our first sowing of Sweet Peas, and again pinched back the haulm, and as soon as we can we shall give them a thorough drenching with manure water, and await with confidence a greater profusion of flowers than the fine lot they have already produced, and that is now being produced by the second sowing, and which in its turn will have to succumb to the same treatment for renewal of flowers as the first sowing has just undergone. Indoors work has been pinching back the points, and cutting quite out where overcrowded the laterals from Lady Downes, Alicante, and Gros Colman Vines. This is the time of "scalding" for Lady Downes, but, as mentioned in a former note, by airing freely and particularly very early in the morning, we have no difficulty in preventing serious damage to the bunches. Planted out another lot of Melons, and prepared bed for a fresh succession of Cucumbers. Gathered all ripe fruit from earliest plants of Tomatoes, and threw away the plants. Our present supplies are produced from plants that were sown in March, and which in turn will be succeeded by the outdoor fruits. The plants to succeed the latter were put into their fruiting pots a fortnight ago, and for the present will be grown on in the open air. Cleaned out and re-arranged plant stove; many of the plants requiring more space, a number of Ferns were taken out to be grown on in a close and thickly shaded pit, where, if needs be, artificial heat can be turned on.

### JULY 11.

No rain as yet, but sunshine has been less fierce, and work has therefore been done more comfortably. Cleaned up flower and Rose garden, and in the latter every faded flower was picked off, Brier suckers cut out, the turf edgings clipped, and fresh cocoa fibre



refuse put on in places that had got bare of it from the scratching by birds. Watering is wanted in so many other directions, and cannot therefore be given, else the plants would be much benefited by a good soaking, but, under the circumstances, the mulching must suffice. Pinched points out of two of our best light-coloured groundwork plants, which are *Gnaphalium lanatum* and the dwarf-growing variegated *Mesembryanthemum cordifolium*. Scarlet herbaceous *Lobelias* and yellow-flowered *Marguerites* are set off to the greatest advantage by the silver setting that the *Gnaphalium* affords, whilst in the pale gold setting of the *Mesembryanthemum*, the blue *Agathaea coelestis*, white *Viola Mrs. Grey*, and dark lavender-flowered *Ageratum*, is one of the most pleasing combinations of colour that it is possible to imagine. Picked off part of the flowers of *Calceolarias* to get more growth into the plants; also picked off every seed-pod from *Violas*, *Verbenas*, and *Petunias*. Other outside work has been watering and the usual weekly sweep up. In the houses, besides watering of plants and borders, swilling out, re-arrangement of plants, &c., time was found to pinch out the points of the leading shoots of *Figs* and tie down others to trellis. There is now an end to the first crop of fruit, and exposure to full light of the second batch of fruit has been the main consideration in arranging and tying down the shoots to the trellis. Syringing the trees will now be renewed night and morning, and the heat will principally be obtained by closing up the house with plenty of sunshine, thus ensuring a temperature more agreeable in every way than that derived from fire heat. The border being an inside one, has had a renewal of mulching and an abundant supply of water.

JULY 13.

A shower or two yesterday wonderfully freshened up vegetation generally, but everything to-night appears as dry as ever, and watering still goes on. Celery, the last sown Peas, and French Beans have all been given a good watering. Plum and Cherry walls have also had a drenching with the garden hose. There are a few trees of Plums bearing good crops and the clusters of fruit have been thinned out; of course the smallest and deformed fruit are those that are picked off. The growths of the fronds in the clumps of common Bracken, that give to the outlying parts of pleasure grounds a semi-wild appearance, having been of so robust a nature (their height in some instances being 10 feet), that they block up vistas and openings, have to-day been obliged to be very greatly reduced, by cutting them over with riphooks. Brambles, wild Raspberries, Docks, giant Groundsel, &c., we have also to serve in the same way, at least once in the season, by way of keeping up an appearance of neatness, which to a certain extent is essential even in a wild garden. Sowed Cabbage and Coleworts for autumn planting, also another succession of Lettuce. Finished the cleaning of ground and drawing of drills in readiness for planting out late Broccoli soon as weather conditions are favourable, which will not be till there has been at least a couple of inches of rain; meanwhile, the plants to be put out are kept in a growing state by occasional waterings. Tied to sticks and weeded *Chrysanthemums*. The bush plants are also having about three sticks put in each pot and the main shoots tacked with matting to them. The final staking will be deferred till the shoots are more advanced, when it can be seen how many sticks will be needed for each plant. Prepared soil for potting Strawberries into fruiting pots. Cut back and trained climbers in orangery. The variegated *Cobaea* is about the best that can be had for covering the roof of a cool house, and *Abutilons* and *Fuchsias* make excellent pillar plants for the same. Vines planted in the spring, having filled out the entire roof of the house, and are still in full growth, are now kept closely stopped back, and particularly the lower part of the Vines that are intended to fruit next year. Above the line that it is intended to prune to as much growth is left as it is possible to leave consistent with the prevention of mildew, that is frequently engendered by a thicket of wood-growth, through which light and air are unable to penetrate. By closing the house early and so husbanding sun heat, we have been able to discontinue firing during the recent hot weather.

JULY 14.

To-day our work has mainly been a continuation of that of yesterday, other jobs being the gathering of more Strawberries, Raspberries, and Red Currants for preserving. Black Currants and even Peas we have been compelled to net over against the attack of birds. Recommended picking seed-pods off *Rhododendrons*, and surface-hoed the ground amongst them where it was needed for the destruction of weeds. Thinned out and tied down shoots in late Peach house, the chief consideration being to keep all the fruit from being shaded by the leaves. There is a bit of spider, and heavier as well as oftener repeated syringing will be had recourse to to effect a riddance, or at any rate prevent its spreading. Cleaned *Gardenias* and shortened the longest growths in order to get the plants a better shape. Put in cuttings of *Roses*, also of *Pinks* and *Pelargoniums* and potted off cuttings of *Plumbago rosea* and *Dracenas*. HANTS.

## FRUITS UNDER GLASS.

## STRAWBERRIES.

WHERE the 3-inch pot system of rooting runners is practised, the intensely hot dry weather has entailed incessant watering, but if perseveringly followed up, the most forward batches will have been detached and removed to cold pits or north aspects; where placed not too thickly in blocks, this important operation will be greatly simplified, as the hose or garden engine can be passed over many thousands of plants in a few minutes. In such a situation the plants may remain until all the best have been drawn out and potted up for forcing. They should not, however, be allowed to stand until they are pot-bound, or the shade from high walls causes the leaf-stalks to become drawn and weakly. If possible, all plants intended for forcing should be potted before the end of July, and placed quite out in the open where they can have full exposure to light from every quarter, a free circulation of air, and within easy reach of water. When potting, the soil should be firmly rammed, the miniature ball should be thoroughly wet, and in order to allow for the addition of top-dressings, the crowns should be kept well up above the surface. When the fruiting pots are filled to the proper level at the potting bench and conveyed to the layering ground, the large body of soil which they contain does not so quickly part with its moisture; consequently under ordinary attention root action is steady and progressive; there is no small ball of soil in the centre to become dry, and there are no coiling roots to be disentangled and injured. On the other hand, the labour of transferring from small to fruiting pots is dispensed with, the roots grow from first to last without a check, and, shading being unnecessary, the crowns are bold and plump while the leaf-stalks remain as short and stout as though the plants were growing on the open quarters. When plants so treated are detached, they are in a fit state for removal to their summer quarters previously made firm and impervious to the passage of worms by the addition of a sprinkling of soot or lime and a thin layer of well beaten coal ashes. Here they should be set perfectly level and sufficiently wide apart to admit of a free circulation of air throughout the remainder of their season of growth.

## CHERRIES.

Having no object to serve in keeping the fruit, we have gathered the last of the house Cherries, although the *Bigarreaus* would have kept some weeks longer, and have thrown the house quite open to the elements. The hose has of course played an important part in cleansing the trees from dust and spider, and the roots which are confined to internal borders have received two thorough waterings. From this time forward an occasional syringing is all that the trees will require, not to cleanse the foliage, as that is already accomplished, but to keep it fresh and healthy and to feed and fill up the flower buds on the late kinds. All the pot trees have been removed to the open air, as they do not require a shift. Here in an open situation they will remain plunged to the rims with plenty of half rotten manure cast in amongst them, moderate supplies of water in dry weather, and a cooling bath from the hose after the sun is off them on hot days. When it is desirable to prolong the

season of house Cherries, the roots should be kept sufficiently moist to prevent the fruit from shrivelling and slight shade drawn over the roof by day, but not at night, with a free circulation of air will keep the house nearly if not quite as cool as the most favourable position occupied by trees on open walls. It is, of course, necessary to protect the fruit from wet, birds, and insect enemies; the worst of these and the most difficult to contend with are wasps, but they can be excluded by the use of Haythorn's hexagon netting, which does not impede the passage of light and air, while the slight shade from this excellent material does no harm in wet or dull weather. All the *Bigarreaus* hang well. One of the finest and best for general use or exhibition is *Bigarreau Napoleon*.

*Orchard houses*.—If the early forced trees were potted as soon as the fruit was gathered, probably about the beginning of this month, the roots will now be taking to the new soil, and fresh, crisp, lateral growths will be pushing into leaf. Although these young shoots will not be wanted, it will be wise to allow them to extend until the trees have thoroughly recovered from the check and the new roots have taken full possession of the fresh compost. They may then be pinched and thinned out to let in sun and light to the main buds, and the usual routine, so far as syringing and ventilating goes, may be resumed. More water will also be required, but this must be regulated by the condition of the roots and the quantity of fresh soil which has been placed about them. If a large shift has been given, the supply should be thorough, but less frequent than when small-sized pots have been used, as the latter are more exposed to the influence of drought; and although there is no longer any fruit to drop, a dry state should be carefully avoided until such time as the flower-buds are perfectly formed and the foliage shows marked signs of ripening. Trees that have not been shifted may also be allowed a little more freedom of growth, as fresh leaves will keep the roots active, but these, like the newly-potted trees, must not be allowed to become wild and crowded, otherwise—the main point—the filling and maturing of the base buds will not be attained.

*The general house*.—Trees allowed to progress with the season will now be making rapid growth, and the fruit will require all the support that can be conveyed to it, not only in the way of stimulants at every watering, but also by the addition of fresh mulching as often as the roots show on the surface. Maintain a moist-growing atmosphere by syringing backwards and forwards to insure wetting every part of the wood, fruit, and foliage about six o'clock on fine mornings, and again when the ventilators are closed between four and five o'clock in the afternoon. At such times weak, clarified soot water will greatly assist the trees and keep them free from insects.

## MELONS.

Earth up plants in pits and frames as often as the roots show through the sides of the hills, and before they get too forward to receive a check from the addition of fresh soil or to take a downward direction into the bed. To prevent this first step towards dis-appointment the space allotted to each mound should be covered with thin sods of turf, Grass side downwards, at the outset, and the air temperature of the pit after the plants are established should be quite equal to that of the surface of the bed. If the Vines are trained over a trellis a few inches above the soil, keep them thin to let in light and solar heat, and pinch out the points when they have covered two-thirds of the allotted space. At the same time renovate the back and front linings to insure a maximum of heat above and below the roots during the time they are setting their fruit. Withhold water when the blossoms begin to open, give a little air at night to prevent condensation of moisture, an abundance of air on fine days, and fertilise every flower until a sufficient number of Melons on every main Vine begin to swell. When the size of Walnuts pinch the points out of all the fruit-bearing laterals, and shorten the others to within one joint of the main stem. If pure loam only has been used, stimulants in the form of warm diluted liquid must now be applied to the surface of the bed, but without touching the Vines, leaves, or main stems. Carefully preserve all the old



leaves, as accident to these is often the forerunner of canker; persistently pinch out all weak spray and elevate the fruit a little above the trellis, but not entirely clear of the foliage. When swelling freely the syringe must be used on fine afternoons, when the frames may be closed at a temperature of 80° to 90°, and no matter how fine the season may be the lights should always be covered at night.

#### CUCUMBERS.

Where all the hot-water pits are devoted to Melons, and the supply of Cucumbers is obtained from pits and frames, the maintenance of a steady bottom heat is of the greatest importance. We sometimes hear of good crops of Melons and Cucumbers being secured without its aid, but the situation and season must be exceptionally good, otherwise the flavour of the first will be indifferent, and a slowly grown Cucumber is invariably inferior to one that is obtained from a plant whose roots and foliage have the benefit of a tropical temperature. To secure this the linings must be constantly renewed; first the back, then the front, or *vice versa*, and when the heat in one gets up then will be the time to turn over the other. An important aid to bottom heat is early closing with plenty of sun heat and atmospheric moisture, which can always be secured by syringing with water at a temperature of 85°, and an occasional overhead watering through a fine-rosed can when the frame is closed for the day. Frame Cucumbers should be dressed over two or three times a week, as every sub-lateral that makes more than one joint beyond the fruit before it is pinched represents so much wasted force, while long fruitless growths speedily produce a crowded mass which cannot be corrected. In course of time, under the very best management, an accumulation of old vines and leaves renders cutting over necessary, and this, like the renovation of the linings, should always be performed piecemeal. There are few gardens in which one or two lights, or perhaps a whole frame, cannot be given up for a short time; but this is a matter which must be regulated by the consumption. Assuming, then, that the linings have been renovated and the bottom heat is good, the old vines and leaves may be cut away freely to make room for the best of the young growths, which must be retained and pegged down over the centre of the bed. A basketful of turfy loam and leaf mould spread over the surface and packed about the joints, followed by a supply of water at a temperature of 90°, will induce the speedy formation of new roots, and the operation will be complete. Slight shade for a few days, combined with close moist treatment, will facilitate a return to a fruit-bearing state.

W. COLEMAN.

Eastnor Castle, Ledbury.

#### WATERING IN HOT WEATHER.

It is a great mistake to suppose that in the case of pot plants looking over them morning and evening will suffice when the weather is of a hot and parching character. I have known places where there were stated times for watering, and no matter what the weather was like, none was done at any other period of the day; but I venture to assert that the highest excellence in the culture of plants in pots can never be attained when a hard and fast rule is laid down and adhered to in this matter. It is not only that plants do not get water when they need it when watering is done at regular stated intervals, but they frequently get it when they do not require it, and if a plant is watered only an hour or two before it becomes sufficiently dry to absolutely need this attention, it will never make roots so freely as when watered at the right moment. Nothing so much excites the ire of a good plant-grower of my acquaintance as watering plants before they need water. "Don't give a plant water now, because it will want some in an hour's time," is the remark often made to the young men with him, and in summer he has every plant looked over three times a day and in winter twice.

Many root-bound plants should never get dry in summer, especially when making their growth or coming into bloom; for although becoming dry may not injure, it often takes away from that vigour which

is necessary to the attainment of great excellence. In market gardens I have known pot plants to be gone over every hour in the day, and the results well justified the labour bestowed.

It is not, of course, necessary that a soaking be given each time, for if the whole of the soil in the pot is wet, a little given from time to time will keep it so, whilst preserving the roots in that equable state of moisture which they love to enjoy in the growing time. In the winter I consider that good is done by allowing plants to become nearly or quite dry from time to time, as the soil is thereby maintained in a sweet condition and the roots in a healthy state, but in hot summer weather every time the soil becomes quite dry there is a check which, if often repeated, has a diminishing effect upon size and beauty. In the case of plants which are exposed to the fierce sun the harm done in this way is often serious, though generally unsuspected by the grower, who may think that in looking to his pot plants twice a day he is doing his duty by them.

J. C. B.

### INDOOR GARDEN.

#### SPECIMEN MIGNONETTE.

NOT many plants when grown into specimen form are more highly valued than well-finished examples of Mignonette, especially when brought into flower during the months of April and May. To get plants of a suitable size to be effective at that time there must not now be any delay in getting the seed sown. The first step, however, is to select the sort to be grown, and I may at once say that the variety known as Miles' Spiral is undoubtedly the best for this purpose; it is excellent in habit and very fragrant. As Mignonette does not like to be disturbed at the roots, I find it best to sow in the pots in which the plants are to flower. Very large specimens may be grown in 12-inch pots, but for all ordinary purposes of decoration pots 8 inches or 10 inches in diameter will be large enough. We find plants in 8-inch pots suitable for large vases and conspicuous positions in the conservatory. Ample drainage is of primary importance; whatever the size of the pots may be, one-fourth of the space should be occupied by drainage, and care should be taken that the large crocks put in first should be carefully packed, so that there may be a free escape for all surplus water. The top layer of crocks may be much smaller than those below, and over all should be put a thin layer of turfy peat.

SOIL.—This must be of the most substantial character, so that the roots may find sufficient in it to sustain them in active growth as long as may be required. For some years I used to employ one-fourth part of rotten manure in the compost for our specimens of Mignonette, but I found that towards the end of the season the plants did not make satisfactory progress, and on examining the soil I found that it was much more close and pasty than was good for the roots. I have, therefore, discontinued mixing any kind of manure with the compost, and use only turfy loam, chopped to pieces with a spade and rammed firmly into the pots. Thus treated, I find that my plants retain their vigour longer; but if anyone must use some stimulant, preference should be given to

half-dry cow manure run through a coarse sieve and used in the proportion of one part to three parts loam. Before commencing to pot, one cannot be too particular as to the condition of the soil; if at all wet, the ramming necessary to get a firm compost would work it into a paste, a state in which the roots cannot work satisfactorily. In such a case expose it to the sun or spread it out on the floor of a shed for a day or two before using it. Only a few seeds are needed for each pot, and these should be so placed that when the plants come up they will be evenly distributed over the surface. Where only a single plant in a pot is desired, let a few seeds be placed in the middle, and then reduce the produce to one plant as soon as large enough to handle, but I find that three or four plants in a pot 8 inches in diameter suit my purpose best. I do not, therefore, thin out for the last time until the plants are 3 inches high. The strongest is then selected, and neat sticks are placed in such a manner as to support the centre growth. It is a mistake to be always nipping off the tops of the young shoots; a certain amount of stopping, however, they must have. The leading shoot should be the first to have its top removed, but not before it has grown to a height of 9 inches. This will induce it to send out side shoots which may, in their turn, be stopped when they have grown to the same length as the leading shoot.

SUMMER QUARTERS.—The best place in which to grow Mignonette during summer is in the shade of a north wall, and as it should be protected from heavy rains, a frame should be devoted to it. Two bricks should be placed under each corner of the frame, so that air may at all times circulate freely amongst the plants. If at this stage they are at all drawn from want of light and air, they are liable to suddenly die away during the winter. In September they may be placed in an open position, but care must be taken to shade them from bright sunshine for a few weeks until they can bear it without flagging.

THE BEST WINTER QUARTERS for Mignonette that is to flower in April and May is a heated brick pit, as so long as the plants are secure from frost, they are better without fire heat than with it, *i.e.*, provided the pit is carefully ventilated in favourable weather, so as to prevent the internal air from becoming stagnant. I like the plants to stand on inverted pots and the tops to be about 6 inches from the glass, as then air can circulate around them. During the short, dull days of mid-winter they should be resting as much as it is their nature to do so, for any undue excitement will end in weakly growth. The temperature should therefore be kept as regular as is consistent with ample ventilation and the condition of the external atmosphere. Those who cannot provide them with a heated pit should let the plants have a light, airy position in a house that is only heated to keep out frost, and those who have wintered their plants in a pit should, unless



the pit is light and airy, take them to a similar position early in February, as at that time they will begin to grow and the shoots will want frequent attention in the way of stopping and tying out. In March and April they will grow vigorously if assisted by constant supplies of liquid manure. It is also desirable to shade them a little with thin canvas on the glass from the 1st of March onwards.

IN WATERING, the greatest care is necessary in order to see that the plants do not get too much in winter, and at that season clear water only should be given.

J. C. C.

## KITCHEN GARDEN.

### KIDNEY BEAN OR FRENCH BEAN.

(Continued from p. 23.)

#### Edible-podded Kidney Beans.

*French*, Haricots sans parchemin. *German*, Zucker-, oder Brech-, Bohnen. *Danish*, Snitte bonnen. *Italian*, Fagiolo mangia tutto.

#### I. TALL-GROWING VARIETIES.

**WHITE PRÉDOME KIDNEY BEAN** (Haricot Prédome).—Stem about 4 feet high, green, thickish, and twisted; leaves of medium size, rounded at the base, crimped, and of a rather deep clear green colour; flowers white, passing into yellow; pods very numerous, straight, fleshy, deeply indented on the sides by the bulging of the seeds, 3 inches or 4 inches long, each containing six or seven very white, nearly round seeds, which are often flattened at the ends, and are



White Prédome Kidney Bean ( $\frac{1}{3}$  natural size).

about half an inch long, quarter of an inch broad, and less than quarter of an inch thick. A litre of them weighs 820 grammes, and 100 grammes contain about 470 seeds. The pods are very tender and brittle, and are perfectly free from membrane, in this respect surpassing all other varieties of tall-growing Kidney Beans. The seeds also are of very good quality, so that the plant affords a supply of an excellent vegetable, not only while the pods are green and the seeds half formed, but also when the seeds are fully grown and ripening. The pods, also, are without fibre, so that they can be cooked just as they are gathered without any trimming. This is one of the best kinds

of edible-podded Kidney Beans, and is very extensively grown in France, particularly in Normandy, where there are two or three forms of it which differ



Princess Runner Kidney Bean ( $\frac{1}{3}$  natural size).

slightly from each other in the size of the pods and seeds. It is a half-late variety.

The Haricot Friolet and the H. Petit Carré de Caen are rather local forms of the Prédome Kidney



Broad-pod Kidney Bean ( $\frac{1}{3}$  natural size).

Bean than distinct, well-marked sub-varieties. The Friolet is usually considered to produce smaller seed, but this does not appear to be a universally constant characteristic.

**PRINCESS RUNNER KIDNEY BEAN** (Haricot Princesse à Rames).—Stem green, thick, twisted,

6½ feet high or more; leaves roundish, of medium size, crimped, and of a deep green colour; flowers white; pods very numerous (especially at the base of the stems, where they form regular bundles), straight, green, bulging greatly over the seeds, and turning yellow when quite ripe; they are from 4 inches to 6 inches long, and seldom contain more than eight seeds each. The seeds are white, slightly egg-shaped, and very like those of the preceding variety, except that they are never flattened at the ends. A litre of them weighs 840 grammes, and 100 grammes contain about 360 seeds. This is a very good, hardy, exceedingly productive, and pretty early variety. It is extensively grown in French Flanders, Belgium, and Holland. As has been already remarked, it certainly very much resembles the Prédome Kidney Bean; but it is sufficiently



Geneva or Plainpalais White Butter Bean, or Wax Bean ( $\frac{1}{3}$  natural size).

distinguished from that variety by the greater distance between the seeds in the pod, and also by growing fully one-third larger. When grown true to name, the seeds of the Princess Kidney Bean, which never touch each other in the pod, preserve their natural slightly elongated egg-shaped form, while those of the Prédome are pressed against each other, and, consequently, become flattened at the ends.

There is a sub-variety with longer pods and greater distances between the seeds known as the Long-pod Princess, which is quite as early and productive as the ordinary variety.

**BROAD-POD KIDNEY BEAN** (Haricot Intestin).—This variety, which was raised by M. Perrier de la Bathie, is one of the most singular and distinct varieties that has appeared for some years past. It is a vigorous-growing, latish, but productive kind, and remarkable amongst the edible-podded varieties. Stem 4 feet to 6 feet high, bearing pods abundantly near the base; leaves large, very green, slightly crimped; pods so thick and fleshy, that the diameter from side to side is one-third greater than the distance between the front seam and the back. Notwithstanding this inflated appearance, there is no empty space inside the pod, the substance of which is so thick and fleshy that the seeds have hardly room to grow, and appear deformed by the pressure to which they are subjected. They are



white, elongated egg-shaped, sometimes faintly kidney-shaped, about half an inch long and a quarter of an inch broad and thick; they present the almost unparalleled peculiarity of being irregular in shape, being almost always flattened crosswise, and the hilum, instead of occupying its usual position, is situated on one side of the line which would divide the seed into two equal parts. A litre of them weighs 800 grammes, and 100 grammes contain about 325 seeds. They vary very much in size, however, according to the season.

**GENEVA or PLAINPALAIS WHITE BUTTER BEAN OR WAX BEAN** (Haricot Blanc de Genève).—This variety is highly esteemed by the Geneva market gardeners. It is a tall-growing kind, coming very near the preceding one, but differing from it in a few points. It is more decidedly a pole Bean, being a better climber than the other. The pods, which very much resemble those of the broad-pod Kidney Bean, are not so fleshy, but they are produced in greater abundance, especially at the middle and towards the top of the stems; they also ripen more readily. The seeds, or beans, are white, and of an elongated and nearly cylindrical shape. It is, in fine, a good mid-season tall variety of Butter Bean.

**WHITE COCO KIDNEY BEAN** (Haricot Cocco Blanc).—Stem green, about 6½ feet high; leaves of medium size, stiff, rather long and pointed, of a dark, rather dull green colour, and slightly crimped; flowers white; pods of medium length, rather broad, green, each containing five or six white egg-shaped seeds, about half an inch long, nearly half an inch broad, and over a quarter of an inch thick. A litre of them weighs 830 grammes, and 100 grammes contain about 250 seeds. This variety, although ranking amongst the edible-podded kinds (especially when the pods are young), is more esteemed for its seeds, which are used in the dried state.

The **SOPHIE KIDNEY BEAN** (H. Sophie) is considered to be only a sub-variety of the White Cocco, from which it differs in having rather larger pods (which are sometimes tinged with red, like those of the Prague Kidney Beans) and somewhat larger leaves.

**WHITE PRAGUE KIDNEY BEAN** (Haricot de Prague).—Although this variety resembles the preceding one in the colour and shape of the seed, it is clearly distinguished from it by several marked characteristics. In the first place, it is a later and longer-lasting kind; the leaves are more abundant and do not fall so soon; they are large, not much crimped, and of a rather dark green colour, and those at the top of the stem are nearly the same size as the lower ones; flowers white; the pods, which are abundantly produced up to the tops of the stems, are longer and narrower than those of the White Cocco; and, lastly, the seed is something flatter, and not so regularly egg-shaped. A litre of them weighs 780 grammes, and 100 grammes contain about 195 seeds. This can be recommended as a very productive variety, with the single drawback of being somewhat late in ripening, which would render it less valuable in localities where the autumn is cold and damp.

**NEW ZEALAND RUNNER KIDNEY BEAN** (Haricot de Prague Marbré).—A variety of moderate height, seldom exceeding about 4 feet, with thick green stems. Lower leaves large, slightly crimped, the rest of medium size, narrow, and of a rather dark green colour; flowers pale lilac or rosy white; pods broad, about 5 inches long, green at first, afterwards becoming tinged with violet-red on a whitish ground, and sometimes entirely red when ripe, each containing five or six egg-shaped seeds, of a salmon-rose colour, spotted, dotted, and striped with deep red, and having a brownish yellow circle around the hilum. A litre of them weighs 760 grammes, and 100 grammes contain about 210 seeds. This kind, which was introduced about the middle of the eighteenth century, is well known and extensively cultivated. It is more generally grown for the dried seeds than for the pods.

**RED PRAGUE KIDNEY BEAN** (Haricot de Prague Rouge).—This variety differs very little from the preceding one in its mode of growth, but is dis-

tinguished from it by having the seeds of a uniform dark brownish red colour. A litre of them weighs 800 grammes, and 100 grammes contain about 225 seeds.

There is also a sub-variety, known as the **H. de Prague Bicolore**, the seeds of which are half red and white. Among the Prague Kidney Beans should be included the variety named **Imperial Austrian White Cocco**, or **Bossin**. This is a large, productive, and rather late kind, the seed of which is white and nearly round, with a black bird-shaped blotch around the hilum, something like that which characterises the seed of the Spread Eagle, or Dove, Kidney Bean.

The **TWO-COLOURED ITALIAN KIDNEY BEAN** (H. Bicolore d'Italie) should also be classed with the Prague Kidney Beans. It is a very productive, tall-growing kind, producing seeds of excellent quality for the table. There is a sub-variety of it, the pods of which, immediately before ripening, assume an exceedingly lively uniform red colour, giving the plant quite an ornamental appearance.



Black Algerian Butter Bean ( $\frac{1}{3}$  natural size).

The seeds of both kinds are round, slightly egg-shaped, half white and half very pale chamois colour.

**BLACK ALGERIAN BUTTER BEAN** (Haricot d'Alger Noir).—A very distinct and well-known kind, probably the oldest of the varieties which are called Butter Beans from the colour of their pods. It is a plant of medium height, seldom exceeding about 6½ feet, with rather thick stems of a pale or yellowish green colour, sometimes tinged with violet; leaves of average size, not much crimped, gradually decreasing in dimension from the base to the top of the stem, and of a slightly ashy grey colour. The pods, which are green at first, assume, when they are about 2 inches long, a pale yellow, semi-transparent tinge, very much resembling that of butter or fine wax; they are usually somewhat curved, each containing from four to six seeds, which are blue at first, then violet, and when ripe quite black, of a slightly flattened egg-shape, and a trifle longer than those of the Prague Kidney Beans. A litre of them weighs 785 grammes, and 100

grammes contain about 175 seeds. This is a productive and moderately early kind, and one of the best edible-podded varieties. The pods are entirely free from membrane, and have hardly any fibre, so that they are quite tender and fleshy when fully grown, and may be sent to table almost until they are perfectly ripe. The dried seeds are seldom eaten, on account of their very dark and unattractive colour.

**TALL WHITE ALGERIAN BUTTER BEAN** (Haricot Beurré Blanc à Rames).—A rather vigorous-growing kind, about 6½ feet high, very remarkable for the light or yellowish tint of its leaves, which renders it conspicuous at a distance. Stems wax-yellow or white, as are also the leaf-stalks; flowers white; pods longer and more slender than those of the preceding kind, more or less curved, each containing, with some distance between them, five or six white, egg-shaped, somewhat elongated seeds over half an inch long. A litre of them weighs 810 grammes, and 100 grammes contain about 250 seeds. As an edible-podded variety, this is in no respect inferior to the preceding kind, and it has, besides, this advantage—that its dried seeds can be sent to table.

**MONT D'OR BUTTER BEAN** (Haricot Beurré de Mont d'Or).—This handsome, good variety was raised near Lyons, whence it has been widely distributed throughout France. It is a very distinct kind, scarcely as tall as the Algerian Wax Bean, with pale green stems tinged with red, and smooth, uncrimped, light green leaves, and blue flowers. Pods very numerous, straight, of a pale yellow colour, like those of all the Butter Beans, nearly 6 inches long, very free from membrane, each containing five or six egg-shaped seeds of a violet colour, spotted and marbled with brown, and strikingly smaller than those of the Black and White Algerian Wax Beans. A litre of them weighs 720 grammes, and 100 grammes contain about 210 seeds. This variety, which is only grown for the pods, is particularly remarkable for its earliness and productiveness.

**TALL IVORY BUTTER BEAN** (Haricot Beurre Ivoire à Rames).—A tall-growing kind, 6½ feet to over 8 feet high. Stems whitish, slightly tinged with red on the side next the sun; leaves numerous, of medium size, and of a clear green colour; flowers lilac; pods numerous, fleshy, straight, or slightly curved, entirely free from membrane, and especially remarkable for the white tint which they assume when they are two or three days old, and which becomes more pronounced as they advance to maturity. Each of them contains from five to eight egg-shaped seeds, of a reddish violet colour, and of the same size as the seeds of the Red Prague Kidney Bean, from which they differ in colour only. A litre of them weighs 835 grammes, and 100 grammes contain about 210 seeds. This is a good edible-podded variety, somewhat late, but an abundant and remarkably continuous bearer.

(To be continued.)

## SOCIETIES.

### ROYAL HORTICULTURAL.

JULY 14.

A VARIED and excellent show was held on Tuesday at South Kensington. Better fruit could not have been desired in July, and there was an extensive gathering of it in competition for the prizes offered. Vegetables, too, have seldom been shown finer. The fruit and vegetable show combined with the plant show and the exhibits placed before the committee quite filled the conservatory. A group of about sixty superb plants of *Odontoglossum vexillarium* from Mr. Hardy of Timperley, was the centre of attraction, as were also the fine groups of hardy flowers, than which there has rarely been a more beautiful display.

First-class certificates were awarded to the following plants:—

**RENANTHERA STOREYI**.—a rare and splendid Orchid, reminding one of the better-known *R. coccinea*, but quite distinct from that species both in growth and flowers. The flower-spike branches in much the same way as in *coccinea*, and has the same horizontal spread. The flowers are smaller, but the



sepals are broader. Their colour is a rich crimson, red mottled, and barred with a bright orange-scarlet. The plant shown by Mr. Hill, from Lord Rothschild's garden at Tring Park, bore a fine spike. This is the first time, we believe, that this Orchid has flowered in this country.

**ODONTOGLOSSUM VEXILLARIUM MEASURESIANUM.**—A perfect albino of one of the loveliest of Orchids. There are numerous so-called white varieties of this *Odontoglossum*, but none that we have seen are so pure as this. The chaste beauty of such an Orchid may be better imagined than described. A good plant of it was shown by Mr. R. H. Measures, The Woodlands, Streatham.

**ALOCASIA HENDERSONI.**—A most distinct and handsome fine-leaved plant, which cannot be compared with any of the older kinds, as it is so different. The leaves are about a foot in length, rather narrow, heart-shaped at the base, and gradually narrowing to a point. The colour is a kind of metallic green, overlaid with a satiny lustre. It will, we think, prove a highly ornamental vase plant, and may in course of time assume noble growth. Exhibited by Messrs. E. G. Henderson, Pine-apple Nursery, Maida Vale.

**LIGUSTRUM SINENSE FLORIBUNDUM.**—A variety of the Chinese Privet, remarkable for its floriferousness. The plant shown by Messrs. Paul, of Cheshunt, was a compact bush about 6 feet high and as much across. Each branch was densely laden with tiny white and scented blossoms. This shrub, should it retain this floriferous tendency, is, we consider, a great gain, flowering as it does in July, when few other shrubs are in bloom.

**LILIUM PARRYI.**—One of the handsomest of Californian Lilies, long ago introduced, but only now beginning to assume its true character in this country. The spikes shown by the New Plant and Bulb Company, of Colchester, to whom the certificate was awarded, bore five and four flowers respectively, and each spike represented a different variety—one without spots, the other copiously spotted. The large and fine-formed, clear canary-yellow flowers of this Lily are matchless, even among the wide range of garden Lilies.

**ROSE MADAME NORMAN NERUDA.**—A new Hybrid Perpetual. The flowers are large, full, fine in form, and of a pale crimson-lake colour; it is, in short, the perfection of an exhibition Rose. It was shown in matchless condition by Messrs. Paul, of Cheshunt.

**PELARGONIUM BLANCHE PARFAIT.**—A double white zonal variety, said to be the best yet produced, but without means of actual comparison it was difficult to see how it differed from other double whites that have been exhibited and certificated. It is nevertheless a first-rate variety as large in truss and pip and as pure in colour as could be desired. It was shown by Mr. W. Bealby, The Laurels, Roehampton.

**BEGONIA GENERAL GORDON.**—A double tuberous variety, with blossoms as large and as double as could be desired. The colour, a soft salmon-pink, is most pleasing. The habit appears to be compact and floriferous. Exhibited by Mr. R. Owen, florist, of Maidenhead.

**ROSE PRIDE OF REIGATE.**—A singular sport from the variety *Comtesse d'Oxford*. It originated a few seasons since in a Reigate garden, hence the name. The petals are curiously streaked and flaked with white and plum colour on a deep purple-rose ground. It retains the size and excellent form of the original. Shown by Messrs. Paul, Cheshunt.

**PELARGONIUM RUBENS.**—One of the double hybrid Ivy-leaved race, and unquestionably one of the finest that has ever been exhibited here. The truss is large, as are also the flowers, and the colour is a beautiful cherry-crimson, quite different from that of most other sorts of the same section. It has the graceful growth peculiar to these hybrids. Shown by Mr. Bealby.

**ORCHIDS.**—The most remarkable among these was the magnificent bank of *Odontoglossum vexillarium* which Mr. Hardy sent all the way from his garden at Timperley, in Cheshire. The group contained about sixty plants, all admirably grown and pro-

fusely flowered. About a dozen specimens carried between thirty and forty spikes, and could not have measured less than a yard across, each a perfect specimen of high class culture. In such a gathering a large number of varieties could be seen, some very pale, almost pure white, others of the deepest rose that could be found in the species. Such a display of this species, the queen of the *Odontoglossums*, had never before been seen at South Kensington, and for such a marvellous group Mr. Hardy was awarded the highest medal—a silver-gilt Banksian. It would have been appropriate to supplement this medal with a cultural commendation to the gardener, Mr. Hill, who unquestionably deserved it. Among other noteworthy Orchids exhibited none were so remarkable as a spike of *Cattleya Sanderiana* carrying no fewer than seven flowers, a number of which we believed has never been exceeded anywhere. This superb specimen was sent by the Comte de Germigny from his garden at Rouen, where Orchids must, indeed, be cultivated with great skill. It will be gratifying no doubt to the Comte to find that he has exhibited a specimen which in England has had no rival. The spike represented a splendid variety, deep and rich in colour, and of large and broad sepals and lips. Mr. Measures, of Streatham, showed *Anguloa Measuresiana*, a new species apparently intermediate between *A. Ruckeri* and *A. uniflora*, the flowers being of the same size and form of the latter, but partaking more of the colour of *A. Ruckeri* and having the same aromatic perfume. Mr. Measures also sent a finely grown plant of *Epidendrum vitellinum majus*, *Odontoglossum cristatellum*, a grand specimen; *O. crispum* *Goldringianum*, a superb new variety, remarkable for its large and very broad sepalled snow-white and spotless sepals, and a broad lip of a rich coffee-brown edged with white, the column being almost black; also *O. crispum* *Herbertianum*, likewise a large-flowered form heavily spotted as in the *guttatum* group. Mr. Smee, Wallington, sent a spike of *Aerides Fieldingi* quite 2 feet in length, which was considered the finest that had ever been seen here and was a rare example of skilful culture. He also sent *Lycaste Deppei* *viridis* with the sepals greener than usual, and *Cattleya Wallisi*, a white variety of *C. Eldorado*, very chaste and beautiful. A remarkably distinct new variety of *Vanda Dennisoni*, named *hebraica*, was shown by Mr. B. S. Williams. The sepals are yellow, the lip greenish white, and the other parts pure white—a most singular combination of colours. The variety strongly reminds one of the unique *V. insignis* *Schroederi*, which was figured in *THE GARDEN* a short time ago. The flowers, moreover, are delightfully scented, like Violets, but much stronger. A plant of the same variety was also shown by Mr. R. N. Wyatt, of Lake House, Cheltenham. Such a beautiful and distinct plant we thought as worthy of a certificate as others which were so distinguished. Messrs. Heath, of Cheltenham, showed a surprisingly fine variety of *Odontoglossum vexillarium*, appropriately called *giganteum*, inasmuch as the flowers measured no less than 4½ inches across the lip, the colour being likewise dark and rich. There was but one flower on the plant, and this might account for the exceptional size. Mr. Southgate, of Streatham, exhibited a splendid variety of *Sobralia macrantha*, with flowers several shades deeper and richer than the ordinary form, which was also shown for comparison. It was named *splendens*. Mr. W. Cobb, of Sydenham, showed a plant of *Odontoglossum vexillarium* *Cobbianum*, a bicoloured variety, the lip being pure white, the sepals rose-pink. It is a lovely variety, and one that must always rank among the choicest.

Among other noteworthy exhibits placed before the floral committee were the following: From Messrs. Veitch were specimens of a superb form of *Clematis coccinea* and of *Andromeda speciosa cassinæfolia*, with large wax white bells and green leaves; also a new hybrid *Clematis* named *C. flammula rubra marginata*. This is, perhaps, the forerunner of a distinct race of *Clematises*, although the present plant possesses no great beauty. Mr. Wilson showed a basketful of fine species of several kinds of Lilies, among them being *polyphyllum*, *Parryi*, *elegans cruentum*, *californicum*, *Humboldtii*, and *Browni*. Mr. R. Dean, Ealing, showed large pyramidal spikes of two beautiful Stocks—*Bedfont*

*Crimson* and *Mauve Beauty*—both the product of seed sown in April. Mr. Eckford sent some seedling Pansies and seedling Sweet Peas; among the latter those named *Queen of England* (white), *The Queen*, *Ruby*, *Cardinal*, and *Duchess of Edinburgh* we thought the best. Messrs. Carter also sent a large collection of named sorts of Sweet Peas, including, we presume, the pick of their whole collection. One named *Dedham Rose*, a soft pleasing pink, was much admired. There were fourteen sorts shown, all very excellent. They also showed a new double *Silene pendula compacta* and the white *Rhodanthe Manglesi*. Messrs. Henderson showed a large and varied collection of *Caladiums*, including many of the newest Continental sorts, which are such an advance upon older kinds. Mr. Clay's gardener (Mr. Wiggins), of Twickenham, again showed several new seedling decorative *Pelargoniums*, some of which were very pretty; those named *Perdita*, *Diadem*, *Child of the Mist*, and *Theodore* we thought the best. Mr. Bull sent some fine specimens of the new *Lilium Harrisii*, some of the stems of which bore five and four large long-tubed flowers; a new pure white *Carnation* named *Lady Rose Molyneux*, which was much admired. Mr. Walker, of Thame, made a great show of his fine strain of Sweet Williams, and Messrs. Kelway, of Langport, had an extensive display of hardy flowers, early *Gladioli*, and particularly of *Gaillardias*, which are now being improved by this firm in an astonishing manner. A bronze medal was awarded to Messrs. Kelway for a large and excellent collection of cut Roses; Messrs. Veitch were awarded a silver medal, and a silver medal was also awarded to Messrs. C. Lee & Son, Hammersmith, for a group of ornamental trees and shrubs, chiefly with variegated and golden foliage. Among them was a variegated form of the *Knap Hill Cypress* under the name of *Cupressus Lawsoniana erecta viridis variegata*. The New Plant and Bulb Company, Colchester, showed several beautiful and interesting bulbs, including *Calochorti* and Lilies. Among the latter was one called *aurantiacum*, with rich, unspotted, apricot-coloured flowers. It reminds one of the late flowering *Batemanniae*, but is much larger and earlier.

**Fruit and vegetables.**—There were a good many exhibits placed before the fruit committee, the most important being the new *Nectarine Goldoni* from Messrs. Rivers, of Sawbridgeworth, and which was considered of such excellence as to merit a first-class certificate. Messrs. Rivers also showed a dish of fruits of their superb new *Cherry Early Rivers*, larger and finer than *Black Circassian* and much earlier. A new seedling *Grape*—a cross between *Muscat of Alexandria* and *Black Hamburg*—was shown by Mr. Bannister, of Cole House, Bristol. It is a white variety with round berries, about the average size of those of *Black Hamburg*, and of a delicious *Muscat* flavour quite as fine as that of its parent. The bunch shown was not ripe enough for the committee to judge of its true merits, but they expressed a wish to see it again, and so far they thought favourably of it. Mr. Coombes, Sheen House, showed his new *Melon*, *Sheen Hero*, between *Hero of Lockinge* and *Blenheim Orange*. Mr. Laxton sent his new *Strawberry Ultima*, a good looking fruit, said to be a late sort. Messrs. Paul, Cheshunt, sent seven dishes of Strawberries, including the alpine variety *Constance Fredichoff*, evidently a first-rate sort. Messrs. Veitch showed samples of *Baumforth's* Seedling Raspberry and *Loxford Hall Strawberry*, and Messrs. Heath, of Covent Garden Market, showed a huge pot plant of a new Raspberry, which appeared to be a most prolific and fine-fruited sort. Several kinds of Peas were shown. Messrs. Webb, of Stourbridge, sent samples of their *Wordsley Wonder* and *Chancellor*, both of which were referred to Chiswick. A cultural commendation was accorded to Mr. Marriott, of Skirbeck, Boston, for some fine dishes of *Telegraph* and *Telephone Peas*. Mr. House showed his *Perfect Marrow*, and Mr. Walker sent his new *Oxfordshire Green*, both of which were referred to Chiswick. Messrs. Carter sent samples of their new *Liliputian Potato*, a curious little sort distinct from any other.

#### Plants and Cut Flowers.

There is little to say about the plants shown for the prizes, as they formed as a whole the weakest



part of the exhibition, and there was scarcely a class well represented. True, the size of the pots was restricted, and no doubt this accounted for the miserable display made by some of the exhibitors of fine-foliaged plants, *Dracenas*, *Crotons*, and *Ferns*. The best nine *Crotons* in 8-inch pots which came from *Gunnorsbury House*, however, was a creditable collection, every plant being well grown with foliage to the base of the stem and all highly coloured. The most noteworthy sorts were *Baron Rothschild*, *irregulare*, *Andreanum*, *magnificum*, *Queen Victoria*, *Disraeli*, *Weismanni*, and *Comte de Germiny*, all first-rate varieties. In the second collection were such excellent kinds as *Hawkeri*, *Evansianum*, *Williamsi*, and *Baron F. Selliere*. The *Coleuses* which won the first prize were excellent specimens, huge pyramidal plants with highly-coloured foliage. Among them were such beautiful sorts as *Mrs. George Simpson*, *Pompadour*, *Butterfly*, *Sunset*, and *J. Barnshaw*. These came from *Col. Talbot's* garden at *Esher*. The best nine *Dracenas*, also from *Mr. Atkinson's* garden at *Gunnorsbury House*, were fine plants, including the following kinds: *Mooreana*, *amabilis*, *Thompsoni*, *Leopoldi*, *stricta*, and *Reginæ*. In *Mr. James's* second collection was a fine plant of *D. Goldieana*, and in the third set was the handsome *D. Lindeni*, both very distinct from the ordinary run of *Dracenas*. The best collection of fine-foliaged plants from amateurs included some fine-foliaged *Palms*, having regard to the size of the pots. The kinds were *Areca aurea*, *Geonoma Seemannii*, *Scaevola elegans*, and *Thrinax elegans*. These *Mr. Hudson* grows to perfection in quite small pots. In *Mr. James's* first prize collection from nurserymen was a good example of the handsome new *Nepenthes Mastersiana* with large and highly-coloured pitchers. The same exhibitor had a collection of *Nepenthes* and *Sarracenias*.

There were classed apart for cut spikes of *Phloxes* and *Liliums*, the latter making by far the finest show. There were three collections of six kinds, the finest, from *Mr. Ware*, of *Tottenham*, being all noble spikes of the six choicest kinds, viz., *pardalinum*, *Parryi*, *Martagon dalmaticum*, *Browni*, *canadense rubrum*, and *Humboldtii*. *Messrs. Paul*, who were second, had good spikes of *Washingtonianum*, *Parryi*, *dalmaticum*, and *pardalinum*.

There were three collections of cut hardy flowers, that from *Mr. Ware*, who was first, being a very extensive one, including, we imagine, representatives of every important herbaceous plant now in bloom. There were towering spikes of *Californian Lilies*, such as *Humboldtii*, *Parryi*, and *pardalinum*. Of the latter, a new self colour deep yellow variety called *Warei*, broad masses of the best white (*candidum speciosum*), and the almost black *dalmaticum*. Besides these masses there were spikes of many other *Lilies*, such as the rare *philippinense*, *Krameri*, *chalcidonicum*, *columbianum*, *pulchellum*, *testaceum*, and *longiflorum* *Mdme. Von Siebold*, an excellent variety. Though *Lilies* formed the chief feature of the display, there were crowds of other hardy flowers, numbering in all about 200 kinds. The numerous varieties of *Iris Kämpferi* were much admired, as were the *Delphiniums*, *Phloxes*, and *Pentstemons*, which latter were shown for the first time this season. The other collections of cut flowers were from *Messrs. Paul*, of *Cheshunt*, and *Mr. Morse*, *Epsom*, both showing fine collections. In *Messrs. Paul's* stand we noticed specimens of the rarely seen *Solanum crispum* with showy deep purple flowers, a very fine form of *Helienium autumnale*, *Orchis foliosa*, *Bupththalmum cordifolium*, some choice *Campanulas*, and others.

#### FRUIT AND VEGETABLES.

The show of fruit was unusually good, although hardly filling the ample space allotted to it. In several cases the competition was large, and those who won prizes did so only with really good exhibits.

*GRAPES* were very finely shown, no less than eleven lots of three bunches of *Black Hamburgs* being staged in the class for that admirable kind, out of which only two lots were moderate. *Mr. Taverner*, gardener to *Sir A. K. Macdonald*, *Woolmer Forest*, had medium-sized bunches, but fine and superbly-finished berries black as *Sloes*. *Mr. Louden's* bunches

were larger and berries thickly set; indeed the bunches were tapering as *Muscats*; but the berries were smaller than in the first prize lot, and the third prize bunches were also fine and large berries, but a little too glossy. In the class for any other kind, *Mr. Roberts*, gardener to *Lord Rothschild*, *Gunnorsbury Park*, was first with fair-sized, but grandly-berried bunches of *Madresfield Court*, perhaps in respect of berry one of the finest samples yet seen. *Mr. Allan*, *Guntton Park*, had same kind, rather tapering bunches, only wanting a little more colour to be perfect; and *Mr. Miles* had, from *Wycombe Abbey*, some very fine examples of that superb *Grape Gros Maroc*, though hardly coloured, as that kind turns out its berries later. There were seven lots in this class, but in the remaining one for *Muscat of Alexandria* only five lots were staged, and hardly any of these were coloured, even if ripe. *Mr. Smith*, gardener to *Mr. W. H. Sewell*, *Loughton*, had very fine bunches, the berries still green, but nevertheless pleasantly ripe; and the second and third lots were better coloured, but not very superior samples. No doubt it was too early for *Muscats*, and if the class had been open to any white kind better results would have followed.

*PINES* were well shown, not less than seventeen pairs competing in one class, and nine fruits in the other. *Mr. J. Louden*, *The Quinta*, *Chirk*, and a well-known grower, had a handsome pair of *Queens* for first place, the same kind taking second and third prizes also, and were good samples. Fine samples of *Smooth Cayenne* were also shown, but wanted colour. *Moscow Queen*, a good fruit, took the first prize for *Mr. D. Roberts*, *Prestwold*, *Essex*. *Mr. R. Nicholas* coming second with a large clean *Smooth Cayenne*.

*PEACHES* were very fine and good. Superb samples of *Barrington* placed *Mr. Taverner* first, *Mr. Cakebread*, gardener to *Sir Phillip Rose*, *Penn*, coming second with *Grosse Mignonne*, rather wanting in colour, and rich coloured *Crimson Galande* came third; *Violette Hâtive* and *Bellegarde* were also good. Eleven dishes were staged, and no less than sixteen of *Nectarines*, and wondrously coloured fruits many were. *Stanwick* came first, then rich-coloured *Lord Napier* followed *Violette Hâtive*.

*FIGS* were good and all the prizes went to *Brown Turkey*, of which *Mr. Wildsmith*, gardener to *Viscount Eversley*, *Heckfield*, had the finest, a superb sample.

There were seven lots of pairs of dishes of *Cherries*, of which *Mr. Hudson*, gardener to *Mr. H. J. Atkinson*, *M.P.*, *Gunnorsbury House*, had far the best samples in *Black Circassian* and *Bigarreau Napoleon*; *May Duke*, *Cleveland Bigarreau*, and *Frogmore Early* were also well shown.

There were ten pairs of *Melons* staged; the best, a white-fleshed, smooth-skinned, and handsome fruit, came from *Longleat*, *Mr. Pratt* presenting it under the name of *Longleat Perfection*. Its flesh is soft, melting, and luscious, really one of the best we have ever tasted. It is a seedling from *Eastnor Castle* and *Hybrid Cashmere*, two kinds not so much grown as they deserve. A first-class certificate was awarded this *Melon* by the fruit committee at *Chiswick* last week. *Hero of Lockinge* took second and third prizes, and seems to be a first-class variety.

*STRAWBERRIES* were generally fine, for the season has been rather trying for these fruits. In judging, however, it was noticeable that flavour and known good quality rather outweighed size and colour in the awards. There were eleven pairs of dishes, *President* and *British Queen* coming first, *Crimson Queen* and *James Veitch* coming next, and finally *British Queen* again and *Dr. Hogg*, wanting colour. There were thirteen single dishes, *Sir Joseph Paxton* being placed first, then *British Queen*, and *Dr. Hogg* again.

Of *MISCELLANEOUS FRUITS*, a grand collection of *Cherries* grown in pots under glass, from *Mr. T. Rivers*, *Sawbridgeworth*, calls for special notice for the superb nature of the samples. Of blacks, were *Rivers' Early*, *Black Bigarreau*, *Bedford Prolific*, *Bigarreau de Schrenken*, *Noir de Gubin*, &c.; and of white kinds—*Bigarreau Monstreuse*, *Emperor François*, *Bigarreau Napoleon*; and also some grand *Peaches*, especially the *Conkling*, a remarkably rich coloured kind, almost orange heavily flushed with

crimson; *Dr. Hogg*, *Spenser*, *Pineapple*, and *Goldoni Nectarines*. The collection included twenty dishes of *Cherries* and twelve of *Peaches* and *Nectarines*.

**PACKING COMPETITION.**—There were eight boxes of *Peaches* sent in competition for the liberal prizes offered by the *Messrs. Webber*, of *Covent-garden*, for the best packed twenty-four fruits, to have been sent a certain distance per rail, and delivered as an ordinary parcel. The object of these prizes is to induce private gardeners who send surplus fruit to market to adopt the very best system of packing. The boxes were, when opened, found to have been packed as follows: four with wadding, one with bran, and three with soft Moss, which *Mr. Webber* contends to be by far the best material, as it is soft and elastic, whilst wadding is hard and exhausting. Ample proof was given of the superior value of the Moss when the fruits in the various boxes were examined, and *Mr. Turton*, gardener to *Mr. John Hargreaves*, *Maiden Erleigh*, *Reading*, was, as last year in a similar competition, placed first, his packing being admirable, and his fruit sound and perfect. *Mr. Thos. Hare*, *Wellingore*, *Grantham*, was second; and *Mr. Waterman*, *Aylesford Hall*, third, with similar packing and good fruit. The bran packing, though declared better than wadding, had shaken down too much and left a vacuum.

*VEGETABLES* were shown in considerable quantities; indeed it is seldom that fourteen collections of eight kinds in each are staged, and, therefore, the winners merited high praise. The first place was taken by a young exhibitor, *Mr. G. H. Richards*, *Somerley Park*, *Ringwood*, who had exceptionally good samples of *London Cauliflower*, *White Elephant Onions*, *Saunders' Marrow Peas*, *Sutton's Improved Intermediate Carrots* (long and tapering), *Perfection Tomatoes*, *Canadian Wonder Dwarf Beans*, *Lapstone Potatoes*, &c. *Mr. Miles* was also in fine form as usual, and but a point or two behind, having superb samples of *White Napier Onions*, *London Cauliflowers*, *Giant Marrow Peas*, *Snowdrop Potatoes*, &c.; and in another collection were, *Duke of Albany Peas*, *Woodstock Kidney Potatoes*, *Early Nantes Carrots*, &c. Two extra prizes were awarded in the competition.

*Tomatoes* were in good form, the finest being *Trophy*, *Hackwood Park*, *Carter's Perfection*, and *Reading Perfection*; whilst *Cucumbers* were but moderate in quality, the best brace (*Telegraph*) coming from *Mr. Goodacre*, *Elvaston Castle*, *Purley Park* coming second and third. The twelve brace shown would indicate that *Cucumbers* are rather out of season.

**SPECIAL PRIZES** were offered by *Messrs. Webb & Sons*, *Wordsley*, and by *Mr. House*, *Peterborough*, the former for a dish of their *Pea*, *Wordsley Wonder*, a scimitar-shaped kind, and generally small in sample. The finest came from *Boston* growers, and, curiously enough, the same three exhibitors had the best samples of *House's Perfect Marrow*, a *British Queen* type of pod. The competition was in each case good. *Mr. Laxton* showed several new *Peas*, amongst which *Evolution* was very fine, as was also *Walton Hero*, recently certificated. This is a large-podded kind that will no doubt take a high place presently.

*Messrs. Jas. Carter & Co.* were awarded a silver medal for a collection of some sixty assorted kinds of *Peas*, the finest amongst which were *Telephone*, *Telegraph*, *Ne Plus Ultra*, *Pride of the Market*, *Culverwell's Giant Marrow*, and *Stratagem*. Votes of thanks were given to *Mr. J. C. Mundell*, *Moor Park*, and also to *Mr. Waterman* for good collections of *Peas*, and to *Mr. Beckett* for collection of *Lettuces*, &c.

A full list of awards will be found in our advertising columns.

#### VEGETABLES AND FRUITS AT CHISWICK.

At a meeting of the *Fruit and Vegetable Committee* held at *Chiswick* on July 2 (present: *Mr. C. Silverlock* in the chair; *Messrs. Goldsmith*, *Ross*, *Burnett* and *Rivers*), the collection of *Peas* growing in the garden was examined, and a first-class certificate awarded to *The Ameer*, the result of a cross between *Laxton's No. 1* (wrinkled) and *Little Gem* (seedling), having the appearance of a well-selected stock of



William I., and coming into use about the same time.

**CAULIFLOWERS.**—The collection of Cauliflowers was next examined; the following were all considered selections of the Early Erfurt, more or less pure, and were highly commended, viz.: Dean's Early Snowball (Dean), Snowball (Williams), Earliest Erfurt (Koster, Rutley), Haage's Dwarf (Koster, Anderson), Erfurt, very dwarf (Benary), Erfurt, dwarf earliest, first quality (Benary), Early Erfurt (Carter), Carter's Defiance (Carter), New Dwarf (Rutley), Erfurt (Vilmorin), Sharpe's First Early (Sharpe).

**STRAWBERRIES.**—The following seedling Strawberries from Mr. Laxton were next examined, viz.: King of the Earlies, Captain, A. F. Barron, Admiral, a first-class certificate being awarded to the variety named A. F. Barron, stated to be the result of a cross between Sir C. Napier and Sir J. Paxton, an extraordinarily prolific Strawberry, bright in colour and of fine quality.

Some fine examples of The Czar Plum and Early Rivers Cherry were exhibited by Messrs. Rivers.

Mr. C. Ross, Welford Park, Newbury, submitted examples of a new Grape raised from the Black Monukka. The berries were large, ovate and clear pale green. The committee requested to see it again when ripen.

### NOTES OF THE WEEK.

**A noble Iris.**—*Iris aurea* from Northern India, over 5 feet high, and now in flower, comes to us from Bitton. Its habit is free, and the growth bold and red; the flowers very fine in form and a rich yellow. It is quite hardy. The lower divisions of the flower are very long and waved and crisped, the whole distinct in form from other *Irises*.

**Cambridge Botanic Garden.**—At the last meeting at South Kensington Mr. Lynch exhibited from the Botanic Gardens, Cambridge, a fine flowering spike of *Yucca angustifolia*; a spray of *Pelargonium Endlicherianum*, from Australia; *Jasminum angulare* var. *glabratum*, a plant new to cultivation, from the Cape; and *Nelumbium luteum*, from North America.

**Clematis Beauty of Bangholme.**—Miss Owen sends us flowers of this *Clematis*, which she says is blooming well out of doors in her garden at Knockmullen, Gorey. It is one of those large-flowered varieties of the *lanuginosa* type which were sent out some time ago from the Lawson Nurseries. Its blossoms are very large and pure white, and a plant bearing several of them must be extremely attractive.

**Phacelia campanularia.**—Flowers of this new annual from Southern California have been sent to us by Mr. Field from the garden at Stanley Hall, Bridgnorth, where he says it flowers very freely in the open border in a light gravelly soil. The large bell-shaped flowers are of the deepest and richest blue, imaginable, rivalling even that of the mountain *Gentians*. We are glad to hear that it is a tractable plant in the open border.

**Chimonanthus fragrans.**—This agreeably scented, hardy shrub is again fruiting here, and there is every prospect that its seeds will ripen. Young plants have been raised from seeds ripened here last year. The plant is trained against a south wall in a sheltered place.—W. CRUMP, *Madresfield Court, Malvern*.

**White Musk Mallow.**—Those who would like to grow a beautiful white and delicately scented hardy flower should get the white form of the common Musk Mallow (*Malva moschata*). Its flowers are snow-white, transparent, and perfumed like Musk. It will grow almost anywhere, flowers freely and continuously at this season, and looks well in a cut state. Mr. Kingsmill, who thinks highly of it, brings us a few spikes for our table.

**Statice Suwarowi.**—Of this new annual *Statice* we have received specimens from time to time, but we have not seen any that could compare with the

dried specimens of it sent to us by its introducers some two or three years ago. During the week Mr. Field, of Stanley Hall, has sent us some flower-spikes of it, which, though pretty, are inferior to what they should be. The spikes are branched and cylindrical and the colour a pleasing rose-pink.

**Iris ochroleuca.**—Flowers of this uncommon *Iris*, one of the handsomest of the whole genus, have been sent to us from Monkstown, Dublin, by Mr. Greenwood Pim, who states that his plants this season have borne four flowers on the stems as a rule 5 feet high, but he considers it to be a shy bloomer. The flowers are large, ivory white, and clear yellow—therefore very beautiful. It goes by the name of *I. gigantea*, a name under which it is often sold.

**Vanda Lowi.**—M. Bergman sends us the following note respecting a plant of this *Vanda* now in bloom in the Orchid houses at Ferrières. It has 1 leader, 4 breaks and 3 smaller ones, 120 leaves, each 27 inches long. The basket measures 23 inches by 23 inches, and 10 inches high. Total height of the plant, basket not included, 5 feet 7 inches. There are 17 flower-spikes, each 8 feet 2 inches long, and bearing altogether over 400 flowers. The plant is remarkably green and healthy.

**Double Silene pendula.**—The new double-flowered variety of the well-known annual, *Silene pendula compacta*, shown by Messrs. Carter on Tuesday last, is, we consider, a valuable addition to our lists of hardy annuals. The plants are very dwarf and compact in growth; the flowers are very double, and the colour brighter than that of the single form. It will doubtless supersede the original variety, as double flowers last much longer than single ones. For large masses in beds this new annual is capable of producing fine colour effects.

**The Golden Thistle** (*Scolymus hispanicus*).—A very striking plant with dozens of fine golden flowers comes to us from Bitton. Abroad it is grown as a vegetable. The seed is sown in March or April in well-dug soil, in the same manner as *Salsafy*, and the plants are afterwards treated in exactly the same way as *Salsafy* plants. The roots may be taken up for use in September or October, and will continue to yield a supply during the winter. They are eaten like *Salsafy*. They are often 10 inches to 12 inches long and nearly 1 inch thick.

**Hæmanthus Katharinæ.**—This handsome bulbous plant, which is now in great beauty in Messrs. Henderson's nursery, Maida Vale, is without question the finest of the tropical species of *Hæmanthus*—finer even than the brilliant *Kalbreyeri*, which flowers earlier in the season. *Katharinæ* has heads of vivid scarlet-crimson flowers about 9 inches through, and displaying myriads of protruding stamens. The foliage, too, is handsome, being broad and long. A more brilliant stove plant for flowering throughout July and August we do not possess.

**Bermuda Lily** (*Lilium Harrisii*).—The finest specimens of this *Lily* that we have seen have been sent to us by Mr. Kendall, of Cornwall Lodge, Kingston Hill. The stems are about 2½ feet high, and one bears as many as five flowers and buds, three of which were fully expanded when the specimens reached us. The flowers are scarcely different from those of the ordinary form of *L. longiflorum*, except that perhaps they are a little larger; but it is the large number of flowers on a stem which makes this *Lily* so valuable. We hope to give a coloured illustration of it shortly.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by sending us specimens for our artists to draw. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us fresh and perfectly fit for figuring.

**Rare Lachenalias.**—Among a gathering of interesting Cape bulbous plants from Mr. Viccars Collyer, of Leicester, are a few rarely seen species of *Lachenalia* belonging to the section in which the flowers on the spike are erect. One of the prettiest is *L. glauca*, which has mottled spikes and long erect flowers of a greenish blue and porcelain-purple, and delicately scented. Another is *L. orchioides*, and of a similar stamp is *L. racemosa*, while showiest and best of all is the golden *L. Nelsoni*. Among the other Cape bulbs is the old, but now rarely seen, *Babiana tubiflora*, belonging to the section of the genus having long flower-tubes. *B. ringens*, in the same way, is both showy and curious."

**Cactuses at Westonbirt.**—From Mr. Halford's garden, at Westonbirt, in Gloucestershire, Mr. Chapman sends us flowers of two very beautiful Cactuses, one *Cereus speciosissimus* and *Phyllocactus crenatus*, a large, creamy white-flowered kind. Judging from Mr. Chapman's statement, these *Cacti* must make a very fine display at Westonbirt just now. He says: "We have upwards of thirty plants of the white variety in 7½-inch pots, and each plant carries from twelve to sixteen blooms. The flowers succeed each other in opening, and so keep up a succession for three months. The plants are easily grown; they require to be kept in a temperate house and shaded from the influence of the sun. After they have made their growth, place them on a vinery shelf. Do not turn the growth too much, but gradually ripen it, and then again place them in a temperate house to force out the blooms. The compost which I use for them is half fibrous loam, quarter broken, brick and bone dust."

### LATE NOTES.

**Gloxinias** (*J. Bennett*).—Good blooms, but none surpass the best varieties lately shown in London.

**A Rose wanted.**—Perhaps what "Salmoniceps" wants is the single *Macartney*.—T. H. ARCHER-HIND.

**Flowering sprays** of Portugal Laurel are very useful in table bouquets; they combine well with Sweet Brier or any pink Roses.—G. J.

**Hoya bella.**—Early in October last year I had this plant with 400 blooms on it. It was 3 feet high and as much across. This *Hoya* is a favourite of mine. The blooms, which are distinct from those of other *Hoyas*, are of good substance and waxy looking.—D. S.

**What is the best Strawberry for forcing?**—Gardeners appear to be divided in opinion as to the best variety for this purpose, some preferring one, some another. If what can now be seen at Gunnersbury Park may be taken as illustrating the fitness of one variety for such work, then *President* is the one. In the Strawberry house it is carrying rare crops of very fine, highly coloured fruit. For the future *President* will be Mr. Roberts' staple forcing Strawberry.—R. D.

**The caterpillar** "*G. I.*" calls attention to which feeds on the Great Mulleins is that of one of the well-known shark moths, and generally feeds on the foliage. Another species prefers the flowers and seeds; they are both very destructive, but may be easily picked off the plants, as they are fortunately day feeders. The moths are inconspicuous in colour, measure from 1½ inches to 2 inches across their wings when fully opened; their wings are long and narrow, and are of a brownish colour, the edges being the darker points. The caterpillars are very handsome and are of a greenish white colour with yellow transverse bands and black spots.—G. S. S.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*Ifields*.—1, species of *Sedum* (send again, as specimen was crushed); 2, *Sedum reflexum*; 3, *Sedum corsicum*; 4, *Sisyrinchium striatum*.—*Mrs. Childers*.—*Lychnis Haageana*.—*Rose*.—Appears to be *Safrano* (it arrived much withered); yellow plant is *Inula glandulosa*.—*J. W. K.*.—1, *Rhus Cotinus*; 2, *Ligularia macrophylla*; 3, next week; 4, *Lycaste Deppeii*.—*J. H.*.—1, *Begonia semperflorens*; 2, *Tacsonia Van Volxemi*; 3, *Hoya Paxtoni*; 4, *Allamanda Schottii*.—*Col. Wortley*.—*Rudbeckia hirta* (true).—*W. H. B.*.—*Rhamnus Purshianus*.—*G. Parnell*.—2, *Chrysanthemum Leucanthemum*; 3, *Veronica longifolia alba*; 5, *Begonia Evansiana*; 8, hybrid Pink.—*C. H. B.*.—*Anisodus luridus*.—*G. Bethell*.—*Calycanthus occidentalis*; other too withered to name.—*A. S. Chandler*.—*Deutzia scabra* fl.-pl. The Francoa shows a curious and unusual deformity.—*Z. K.*.—We do not attempt to name *Coleuses*, but we happen to know that your No. 3 is called *Mrs. George Simpson*.—*G. Parnell*.—1, *Peperomia redivivula*; 4, *Ammobium alatum*; 6, *Lilium croceum*; 7, *Campanula muralis*.—*F. R. S.*.—*Dendrobium suavisissimum*, *Oncidium unicorn*.—*F. W. H.*.—*Alstroemeria chilensis* var., *Gymnadenia Conopsea* (hardy Orchid), *Hypericum hircinum*, *Campanula urticifolia alba*.—*H. McG.*.—1, *Campanula glomerata speciosa*; 2, *Polemonium ceruleum*; 3, *Lithospermum purpureo-ceruleum*.—*A. K.*.—*Linaria pilosa*, *Ferula communis*.—*E. W.*.—The Strawberries arrived in a crushed condition and unrecognisable.



## WOODS & FORESTS.

### SPRUCE FIR TIMBER.

IN my remarks upon the Spruce Fir (p. 610) I took the liberty of quoting other persons' recorded experience of its value as a timber tree, as these statements agree with my own experience. Yet "Yorkshireman" (p. 14) tells us that "the isolated experiences of single individuals here and there are of no use in determining the value of any kind of timber for general market purposes." In speaking of the Spruce (p. 608) the same writer states "that in Scotland thousands of acres have been planted with it by scientific foresters there, and that, too, in localities where the means of transport are so bad that it would hardly pay for removal, as some extensive owners of blown-down Spruce timber are now realising. Except for covert for game, Spruce is, compared to some other species equally suitable for planting in its stead, for the production of timber absolutely worthless." At the present time, when the country is glutted with blown Spruce timber to such an extent, that it becomes almost unsaleable at any price, it would be unfair and inconsistent to say that the present is a proper time to form a correct estimate of the value of the timber when brought to market, so that, as far as this is concerned, I attach no value whatever to "Yorkshireman's" statements. With regard to its timber being absolutely worthless as compared with others that would grow in its stead, except for game covert, such a statement is not supported in its entirety by other writers whose lengthened experience entitles them to respect. At p. 686 the writer gives us an example of a large plantation of several thousand acres in extent, and where the trees principally consist of Scotch Pine, Larch, and Norway Spruce.

The average worth of the Scotch Pine we are told is 1s., that of the Larch 3s., and that of the Spruce 5s. each tree. Now, although the difference in value between the Scotch Fir and Spruce is great indeed, yet the writer tells us that such does not represent the whole of the difference of loss, for had the crop been exclusively Norway Spruce it would have been mature and ready for cutting, and cleaning and replanting the ground at about fifty years old. Now we are to gather from this statement—for indeed it is quite plain—that in place of using a mixture of trees at the formation, the whole ground should have been planted with Norway Spruce, and I presume such will afford a clear explanation why Scotch foresters sometimes plant this tree on an extensive scale. "Yorkshireman" tells us that ladder poles are not a very extensive industry, and in ninety-nine cases out of a hundred Norwegian poles are used; but the reason for this is simply that the stuff cannot be got here in quantity to supply the demand. In my last communication on this subject I stated that I had sold Spruce timber at 13s. per ton. This was some years ago; certainly not at present, when there is a glut of blown timber

in the market. "Yorkshireman" says this price per ton would be about 3d. per foot, but this must surely be a misprint, as that rate would give 52 feet per ton, and I cannot imagine how the writer could give such a statement; but if so, he had better correct himself. He also says it is worth asking how much Spruce I have been able to sell in one year at 1d. per lineal foot for poles and 13s. per ton for timber, and although that has nothing to do with the question in hand yet I may briefly state that I have managed to sell all that I had to dispose of for a series of years at prices ranging from 13s. per ton as the highest, and 7s. 6d. per ton as the lowest, the difference in price being always influenced by quality and demand. With regard to clean-grown Larch and Spruce Fir poles for ladders, I have never sold them for less than 1d. per lineal foot in any year, and the party who got the Spruce at 13s. per ton gave an order for 30,000 poles, and as I could not furnish the order, I gave the party addresses to several large properties in Scotland where I thought they might get their order executed, but none of them could give the quantity wanted, and to the best of my knowledge they had to pick them up here and there on different properties as they could find them. This will give a slight illustration of the stuff occasionally wanted, as well as the reason we have to send to foreign parts for a supply. The quantity of ladder poles and telegraph poles used in this country is immense, and I think it is not very creditable to us as a nation that we cannot supply our own wants in this respect, seeing that we have such vast tracts of waste, unoccupied land in this country capable of growing this class of timber in particular. I am glad, however, that the Government has not lost sight of this important question, and that proprietors and capitalists are beginning to take a wise practical view of the whole subject, and in doing so I am sure they will not only be consulting the wants and requirements of the country, but likewise that of their own interests, and we wish them every success. I had almost forgotten to state that in all cases the timber alluded to was cut at the proprietor's expense, and the purchaser undertook the delivery himself.

J. B. WEBSTER.

**Destruction of Oak trees.**—Since writing my previous notes on this subject I have had occasion to walk through the beautiful country from Brentwood to the Weald. In this district of Essex timber trees are varied and fine over a vast expanse of park-like scenery. Here also the Oaks have been similarly injured, but are recovering themselves, and are forming fresh shoots and leaves. On July 2, when the sun was shining very hotly, I observed on the trees countless numbers of moths of a lovely light green tinted colour. The trees were simply swarmed over with these moths, resembling all over, in quantities, the "mouth" of a beehive, whilst they flitted about the roadway and settled frequently upon the passer-by. I enclose you an example or two, that you may settle the query as to what they really are.—WILLIAM EARLEY.

\* \* The Oaks in your neighbourhood have been attacked by the caterpillars of the Oak leaf-roller

moth (*Tortrix viridana*), which unfortunately often injures the foliage of Oak trees in the way you mention. The specimens of the moth which you forwarded were hardly recognisable, having been placed between leaves, which naturally stuck together by pressure in the post; if no box was at hand, each moth should have been wrapped in paper. When a caterpillar becomes a chrysalis, it assumes the pupa state, if you wish to use the scientific term. You are quite mistaken if you think the majority of caterpillars live in "large colonies in thick encampment." The eggs are certainly not laid on the leaves; if they were, they would fall with them in the autumn, and the newly-hatched caterpillars in the spring would have a long and hungry march before they reached a green Oak leaf. The eggs are laid on the buds or twigs.—G. S. S.

### THE CORSICAN PINE.

IN poor soil and exposed situations, as on good land where more sheltered, wherever I have met with this Pine after it has been planted twenty years or so it stands out so unmistakably before the Scotch or any other Pine, or the Larch, that I have often marvelled that until quite recently it has been seldom mentioned by writers on arboriculture. In several places where, over thirty years ago, I had to do with planting in which this tree was included, it took the lead from the first, and, as time goes on, it appears to still further distance everything else. For a good many years I have never failed, when an opportunity has occurred, to advise its being used in quantity where planting for timber to any extent was being carried out. There is no member of the Pine family so constituted by its natural habit to produce such a long massive trunk within a given time. So little disposed to form branches of any strength is it, that its energies are not wasted in this direction. One advantage connected with the light character of its branches, so far as I have noticed hitherto overlooked, is that where planted in positions exposed to the western gales it is less liable to be blown over by violent wind storms than others that throw more weight into their branches. Respecting its liability to failure when the plants used have stood too long without removal, there is often more made of it than the defect deserves. When the peculiarity of the tree is sufficiently known, it is an easy matter to guard against it by using stock that is not too old or that has stood too long without removal. In planting operations with kinds that are less sensitive in this respect than the Corsican Pine, it often happens that the plants used have gone so much too long without removal, that much too long a time elapses afterwards before they begin to move freely.

Where this Pine is to be planted by itself, its light branching habit does not necessitate its being planted so closely as in the case of kinds that need in the first instance to stand thick on the ground to keep the side growth within due limits with a view to a clean trunk. In this it stands completely opposite to the Austrian Pine, which, unequalled as the latter is where a thick dense break is required to shut out from view anything objectionable, or for the contrast which its dark green



colour affords to others of lighter hue, is not the tree that I should adopt to any great extent in this country for timber. To meet its inveterate disposition to make heavy side branches where required for timber, it needs to be planted so thickly at first, that the land, unless very good in quality, in a short time gets so impoverished, that the trees make less progress than they should. This, at least, has been my experience with the Austrian Pine, to which in planting for timber I should prefer the Scotch.

T. B.

#### WOOD V. IRON FOR ESTATE WORK.

It is a strange anomaly that in the midst of the outcry as to the difficulty of turning our home-grown timber to account, the fashion of using iron for almost every conceivable purpose on estates seems on the increase. It is as hard to account for this freak of fashion as it is for many others quite as unreasonable. One is almost led to believe that the primary object is to swell the railway companies' returns, as they must derive the greatest benefit. There are, no doubt, instances where the employment of timber for such things as tree guards and fences would be somewhat too heavy in its effect; but, as a general rule, there seems but little sense in sending hundreds of miles for iron for gates, fences, tree guards, and the numerous similar things wanted from time to time for use on an estate when timber that is growing within perhaps a few hundred yards, and that will fetch but little in the market, would answer the purpose equally well. This is no imaginary picture, but the result of almost every-day observation.

Beyond the matter of fashion there may be other causes, such as the lowness of the price of iron and the saving in trouble in preparation. It is possible to trace an analogy between this excessive use of iron and that of foreign woods; in both cases they are delivered ready, or nearly ready, for use, and time and trouble is saved.

It is a bad policy, however, and one that needs looking into. How is it to be expected that our timber will ever realise a fair price when the very ones who grow it themselves neglect it? I for one do not share the alarm as to the immediate exhaustion of supply, but what I do say is, What is the use on the one hand of producing a commodity for which we desire a fair return, and on the other doing our utmost to discount its value?

In some cases the difficulty in utilising timber may arise from lack of means of converting it to its proper dimensions, but this is more imaginary than real. In these days, in most cases, if steam power is not actually on the estate, it is without doubt procurable in the immediate neighbourhood, as it must be a strange place indeed where the services of a portable engine could not be obtained. With this and a single saw bench an immense amount of moderate sized timber may be reduced to a usable shape, and a by no means small step effected towards solving

the problem of what to do with our timber. If every reader of this paper fairly looks into the subject and ascertains how far wood may be used on his estate in place of the inevitable iron, I have no hesitation in averring that the aggregate will be by no means inconsiderable, and that if the substitution of wood for iron in suitable situations is steadily followed, the result will afford no inconsiderable amount of satisfaction. A whole host of purposes from which wood has been ousted to make room for iron occur to me as I write, but a better plan than giving a list of these will be to again ask each one concerned how far he is an offender in this direction.

D. J. Y.

#### NOTES.

THE FUTURE OF PLANTING.—According to the accounts published from time to time, the great timber stores of Europe and America and from which our large supplies of foreign timber come are within measurable distance of exhaustion, and the question which arises is where, when that happens, is the supply to come from? The prospect is one which the British arboriculturist should regard with satisfaction, because if he plants now in the right way the probability is that the home timber trade will, at no distant date, witness a great revival and greater prosperity than it has yet seen. Our present woods afford a foundation to begin with, but probably not one-fourth of the area more capable of carrying timber crops than any other is planted. Planting is the great and crying need at the present time, and government encouragement in this direction would be worth any number of "schools." Plant trees wherever they will grow. Low as prices of timber are now, they are still remunerative, only the supply is not nearly equal to the demand, and the timber we have to sell is not always of the right sort or size. British timber, it is said, possesses the quality, but, notwithstanding our arboricultural science, the foreign timber, whether cut up or in the rough, is of the most useful dimensions, better adapted for many purposes, and is consequently preferred. Larch, or its substitutes, Ash, Sycamore, Poplar, and Oak are the woods in greatest demand, and likely to be, and more of these should be planted than any others. If the Corsican Fir only turns out as well in quality as it is said to do, it is safe to predict that it will pay better than almost any other tree because it reaches useful bulk at an early age. It and the Larch will do together.

TIMBER IN RAVINES.—Apart from the question of landscape planting there can be no doubt about ravines and glens producing the tallest and straightest timber in the shortest space of time. I have often been struck by the fine straight tall trunks of Ash, Oak, Sycamore, and other trees under such circumstances. The fact is observable in narrow and steep gorges, where the ground slopes rapidly on each side, that the trees that grow at the bottom of the ravine are the

tallest, all varieties growing shorter as they ascend the sides. Some of the finest and tallest Ash trunks we have on the estate here grow in a ravine where they are nearly a third taller than those in plantations on level or nearly level ground. The shelter and shade of the ground and of each other seem to "draw" the trees up, so to speak; but, be that as it may, there can be no doubt about the fact that for the reasons stated it is far more profitable to plant the valleys and ravines than the hill tops. The tallest Larches we have cut down here were also the slenderest and grew in the bottom of a deep gorge or linn. Its uniform girth (about 7 inches) was remarkable and just suited for props and other purposes, for buyers of Larch do not like tapering trees, seeing the top cuts to waste. These tall uniform-shaped Larches ran about 70 feet in height, and, owing to their position, apparently had never lost more than a few branches at their tops. Others, on the contrary, about the same age, but growing on an exposed hill side, where they carried more branches, contained about the same number of cubic feet, but tapered more, and were thicker at the base and also considerably shorter. The same observations apply to mostly all trees, and the facts are suggestive to those who have to thin plantations.

TIMBER SALES.—The values received at sales in different parts of the country differ greatly and want clearing up. In an article quoted from *Forestry* by the *Timber Trades Journal* lately, I find that near Salop (not a bad locality one would think), on the estate of Lilleshall, Newport, plantation-grown Ash was sold at an average price of 1s. 3d. per cubic foot, the lowest price being 7½d.; Oak hedgerow, 1s. 4d.; Elm, from about 8d. to 8½d.; Beech, 8d.; Black Italian Poplar at 6½d. to 7½d.; Larch at 10d., and other sorts at proportionately low prices. These figures I have no doubt are correct, because they represent the true present average values in many places. Mark the difference of prices in Kent for the same article. At Pluckley, Oak fetched an average price of 1s. 7d., Ash the same, Elm 11½d., by auction, as in the Salop sales. It is added that the annual sales at Pluckley "are deservedly popular, as the whole of the extensive woodlands upon the estate are thoroughly drained, carefully thinned out and pruned, and receive every necessary attention. I must say I never knew timber sales that were popular because of the land being well drained and the management and culture good, for timber merchants invariably buy the timber on its own merits exclusively. The prices received, too, are high, for timber sold in lots by auction, and much higher considerably than can be got for timber of the same kind and quality in those parts of England where the demand is greatest. It is also asserted that "the income derived from the sale of Hop poles on the same estate is from four to five times greater than the rent of the land when under the plough"—a startling statement indeed, and one we should like



to hear the opinions of Kent correspondents about. Kent farm lands, I believe, are rented pretty high, so that the rent per acre for growing poles must range proportionately—say from £8 to £12 per acre perhaps. I do not know what the land on Hop farms lets at, but according to these figures it seems it must pay better to grow Hop poles than Hops themselves—a rather anomalous condition of things that needs explaining. It would be interesting to know what the profit on the woods really is at Surrenden-Dering after paying for the every necessary attention that they receive. There is no mystery about the value of timber at the present time in the open market, but those private reports one reads upsets all our calculations. At all events the deliberate statement that growing coppice and underwood in Kent pays four and five times as much value as farm crops should not be lost sight of if it can be vouched for.

YORKSHIREMAN.

### THE VALUE OF THE ELM.

IT has recently been stated in THE GARDEN that the timber of the Scotch or Wych Elm is more valuable than that of the English Elm. I am unable to see in what sense this is true, as both species vary so greatly when growing under different conditions as to soil and situation, that any arbitrary statement like this is of little or no value, even if the general superiority of the Wych Elm was admitted. Speaking broadly, the wood of the Wych Elm is tougher in its nature than that of the common English Elm, and is consequently more adapted for use for purposes where toughness is the great essential. In fact, in some cases it is to be preferred before Ash for this quality, as this latter tree is, unfortunately, allowed often to remain standing for years after it has reached the proper age for felling, with the result that the toughness is lost and the wood becomes brittle, and therefore practically useless. It is by no means uncommon, however, to find trees of the English Elm possessing this quality of toughness to a very considerable degree, so what is really of more importance than the attempt to set up a line of demarcation between this or that species is to observe the qualities of each tree or class of trees as they come to be dealt with. To classify timber for practical use by its botanical species would be "confusion worse confounded." The wood of this pre-eminently English hedgerow tree, whether *Ulmus campestris* or *montana*, is generally useful, and although it has for many purposes been pushed into the background by the shoals of foreign Fir constantly arriving, and which being foreign must consequently be better, it is after all a much more durable wood. It has time after time been insisted on in these columns that this displacement of native timber by foreign wood is a great mistake, and where is this more clear than in the case of the Elm?

Much may often be gained by giving a

look back into the past, and if we do so in this case to the time when shipping was in its infancy, and foreign wood goods had to bear their share of dues with other commodities, we shall find that the Elm occupied a honourable place amongst building timbers, and that a great proportion of the woodwork of our houses, our barns, and almost all our domestic buildings was composed of Elm. Why all this should have been changed, it is hard to say, except that the invader in the shape of the foreign Fir came to hand in a more presentable form. In these machinery days the excuse that English woods are difficult to work up should not be entertained, as if they are somewhat harder in their texture, what is lost in a little extra labour will be more than compensated for by its greater durability. What is the use of raising the outcry that the prices obtainable for home-grown woods are unremunerative when we are tacitly ignoring their value and encouraging the use of material that must still further tend to depreciate values? If each who has it in his power will carefully look into the subject and ascertain how far he can prudently use home-grown in place of foreign wood, our home produce will come to be more generally employed than is now the case.

D. J. Y.

### CLOSE V. SNAG PRUNING.

IT is a great pity, considering its importance, that the much vexed question of close v. snag pruning cannot be decided once and for all. Close pruning proper has been strongly advocated in *Woods and Forests*, and many writers seem to be also in favour of it, though a few are equally strong against it. The importance of knowing which is right has been brought home to me very forcibly of late. Some Oaks which when barked appeared perfectly sound, though showing where years ago large limbs had been cut off, were found quite rotten an inch or so below the sound wood, that had grown over the wounds caused by amputation. Now, is it possible to tell whether this was owing to close or snag pruning? Again, some old pollard Oaks from a hedgerow, fine healthy trees, have been found to be rotten in small spots and lines almost in the heart of the trees. My carpenter affirms this has been caused by cutting branches off too close when the trees were young. Is this so? The faults in these latter trees are most peculiar what appears like actual bark being found embedded in the solid wood a foot or more from the outside. In some instances the bark could be distinctly traced all round the amputated limb, the trees having apparently entombed its limb, bark and all. Of course this forms a very serious defect in the timber, as all within the circle of bark is unsound. But I fail distinctly to trace the cause either to close pruning or snagging, though I cannot but think it is caused by one or the other.

J. K. B.

**Cutting Oak coppice.**—Oak copse is cut down at various periods between fifteen and thirty years, the rule being that the principal stems of the plants at 1 foot from the ground should not be less than 6 inches in diameter. In favourable soils in the south and west of England this size will be obtained in from twelve to fifteen years, but in the colder climate and in the inferior soil of the Highlands of Scotland, from twenty-five to thirty years are required. The cutting over of copse is performed at the same season as that in which full-grown trees are felled, when in both cases the bark is an object as well as the timber; but in the cutting over of coppice trees it is necessary to bear in mind that the stools are intended to shoot up again so as to produce another crop. To facilitate this, they require to be cut over smoothly, so as not to lodge water, and close to the

ground, in order that the shoots for future branches may proceed at once from the roots, and not at some distance over them, in which case they would be liable to be blown off.

### THE TIMBER OF SEEDLING AND TRANSPLANTED TREES.

A GOOD deal has been written on this subject, but there is one point which has been overlooked, or at least has not been discussed, and that is the difference in the quality of the timber produced by transplanted trees as compared with that produced by such as have not been transplanted. This is a matter of considerable importance, and I think it would be both interesting and instructive were your correspondents to give us the benefit of their experience on this head. Rapidity of growth and bulk of timber produced within a certain period of time seem to be the points under consideration, but mere bulk does not always represent true value. That the timber of planted trees is harder, better packed, and firmer in texture than that of trees grown from seed on the spot, I think no one will deny who has had experience of the same sorts growing side by side on the same ground and on equal conditions as regards age. The following may be taken as an illustration.

On thinning plantations where the ground was partly stocked with about half a crop of natural seedlings of Scotch Fir, and where the deficiency had been made up by planting young trees to fill up the blanks, the difference in the hardness of the wood was so clearly demonstrated, that the woodmen could tell at once, after cutting out a few chips with their hatchets, whether the tree was planted or one of the original seedlings.

The seedlings, as a rule, were better furnished with strong side branches than such as were planted, and the shape of the stems of the former were more tapering, grosser at the base of the trunk, and did not carry up their thickness in the same proportion as the latter, and were also of a rougher, softer, texture throughout than such as were planted. Of course, in such cases it is a matter of the utmost importance to make sure that the natural seedlings, and such as have been planted, are the progeny of the true native Scotch Fir, as the variety of this tree raised from seeds brought from the continent of Europe produces softer timber than the true native variety, and if the trees in this respect were not identical, the experiment would be worthless.

Hardwood trees are also improved in texture by being transplanted, which can be easily ascertained by cutting over seedlings in plantations of Ash, Sycamore, Oak, &c., and then cutting over transplanted trees in the nursery or elsewhere of a similar size, when the difference in the hardness and texture of the wood will be clearly demonstrated. As a further illustration of this, I may state that I have used Scotch Fir seedling trees and such as were planted of a similar size for piling stubs, and found that the former were



not so durable and lasting as the latter. Transplanting trees in early life checks the rapidity of their growth to a certain extent, but although the concentric rings of the stems are less in size than in such as have never been manipulated, yet they are harder, better packed, and improved in texture by the operation, and consequently of much better value.

J. B. WEBSTER.

### PLANTING AND WHAT TO PLANT.

THE careful selection of trees suitable for various soils and situations is a matter of the highest importance to those who contemplate tree planting for profit. I need scarcely add that the neglect of this consideration is in nine cases out of ten the cause of failure. On light, poor, hilly lands and moderately exposed the Larch is the most profitable tree to plant for a main crop; when the altitude or exposure is too great for the Larch, a shelter-screen should be planted with Austrian, Corsican, and Scotch Pines, planting the Austrians on the outside or exposed sites, as they are of a more bushy habit than the others, and the best Pines grown for shelter. The Scotch and Corsican Pines thrive well and make excellent timber on exposed poor plains, where the Larch has been found to be a failure. On the other hand, the Larch generally is more vigorous and less liable to disease when grown on the declivities of hills with a south-west, west, or north-west aspect than in any other situations, the reason being that the sun's rays do not reach these aspects so early in the day, and thus the trees do not suffer from late spring frosts so much as when planted on east or south-east aspects.

If shelter for game be required, or ornamental effect in the landscape scenery be desired, masses, clumps, or groups (according to the size of the plantation) of the Silver and Spruce Firs should be planted in judiciously chosen positions to give the most pleasing and natural effects without stiffness and formality. The Douglas and Menzies Spruce, Nordmann's Silver Fir, and the Wellingtonia, which are now more plentiful than they have been, and may be bought at moderate prices, might also be introduced in smaller groups in the lower sites, where the soil is tolerably deep and the situation somewhat sheltered; they are all hardy, fast growing, and beautiful Conifers, being very effective when planted in groups amongst deciduous trees.

Where hardwoods are planted to form the permanent crop on thin poor soils, the Beech, Sycamore, and Sweet Chestnut are the best sorts to select. Where the soil is of a loamy nature and resting on clay, the Oak and Ash should be planted; the latter particularly will prove a profitable tree to plant extensively where the land is suitable to its healthy growth, as the supply of copse or maiden Ash timber is at the present time not equal to the demand, and likely to be still more scarce in the market. I would therefore say

plant Ash in preference to any other hardwood when forming new plantations or filling up copses wherever it is found to thrive. In copses, on poor hilly ground, Sweet Chestnut and Hazel should be planted where blanks occur; in wet bottom land, Alder, Willow, and Poplar are the most suitable sorts to plant. On chalky lands the Hazel alone is sure to succeed best; it is a most accommodating plant, will thrive in almost every kind of soil, and is very profitable as underwood, always commanding a good price and ready sale where there is a demand for crate and hurdle wood.

OLD FORESTER.

### HEDGE BUSHES.

A HEDGE has been defined as "a thicket round a field to fence it." This, no doubt, is true, but I fear the rendering of the word thicket is so various that it really expresses but little. If a thicket may be interpreted to mean a close row of bushes or low trees of various kinds, I have a hedge round a small meadow adjoining my house. This consists of common Elder, Hazel, Blackthorn, common Ash, Wych Elm, Maple (*Acer campestre*), Spindle tree (*Euonymus europæus*), Hawthorn, Dogwood (*Cornus sanguinea*), and the Wayfaring Tree (*Viburnum Lantana*), interspersed with the common Dog Rose, the Blackberry Bramble, Bryony, and wild Clematis. Such a combination may appear somewhat startling, and in places, such as gardens, where space is a valuable consideration, and a certain amount of trimness in the matter of hedges must be observed, it would be out of character, but round a meadow where a foot or so of space is not of great moment, a variety of plants in a hedge is by no means to be despised. This particular instance is, of course, taken at hazard, and it must not be supposed that the growth of which it is composed is recommended as the best selection that could be made, but, nevertheless, so far as a pleasing appearance goes, and to a certain extent in utility, there are points in its favour not possessed by the common Thorn hedge. The Elder, though often found in hedges, is generally treated rather as a pest than otherwise, but I do not know that this should be. It is certainly not altogether a pleasant acquaintance at close quarters, but it is a tree growing rapidly to a good height and corresponding breadth, and one that affords good shelter. At the present time almost every branch carries a profusion of white flowers, which in contrast with the dark green foliage have a good effect, and later on in the season, when the masses of berries supply the place of the flowers the effect is sustained, if not heightened, as indeed it should be, as the fruit is both ornamental and useful. Following the Elder we have the Hazel, which, although not showing with such a contrast of colour with its flowers and fruit, yet, from the edible quality of the latter, must always hold a place second to none in our British hedgerows. The Blackthorn, although this season almost without fruit, is a tree that should occupy an important place, and in situations such as the one to which we are now referring it should not be overlooked. In the early spring before the leaves appear its pretty white blossoms herald the approach of the season, and these when not destroyed too quickly by the frosts and cold winds give place to an abundance of useful fruit in the common Sloe. The remaining trees in the list before us have no claim to attention so far as their fruits are concerned, but the wood of each one can be employed for a purpose to which the common Thorn would not be adapted. The Ash, the Elm, and the Maple, each has its uses, while the Euonymus and the Dogwood are turned to account in the manufacture of that very necessary little article—the butcher's skewer. The sprays of blossom on the Dog Rose Brier must be accounted sufficient to afford it a warm welcome in our hedges, and the Blackberry Bramble, with its load of luscious fruit in the early autumn, should by no means be banished. It is questionable, therefore, how far we are right in too closely confining ourselves to the almost universal Hawthorn hedge when there is such

an endless selection of suitable shrubs and trees that yield us both pleasure and profit.

RUSTIC.

### NOTES ON RECENT NUMBERS.

**Using home-grown woods** (p. 44).—I think there are two reasons which may account for "the deeply-rooted prejudice amongst workmen against using British woods for building purposes." First, that home-grown timber in a very great number of cases is used without having been properly seasoned, and so gains for itself a bad name. Secondly, that foreign deals are much easier to handle, lie better on the saw-pit, and are frequently much easier to work than good English Oak and other hard woods. In contract "jobs" (?) it pays best to put in the material which costs least labour. Where an estate carpenter is not of a very vigorous disposition he naturally prefers that which will be least trouble to himself; and, in reality, in many cases where Oak might well be used, and where there is a good stock of it, the employers are content to have deals put in to save expense for the moment. That our inferior home-grown timber (?), such as sappy or decayed trees, should compete with the foreign is not to be expected. I hope the cases may be few and far between in which the carpenter and the timber merchant have any understanding as to a commission on the amount of wood bought or sold, though it might not be the only instance in which a master was cheated by his own servant. I do not refer so much to the large dealers as to the smaller builders and tradesmen, who in some places are not always above suspicion in this respect.

### Trees in bleak, exposed situations

(p. 46).—I was noticing very carefully on the west coast of Ireland a short time ago the trees which seemed to withstand best the wild blasts of the Atlantic. In many parts of the mountainous districts one does not come across a "stick" of timber for miles together, except what is buried deep in the bog; consequently where a stem or a branch does put in an appearance, it is all the more noticeable. The Ash appears to stand against wind and sea salt the best of any, growing sometimes to a fine size. Next best was the Sycamore, then Beech, and then Lime. Though a large number of others had been planted along with these they had almost all failed, and, considering what they were exposed to, it was not much to be wondered at. Needless to say, the soil was peat, but in places very rocky. All the Conifers such as Spruce, Scotch, maritima, austriaca, Pines, &c., were pitiful to behold; but now that attention has been directed to re-foresting Ireland, those just mentioned are worth remembering for the purpose, even if only used as screens or shelters for others. They have the advantage of being easily raised from seed, and in many soils are apt to seed themselves about to such an extent sometimes as to become a nuisance; but one has to be careful in bare situations, as the birds, especially some of the crows, are fond of devoting the Acorns, Beech-masts, &c., to their own use and maintenance, and instead of young seedling trees, when one goes to look for them, one sees nothing but a lot of holes, just as if someone had been amusing himself with prodding the ground with an umbrella or walking-stick.

Sussex.

C. R. S. D.

**Wood of ornamental Conifers.**—Last season I had occasion to cut down one each of many varieties to obtain little sections for the Edinburgh Forestry Exhibition, and I was much surprised at the beauty of the wood of several kinds in its colour and grain, especially in the Japanese *Cryptomerias*, *Retinosporas*, *Thujas*, and *Cypresses*. Judging by the fine growth these trees make here, I think there is a good future for this country in this direction if proper attention be given to planting the most suitable trees. The Castlemartyr and Powerscourt woods are good illustrations of good management. The Killarney *Arbutus* wood remains unapproachable, and let it be considered what a great industry sprung from the plantings of one man of taste in former years; doubtless many tens of thousands have been reaped from that one sowing.—R. HARTLAND, *Cork*.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## ROSE GARDEN.

### OLD-FASHIONED ROSES.

WITH all deference to "J. C. C.," Hybrid Perpetuals, the first of which was only introduced in 1837, have no claim to be called old-fashioned Roses. It is these twice or thrice flowering varieties which have driven the true old-fashioned Roses all but out of gardens. The Gallicas nobody regrets, but the old cluster Roses, the Damasks and Damask Perpetuals, the Albas and Hybrid Albas, are more satisfactory shrubs than any of the exhibition varieties. The worst feature as regards modern Roses is the preference given to heavy, staring, and unnatural colours. We have far too many red Roses. A good free-flowering white would be an advantage as well as thoroughly hardy and vigorous kinds of the delicate colours of the Teas. Let us have all the varieties of Roses possible by all means, but do not let pretty small Roses, like the Scotch kinds and the dwarf Chinas, and the sweet-scented old summer flowering and flat Roses, be ousted by the comparatively scentless show types. For all purposes, except the exhibition table, many of the show Roses are useless as cut flowers, unless quite a large branch is cut. They are far too large. Then, again, why multiply varieties which can only be distinguished by experts? It would be better to discard all but a few very distinct types. Just at random, Prince Camille de Rohan, Charles Le-feuvre, Victor Verdier, La France, Comtesse de Serenye, Alfred Colomb, Duke of Edinburgh, Marie Baumann, and Madame Bel-lenden Ker are sufficiently distinct. Roses differing only from those by a shade or two of colour are not wanted, unless decided improvements in vigour of growth, richness of foliage, and freedom of bloom. How often in the catalogues is a Rose mentioned as not large enough for show purposes, as if mere size had anything to do with beauty. The fact, is the proper place to judge Roses is in the garden or in the house. A Rose can only be properly valued growing on its parent bush. To judge Roses in boxes only seen on exhibition tables is to judge the flowers under wholly unnatural conditions. I do not mean to say a word against exhibiting flowers in any way, or in any arrangement which will make them interesting and attractive, but only to point out that a flower which looks beautiful when cut does not necessarily grow on a plant which is attractive in harmony with the usual garden surroundings.

Then there is the cultural question, the most important of all. Love the red Roses and grow them as the president of the

National Rose Society does. Watch all their ways until you can tell almost what kind of flowers you will have, and can leave the wood and buds so as to produce just the size of blooms you desire, and all who have grown them will be willing to confess that, with the exception of perfume and perhaps beauty of bush, they beat all other Roses. But plant them as shrubs amongst other hardy plants, neglect their cultivation, or leave their pruning in inexperienced hands, and what wretched, shapeless, muddled of petals and speckled dull-coloured blooms they produce. Plant most of the old Roses in the same way and you will have fair flowers. My acquaintance with many of the old Roses is wholly with plants which have suffered from years of neglect and wrong treatment, yet there they are producing their wealth of beautiful flowers year after year under treatment which has killed the show Roses in the same border, or reduced them to miserable scrubs with one or two shapeless blooms. Which of all the show Roses will produce a wealth of leaves and flowers with no more cultivation than that usually given to an Elder bush as the old Alba does?

There is some amount of truth in the accusation that Rose growing of late years has not been all to the advantage of our gardens. Too much attention has been paid, as has just been said, to the Rose as an exhibition flower, and far too little to the development of Roses as bushes and climbing shrubs. Writers on other flowers are generally careful to distinguish border from show varieties, but if anyone asks in the gardening press for a selection of, say, two dozen Roses for garden decoration, he will nearly always be advised to plant show Roses instead of such kinds as Madame Plantier, the old White, the Maiden's Blush, Celeste, Madame Zoetmans, Madame Ardor, Madame Legras, the common Cabage, the Moss Roses, the Chinas, and the Bourbons. The Ayrshires should be trained up trees or high pillars, while the Evergreen and Boursault Roses can be made to form arches and arbours. To get really beautiful gardens we must get right away from the stiff, shaven, and shorn ideal which has been so long in vogue, and let our walks run from sunny lawns into shady avenues and thickets and under arches of climbers. The old-fashioned, poor mixed border annually dug over, raked, hoed, and periodically tidied up until all the best plants in it were either chopped or starved to death must never re-appear as a garden feature, but in its place we should have beds arranged so that groups of plants may present natural conditions of growth, the hand of art being only visible in the grouping. J. D.

**Rose Reine Marie Henriette.**—I am surprised that "A. D." should find any difficulty in getting this Rose to flower in a satisfactory manner. We have a plant of it on the Manetti stock covering a pillar 10 feet high, and it has sent out branches in other directions another 10 feet, and these have already flowered twice this season. I should not like

to say how many flowers it has on it at the present time, but I may state that it has been a fine sight. I can therefore assure "A. D." that it is not a shy flowering Rose either under glass or against a warm wall out-of-doors. Perhaps "A. D." has pruned it too hard. I only prune once a year and that in December. —J. C. C.

**Rosa Brunoniana.**—It is to be regretted that this Rose is not more plentiful in our gardens than it is. True, it must be a certain size before one can expect much return from it in the way of flowers, but when well established, its long growths, hanging over in loose festoons after having reached the top of its support, have an effect not easily to be forgotten. S. simplex is also of this type, but its flowers, though smaller, form much larger bunches, and have a delightful appearance when seen against a suitable background.

CANON HOLE, Caunton Manor, Newark, writes: "This is 'annus mirabilis' in the history of Roses. In my forty years of happy experience I never saw them so abundant and so beautiful; not an aphid to pollute, not a thunderstorm to dash them—quite as winsome and worshipful in the hedgerows as in the garden; the Teas in the latter are exquisitely pure and delicious."

## INDOOR GARDEN.

### FLOWERLESS STEPHANOTISES.

FACTS which from time to time have come under my notice induce me to think that, in many instances, the flowerless condition of the Stephanotis is due to too much vigour. Plants set out in borders, in which they get a free root run in good soil, for some years often fail to bloom well until the compost has become filled with roots. In such cases, a check of some kind would often cause the production of bloom-buds. It was stated some time ago in one of the gardening papers that a large Stephanotis being syringed with a too strong solution of some insecticide, the whole of the leaves dropped. The owner determined to root it out, but was persuaded not to do so, and, to his great surprise, after an interval it broke again, and flowered very much better than it had hitherto done. When Mr. Carr, a successful exhibitor at London shows, was at Byfleet Lodge, he had a large Stephanotis in a pot, which, being wintered in an unusually low temperature, dropped its leaves. It was naturally thought that an irremediable injury had been inflicted on it, but, on the contrary, it flowered grandly, pushing out bloom at every joint. It was thought to be one of the finest specimens ever seen at London exhibitions, and, as a fact, a large nurseryman offered £20 for it. It had, I am told, nearly 2000 trusses of bloom on it.

But the Stephanotis appears to possess a vitality and power of endurance hitherto unsuspected by plant growers generally. I myself should never have thought that a plant commonly considered to be tender would retain life under the following circumstances: Some young plants were set out in a good border of prepared compost, were treated in the ordinary way as regards temperature, and made excellent growth, but did not bloom. The house containing them changed hands, and the Stephanotises were allowed to go almost uncared for; so little account was taken of them, that the frost got in on one or more occasions. I saw them, and thought by the shrivelled appearance of the foliage they were ruined; indeed, they looked more dead than alive. Strange to say, however, they are not only not dead, but are growing again well, and are showing bloom at every joint, which one may almost regard as a marvellous resurrection. That the Stephanotis is the better for a rest all growers of it are aware; but here we have the fact of a plant being brought to a standstill in a manner which, if it were done on purpose, would be considered as but little short of an act of insanity. Instead, however, of being fraught with disastrous consequences, this severe check has brought a flowerless plant into a blooming condition.

THE QUESTION which concerns Stephanotis growers is whether these instances furnish data for the more successful blooming of shy flowering plants. I think they do, and that a judiciously applied check would



often work wonders. It is a common complaint that large specimens do not bloom freely, and without attempting heroic measures some means might be taken to put that check to growth which appears to result in a high state of floriferousness. The *Stephanotis* is of a very free-growing nature, and when in the enjoyment of a free root run and supplied with congenial atmospheric conditions probably suffers from a plethora of sap, and consequently want of that hardness of tissue which is indispensable to the formation of flower-buds. The hue of exuberant health and vigorous growth often deceives the grower, who imagines his plant to be enjoying the conditions best suited to bring about a good blooming condition; whereas his high culture is driving it away. A somewhat lengthened period of dryness at the roots with what might be termed an abnormally low temperature would probably induce the most stubborn plant to perform its allotted duty of yielding bloom.

J. C. B.

## WINTER-FLOWERING PELARGONIUMS.

No time should now be lost in getting plants that are destined for a winter display into their blooming pots, for the amount and quality of flowers they produce much depends upon the pots becoming well filled with roots by late autumn. In a general way 6-inch pots are large enough, and good blooms can be had in some even smaller, for it is better to rely upon keeping up the flowering power by means of occasional doses of liquid manure than to run the risk of overpotting. Those who require, however, larger specimens for conservatory decoration will obtain very good results by using 8-inch pots, but two-year-old plants which have been cut back in spring should be employed. Plants that were used for bedding out the previous year will do admirably. Where double and semi-double varieties are used for winter bloom, old cut-back plants are, I think, better than young ones, as they appear to bloom with greater freedom. In periods of dry weather watering must be strictly attended to, for although Pelargoniums bear drought better than most plants, they lose in freedom of growth if allowed to remain dry in a hot time. It is indispensable that they be grown in the full sun, and for this reason it is a good plan to plunge the pots to the rims in ashes or some light material, thus economising labour whilst ensuring the roots against the desiccating effect of a parching atmosphere.

The Pelargoniums now in cultivation are mostly distinguished by dwarf compact habit, so that naturally they assume the form most desired in the case of pot plants, but occasionally one or more branches take overmuch strength to themselves, and if not interfered with will go away so strongly as to deprive the remainder of their proper supply of sap, so that lop-sided, ungainly-looking specimens are the result. These must be stopped in time, which will preserve a correct balance in the growth of the shoots, so that each one attains its proper strength, thereby ensuring the formation of comely specimens.

A great deal of the success obtained in the culture of winter-blooming Pelargoniums depends upon their never failing in nourishment, so that when they become root-bound they should get a top-dressing of concentrated manure, or be occasionally watered with liquid manure of some kind. With timely feeding good-sized plants can be had in 4½-inch pots, with trusses quite as large as if bigger pots were used. If very large heads of flower are desired, the point of the shoot should be nipped out as soon as the bud is formed, which throws the whole force of sap into it. A temperature of about 50° is quite enough during the winter; if more than this is given the plants are apt to run to leaf.

J. B.

***Ipomæa rubro-cærulea*.**—I was pleased to see attention directed to this *Ipomæa* by means of a coloured plate lately given in *THE GARDEN*. It is a handsome plant, and one specially valuable because it blooms in winter. Some specimens of it here were continuously in flower from October till the end of February, and scattered blossoms of it were produced for a couple of months later. The treatment accorded it was much the same as that recommended in *THE GARDEN*, except that as smaller specimens

were required, the plants were limited to 6-inch and 8-inch pots. Small twiggy branches were placed in the pots for the plants to climb over, and they soon covered them with slender shoots, from all parts of which blossoms made their appearance. In such small pots it was, of course, necessary to stimulate the plants by means of a little manure water when the first burst of flowers showed signs of diminution, in order to maintain a display for so long a period. The white-flowered form is very pretty, but the delicate blue of the type attracts a greater amount of attention, an additional feature being the indescribable tinging of red that the flower assumes when on the point of decay.—H. P.

***Begonia nitida*.**—I find this *Begonia* to be a capital variety for winter flowering. The blooms which I send were taken from plants that have been in flower since Christmas. It requires a stove temperature in winter, but in summer it does well in a greenhouse. Cuttings struck now and grown on make nice plants for flowering next winter. It is a most profuse bloomer even in small pots, and it is sweet scented.—R. G.

***Plumbago capensis*.**—We have at this establishment a very interesting method of prolonging the flowering period of this well-known Leadwort. It is planted out against a partition in the Acacia house, which separates that place from the Palm stove. A hole has been made in the partition to admit about half the plant into the Palm stove. That in the former house is just showing for flower, while that in the latter has been in bloom for some time.—H.

***Mandevilla suaveolens*.**—Those who are not well acquainted with climbing plants and who intend making a selection for greenhouse work should by no means overlook this old favourite. Its flowers are large and pure white and sweet scented. It belongs to the Dogbane family, and was introduced from Buenos Ayres nearly fifty years ago under the name of Chili Jasmine. I am informed that it has been grown outside in the warmer counties with fair success.—H. C.

**Diseased *Lapagerias* (*W. F.*).**—Young shoots of *Lapagerias*, such as those sent, are liable to injury from two causes, viz., too much exposure to the sun, where no shade is used, or exposure to cutting draughts when situated too close to where air is admitted. *Lapagerias* should be syringed freely every day during the growing season, but the syringing ought to be done in the afternoon, not in the morning, or mischief may occur through the sun shining forcibly on the young leaves whilst wet.—T. B.

***Kalanchoe grandiflora*.**—This belongs to the Houseleek order. Its flowers are yellow and give off a most delicious perfume, reminding one of the sweet-scented Honeysuckles of our hedgerows. It should be grown in a cool house and kept on the dry side during the dormant months, but when growing it requires plenty of water. When potted in loam with a little sharp mixed sand with it (taking the precaution not to give too much pot room) the results are usually satisfactory. It is a native of the Mysore country, and is figured in the *Botanical Magazine*, tab. 5460.—H.

## SHORT NOTES—INDOOR.

***Eucharis bulb disease*.**—The diseased *Eucharis* bulbs which I send you have been potted for over two months, and kept in a temperature of from 65° to 70° at night. What is the matter with them?—J. McN.

\* Nothing can be seen on the *Eucharis* bulbs sent but the common fungus named *Penicillium crustaceum*. This fungus generally grows on injured plants, and probably cannot incite disease in sound tissues.—W. G. S.

**Ammoniating the atmosphere.**—In plain English this means (as explained in *THE GARDEN*, p. 527) "three or four barrow-loads of stable manure" in the house in which plants are grown, or, as the same writer observes, in the case of Orchid houses, "by keeping a pailful of strong manure standing on the hot pipes, renewing it every day." This feeding of plants in a manner that would be enough to drive the proprietor off the premises and veto Orchid culture altogether is a wrong one. The rational way in which to feed plants is through their roots.—J. S. W.

## FLOORE, WEEDON.

It was on a not very agreeable day in May on my way to the great Whitsuntide exhibition at Manchester that I availed myself of an oft-repeated invitation from Mr. E. G. Loder to visit his garden, of which all who are interested in herbaceous plants have heard so much, and of which I may truly say is the most wonderful garden of its kind that I have ever seen. A garden which contains upwards of 3000 species of plants, enriched by the owner's own personal experience and by the rich collection of Mr. Harpur Crewe, must needs be interesting. Weedon is a cold district, and far away from any influence of the sea, not subject to fogs, with a rainfall lower than that of most places, and consequently in many respects favourable for the growth of alpine plants; and the success which has attended Mr. Loder's culture of these may be attributed in no small degree to these favourable conditions. The soil is heavy, and, as a consequence, there are some things which cannot be induced to grow; few, comparatively speaking, of the Lilies flourish here, while, as will be seen in the sequel, many things which others fail to grow flourish here marvellously. Floore itself is on partly undulating ground, of which the most has been made. Mr. Loder is a man of many tastes, and this you see as soon as you enter. On the lawn is placed a large telescope, with which he has done good work. In the park you see emus, which have been bred there, giving a strange appearance to it. Close by the garden is a museum, in which are to be found trophies of Mr. Loder's prowess, for he has been a "mighty hunter"; has faced the "grizzly" in the Rocky Mountains, has hunted the moose in Canada, and I know what wild hunters he has not travelled with, especially in mountainous countries; he knows every part of Switzerland, has traversed the Dolomite country, the Himalayas, the dry, arid homes of the North American Cacti, and has brought home or sent home many tokens of his energy as a botanical collector. The first novelty that attracted us was the manner in which that most perfect of all fences, the ha-ha, had been utilised. The wall of which it was composed and a small border in front of it had been fenced off with a low fencing, so that neither of them could be seen from the house, and here was a luxuriant growth of such plants as delight in this kind of position, such as *Ramondia pyrenaica*, *Saxifraga longifolia* and similar species, *Erinus*, *Edelweiss*, and *Linaria*; in such places, too, many of the *Dianthi* are at home, and it is astonishing how many plants will seed and fix themselves in positions where there does not seem room for anything to grow.

On passing from this you turn away to the right through a shrubbery, which may well be described as a wild garden; into it neither spade, hoe, nor rake ever come; the weeds are kept under by hand-weeding; and while, as might be expected in such a congenial spot, you are ever coming upon masses of flowering plants which surprise and delight you, here in one spot is a grand lot of the fine North American Lady's Slipper (*Cypripedium spectabile*); there a quantity of the *Erythroniums*, the giant, white, yellow, &c.; then a lot of *Primulas* rejoicing in a position just made for them, such as *Primula obtusifolia*, *Munroi*, &c. Then emerging from this you come to a grand herbaceous border wherein are all kinds of good things—*Aquilegias*, *Delphiniums*, *Dic-tamnus*, *Doronicums*, especially the grand one named Harpur Crewe. These are kinds not often met with; in truth, there is hardly a herbaceous plant of any value which is not to be found here, ever affording much to interest. Here, too, are a series of small frames in which are sown seeds of all kinds, bulbs planted of which, perhaps, not much is known, and from whence young plants are placed in various positions in the grounds. Passing away from this, one comes to that which is the chief feature of the place—the alpine garden. Now, I have seen many alpine gardens. I have wondered at the marvellous skill displayed in the construction of Mr. Backhouse's, of York; the tastefully arranged rockery at St. Alban's Court, near Wingham; that of Mr. Whitehead at Bickley; Mr. Brockbank's at Didsbury; the public ones at Kew and Glasgow; but I very much question if I have ever seen one that more fulfils my idea of what a rock garden ought to be than that at Floore. The rocks, which were placed there by Pulham, of



Broxbourne, are naturally and judiciously made, and the whole rock garden occupies the brow of a hill, from whence it descends into the valley; there is but one walk down the centre, so that the evil which one finds in so many places of a number of walks is avoided. If you wish to examine a plant, you must do as you would in its natural habitat—step on the rocks to do so; and what a wealth of beauty there is, what varied forms, what gems of colour, what luxuriance of vegetation; to give their names would be useless, for what is there good and rare that is not to be found there? and how well are the special wants of each provided for.

Perhaps a detailed account of the manner in which this is done with a few plants usually accounted difficult to manage may be interesting, not only as showing the care bestowed on them, but also as suggesting to some who have tried these plants in vain means whereby the difficulties may be overcome. In one spot in the rock garden is a beautiful little plantation of *Gentiana bavarica*, of which it is said in "Alpine Flowers" that the flower is even a shade more lovely than *Gentiana verna*, and that it is to be seen in perfection near the monastery of the Simplon, where it flourishes in company with *G. verna*, although in a different position; for whereas the latter is found in dry ground, *G. bavarica* "is seen in perfection in spongy, boggy spots, where some diminutive rill has left its course and spread over the Grass, not covering it, but so saturating it, that when you walk on it the water bubbles up all round." This suggests that it is best to plant it on the margin of a rill that falls from the rockwork, taking care that no Couch Grass, Cotton Grass, or other strong-growing subjects get near the spot, but it is not every rock garden that has a rill. Mr. Loder's has not, but he has managed to grow this *Gentian* to perfection. He has made a peat bed on the margin of the rockwork on a flat place, and at the back of it he has placed a large piece of rock, and behind that, concealed from sight, is a hole that will hold a couple of pots of water. This is kept constantly filled; the water oozes out into the peat bed, and so keeps it in the exact condition described in "Alpine Flowers." I have seen it flourishing in similar spots on the Col de Balme over the Chamounix valley. It will thus be seen how very important it is to study the peculiar wants of each plant, for its great similarity to *verna* would lead many to suppose that they both required similar treatment, and one may point to Mr. Loder as an illustration of the concluding paragraph in the notice of *G. bavarica* in "Alpine Flowers": "To try to establish it in such positions as it is found in naturally will prove an interesting experiment for those having opportunities of doing so," for he has tried it and succeeded. Take, again, another plant with which much difficulty has been found—the curious *Phyteuma comosum*. This is essentially a "chink plant," so deeply imbedded in the chinks of rocks, that it is impossible, Mr. Loder says, to get it away without chiselling away the stone, and it is found in a horizontal position, so that water does not come down on to the roots. Mr. Loder has successfully managed the plant by placing two heavy stones the one on the top of the other, the upper one somewhat the larger, and planting the *Phyteuma* in the chink thus formed where the stones meet; as the larger stone overhangs the other, rain does not get at the plants, and, as a consequence, they are looking very healthy. Although not strictly bearing on the alpine garden, I may say that I saw here the finest lot of plants of the New Zealand Forget-me-not (*Myosotidium nobile*) that I ever saw, and their history is somewhat curious. Mr. Short (whom I was glad to see as an old friend installed in a place so thoroughly congenial to him) was getting home some plants from a correspondent in New Zealand. I forget now what the plant was, but they were to come in a Wardian case, and, on writing to his correspondent, he said, throw in a handful of the seed of *Myosotidium* into the bottom of the case. This preserved them in a fresh state, and he believed that every one of them had germinated, the difficulty having hitherto been to get the seed to grow. I fear, like a good many of the New Zealand plants, it will be on the verge of hardy, but not able to stand severe winters. *Ramondia pyrenaica* was also successfully grown, although I do not think in such luxuriance as at St. Alban's Court

(my friend Mr. Hammond's); the very rare white variety was here also, but as yet not in such vigour as the type. *Arnebia echioides* was also in great vigour, while *Primulas* in great variety were flourishing in all aspects. But, as I have said, to mention all the good things here would be simply to take the best of our catalogues and transcribe them, and my object has simply been to show with what care and intelligence the cultivation of these beautiful and interesting plants is carried out; Mr. Loder not merely has a garden, but also delights in it, and contributes by his supervision to much of its success.

I had almost forgotten to mention the hardy Cacti which Mr. Loder himself collected in America, and on which he gave a very interesting lecture some two years ago at Burlington House. Some of these were planted out under a ridge of rock and looked well, although I do not think Mr. Loder was quite satisfied with them. There was a large number in frames, which seemed more happy. In the houses there was a large number of plants which one does not often see, while in borders in the kitchen garden were quantities of the bulbs which once belonged to the late Mr. Harpur Crewe, and which were continually giving surprises.

Of course such a garden would require a much longer time thoroughly to examine, and still longer to describe, but I hope that I have said enough to show that there are few gardens to equal it in interest, and that Mr. Loder may take rank as one of our most successful growers of herbaceous and alpine plants.

DELTA.

## GARDEN DESTROYERS.

### SNAKE MILLIPEDES, OR FALSE WIREWORMS.

(JULIDÆ.)

AMONG the creatures commonly called insects, but which do not really belong to that class, are the snake millipedes, or, as they are sometimes called, false wireworms; this latter name is, however, a very bad one, as these millipedes are not related in any way to, and do not even bear much resemblance to, wireworms. I would not have mentioned the name, only I was afraid some persons who may only know the creatures by it would not otherwise understand what I was writing about. The snake millipedes at times do a great amount of damage in gardens, and are much more injurious to plants than they were supposed to be formerly. They usually feed on the roots of plants, particularly those which are soft and more or less fleshy. Strawberry plants, Pansies, Lilies, and other bulbs, Anemones, Antirrhinums, Stocks, Peas, Beans, Cabbages, Potatoes, and Carrots are frequently attacked by them. They are also very fond of ripe Strawberries, which is by no means a favourable trait in their character. These are very difficult pests to get rid of, living as they frequently do among the roots of a plant where no insecticide can touch them; and even if they could be reached by any fluid which would kill them, the plant itself would in all probability be severely injured. Some persons have recommended laying nitrate of soda or soot round the plants and then watering them thoroughly, but it is doubtful if this is of much use. Burying small bundles of damp (not wet) Moss or laying small pieces of slate or tiles or Cabbage leaves on the ground near the plants would probably prove very useful as traps, as they are fond of creeping into or under such things for shelter. If the ground

is very much infested with these millipedes, the best thing to do would be to fallow it for some months, keeping it free from weeds and the surface frequently broken up so as to enable birds to get at them. A good dressing of gas or hot lime towards the end of the fallow would, no doubt, kill any which remained in the soil, as they would be naturally much weakened by having had very little to feed on for some time. Raising Strawberries on wire supports when they are ripening, as is often done, would probably be effectual in keeping them from attack. Laying down straw, spent tan, &c., under the plants cannot but encourage these pests.

When these creatures infest greenhouses, as they sometimes do, particularly the flattened millipede (*Polydesmus complanatus*), fig. 1, they may be trapped by laying pieces of Potatoes slightly scooped out, with the hollowed part downwards, near the plants, or small garden pots with a piece of Potato

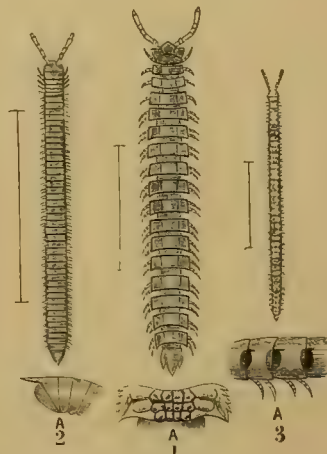


Fig 1, the flattened millipede; 1a, one of the joints; 2, earth snake millipede; 2a, side view of tail; 3, spotted snake millipede; 3a, side view of joints of body—all magnified.

or Carrot placed at the bottom and then nearly filled with damp Moss laid on their sides in the haunts of these creatures. These traps should be examined every morning. The flattened millipede is, I suspect, often introduced into greenhouses in Moss, and consequently any Ferns, &c., which may have the infected Moss placed around them suffer. With due care these millipedes should not be allowed to be a pest in greenhouses, but at times they effect an entrance and do considerable mischief before their presence is noticed. The snake millipedes should not be confounded with the centipedes, which are very nearly allied to them, and, like them, have a great number of joints all bearing legs, but which are very beneficial in gardens, feeding on various small insects, grubs, slugs, and snails. The centipedes may, however, always be distinguished by being of a much lighter colour—a pale yellowish brown—and by their much more rapid movements. There are several kinds of snake millipedes, but they are in all cases sluggish in spite of their great number of



legs. The Myriapoda, the class to which the snake millipedes belong, is very nearly allied to the Insecta, but its members differ from those in the latter class in several well-marked characters. They never have wings; they do not undergo the same transformations as insects do. When in the perfect state, insects (with a few exceptions) have a well defined head joined to a thorax, which alone bears legs, and to which again the abdomen is attached by a narrow waist. With the millipedes the joints which succeed the head are all very much alike, and each bears legs, and the number of segments or joints altogether are much greater than those of any true insect.

The snake millipedes are not entirely vegetable feeders, but are said to prey upon worms, small slugs, grubs, and decaying animal matter, so that they might justly be considered as beneficial in gardens if they would confine themselves to such a diet, but unfortunately this is not the case. The female snake millipede deposits her eggs in the earth, the young hatched from which have very few legs (only three pairs), and their bodies consist of only seven or eight joints; these, however, as well as the legs gradually increase in number. They do not arrive at maturity until they are two years old; during this time they change their skins several times. There are six kinds of snake millipedes which are known to be injurious to plants under cultivation; all are long, narrow, nearly cylindrical creatures, composed of a great number of horny joints, each of which bears two pairs of legs, with the exception of the head and last two joints of the body, which have none, and the first three joints of the body, which have only one pair each. These legs are composed of six joints, and terminate in a single claw. These creatures, notwithstanding their great number of legs, are very sluggish in their movements, as already mentioned, and in moving they appear to glide rather than walk. When disturbed they generally curl themselves round into a ring; their heads are furnished with a pair of six-jointed, somewhat clubbed antennæ. Their eyes are far from prominent, but can easily be distinguished under a magnifying glass; their jaws are weak, and not fitted for biting hard substances. Perhaps the commonest and most destructive species is the spotted snake millipede (*Julus guttatus*), fig. 3. It is about half an inch in length when full grown, and is of a pale yellowish colour, somewhat glossy, and has a row of bright crimson spots down each side. Its body is composed of nearly fifty joints, each of which, with the exception of the first four and the last five, have a red spot on either side (fig. 3a). This species attacks the roots of various plants, and sometime ripe Strawberries.

**THE EARTH SNAKE MILLIPEDE** (*Julus terrestris*), fig. 2, is another very common species. When full grown it attains the length of about an inch and is of a brownish leaden colour; the last joint but one of the body terminates in a

large spine (fig. 2a), which hides the last joint when seen from above. This species very much resembles the London snake millipede (*J. Londonensis*), but may be distinguished from it by the spine alluded to. The flattened millipede (*Polydesmus complanatus*), fig. 1, is about three-quarters of an inch in length, and is of a pale brownish lilac colour; its body is composed of nineteen joints, each of which, with the exception of the last, is surmounted by a wide flat horny plate (fig. 1a), with notched edges and with several small tubercles in the middle; each joint bears two pairs of legs, except the first three, which have only one, and the two last, which are legless. The legs, like those of the snake millipedes, are six-jointed and terminate in a single claw. The head is angular and has no visible eyes. The antennæ are seven-jointed. This species is very destructive to various plants, and is often a great nuisance in greenhouses.

G. S. S.

#### MARKET GARDEN NOTES.

**Cherries** are now being sent to market in large quantities. The earliest kinds are a moderate crop, but of late dessert sorts, and especially Morellos, the crop is heavy. Bush fruits are a capital crop, and are now ripening fast; they are gathered before they get over-ripe, as they travel better.

**Apples, Pears, and Plums** are generally good crops, and the trees exceptionally vigorous and making an extra amount of wood growth. The annual shoots of all kinds of dwarf and trained trees, such as espaliers, cordons, &c., need shortening so as to expose the fruit as much as possible to the ripening influences of sun and air, and by checking the over-production of wood growth the buds at the base get better matured for next season's crop than they otherwise would do. Summer pruning is unquestionably of far more importance than winter pruning, for, if done in time, a deal of waste of force is avoided; by means of it winter pruning is reduced to a minimum, and there can be no doubt that, where the soil is either naturally or artificially drained, and fruit trees receive the requisite attention in the way of thinning superabundant growth and crops at the proper time, so that they are not exhausted, a crop of fruit every year would follow as a matter of course. Fruit trees rarely fail to produce plenty of bloom, and on well ripened wood a considerable amount of cold is needed to destroy it.

**Asparagus** is over for the present season, but it must not on that account be neglected, for on the manner in which it perfects its top growth will depend the strength of the crown for next year's crop. In this locality where we get the full force of south-west gales some precaution is necessary to prevent the tops being snapped off at the base when fully grown. I find good stout Pea stakes to be a great safeguard if driven firmly in between the plants, as the tops get so interlaced with the twigs that they are more immovable than if tied to stakes, and they have the advantage of being more fully exposed to light and air, without which growth of any kind is to a great extent useless.

**Broccoli** is now being planted on land cleared of early Peas, Potatoes, &c. Adam's Early White, Snow's, and other winter and spring sorts are the kinds that claim attention first. The later ones in this locality if planted by the end of August are quite large enough to produce good heads in April and May, and stand the frost better than if earlier planted.

**Brussels Sprouts** are an excellent field crop, and can hardly be grown too strongly, for, with a good variety, the longer and stronger the stems the more sprouts there are, and by giving plenty of space between the rows and plants a heavy crop may be relied on; 3 feet from row to row and 2 feet plant

from plant is the usual distance in market gardens here.

**Cabbages** are being planted in large quantities for autumn and early winter use, and large breadths of sturdy young plants from the earliest spring sowing may now be seen where only a few days since a crop of early Potatoes was growing, a rapid rotation of crops with high culture being the invariable practice with market gardeners. Cabbage seed is being sown now to produce plants for early autumn planting. As young succulent Cabbages are in request the whole year round and as we seldom get very severe frosts, the hardiest kinds of Kales and winter greens are not so much planted with us as they are in more northern counties.

**Celery** is now claiming attention; trench making and manuring are being pushed forward. Single rows are preferred to other modes of culture. The white varieties for early crops and the solid red for winter and spring are the rule here, and the best manure that can be got is used for the Celery crop.

**Lettuces and Endive** are now mostly grown without any transplanting, as any check to growth is thereby avoided, and in hot weather premature running to seed is prevented to a great extent. The ridges between Celery are usually utilised for salad crops.

**Leeks** are being planted out for a main crop either in trenches, like Celery, or on the level, but let deeply into the soil by making large holes and dropping the plants down with just enough soil to cover the roots at first, filling in as growth progresses. They are usually most in demand in spring when Onions get scarce.

**Potato digging** is being actively pushed on in this quarter; early kinds being good are sent to market as soon as possible so as to get other crops into the ground; kidneys of the Ashleaf type and the Early Rose are the favourite kinds in this district. Thus far we have had no trace of disease, and late kinds promise to produce heavy crops. Nearly all sorts have made an extra amount of haulm this year, and dry sunny weather is needed to mature the tubers.

**Turnips** for main crops are now being sown; only the white varieties are saleable here. They are drilled in after Potatoes, and but little preparation of the soil is needed. If fly attacks the seedling plants a dressing of soot is applied; this, besides putting a stop to the fly, acts as a manure as well.

**Tomatoes** are somewhat largely grown in this locality; walls, fences, and shelters of any kind are utilised in this way, and in fine seasons heavy crops are ripened by planting in the open and training the plants to stakes, keeping them thin of growth by cutting away unfruitful shoots. The variety in most favour is The Conqueror.

**Vegetable Marrows** are now growing freely, and have mostly had a mulching of litter placed over their roots in order to keep the soil moist. This crop, that used to be largely grown on manure heaps, is now grown far more successfully on good soil like other crops; the plants being thus treated are more fruitful than when rendered gross by over-feeding.

Gosport.

J. GROOM.

#### TREADING THE SOIL.

I ALWAYS tread thoroughly between freshly planted Asparagus just after the young tops show above the surface. Our plantations of Strawberries are always made in the spring, and I never neglect to tread round the plants within a fortnight after they have been planted. In the case of seed beds made on newly dug ground, I always tread the surface before sowing, regulating the amount of treading in every case according to the condition of the surface soil; the drier it is, the harder we tread, always avoiding the operation when the surface is wet. In the case of ground dug up in winter, and which has remained undisturbed for several months, we dispense with treading altogether, as, owing to the action of rain and the length of time during which it has lain unmoved, the surface is quite as firm as we could wish it to be. In the flower garden our practice in no way differs from that pursued in the kitchen garden; our beds, being filled with spring flowering



plants, have to be fresh dug in order to prepare them for their summer occupants, and if the soil is in any way dry at planting time, it is sure to be lighter than is good for the plants, so within a week or so after the beds are refilled, every foot of the surface is made firm by treading with the feet or with wooden rammers. Our German Asters were all treated in this way, and so was a border of Aquilegias, and I am quite sure that all the plants so treated were benefited by the treading. The character of the soil must decide the amount of consolidation to be given. A naturally light soil will bear more treading than a heavy one before it becomes so close as to shut out more air than is desirable. J. C. C.

## WORK DONE IN WEEK ENDING JULY 21.

JULY 15.

CONSEQUENT on the long-continued drought, garden operations are necessarily of a very restricted character, the bulk of our labour now being watering and fruit-gathering for preserving. Fruit trees, Roses, flower beds, and the more important vegetable crops, such as Peas, French Beans, and Celery, are watered daily, so far as time will allow. Shrubs, too, that were moved last winter, though heavily mulched, show signs of suffering from drought, and, much against our will, we have to-day had to water them. The fruit from the earliest plot of Strawberries being all gathered, a good watering has been given it, to aid the plants to throw out runners that are needed for planting out in autumn. Potted Cinerarias, Primulas, and Poinsettias. Gave more space to Chrysanthemums and placed sticks to a few of the bush plants. Cut out a few scalded berries from Lady Downes Grapes. The fruit has just begun to colour, and the border has therefore had another heavy watering, Beeson's manure being previously sprinkled over the mulching at the rate of a good handful to a square yard of ground. Abundance of air is now given night and day, and on cold nights fire-heat sufficient to keep the temperature from falling below 65°.

JULY 16.

The work of to-day has been almost entirely a repetition of that of yesterday, and there seems so little prospect of rain coming that watering must still be continued. Gathered Currants and Raspberries for preserving. Picked bad flowers off Roses and gave them a good syringing. Tied up Dahlias, Liliun auratum, and a few tall herbaceous plants, and gave to those that were suffering most good supplies of water. Phloxes, Spireas, Delphiniums, and Potentillas are kinds that soon hoist the drought signal of distress. Planted out two other lots of Melons, one in house and the other in frames on a hotbed composed of leaves and litter. Stopped laterals on Vines in two of our latest vineries. We never like the growths to get overcrowded, for often to that state is attributable their being attacked by mildew.

JULY 17 AND 18.

Dry as ever. Watering and gathering small fruits for preserving. Hoeing amongst all vegetable crops that have not been mulched. Prepared ground for sowing winter Spinach, and a south border on which to sow the first lot of winter Lettuce, black-seeded Bath Cos being our favourite variety. Clipping Grass verges of walks and weeded the same. Mowing is now discontinued, unless cutting the flower-stems off Plantains be called mowing; that work has to be done as frequently as if the weather were ever so moist. Began to cut back for the second time such new growths of Pears on walls as are not required for laying in at the winter pruning. Most of the trees both on walls and standards are so well fruited, that but little new growth is being made, and we help these trees by washing them overhead with garden hose, and this is also an excellent way to root-water, though it cannot be carried out in all cases, as the hose will not extend to the distance of many of the trees. As it is outside, so it is with reference to indoor work; it is principally watering and syringing. The latter operation is of first importance as a remedy and preventive against thrips and spider, both of which pests are extra troublesome this dry, hot season. Early Peaches and Vines that are cleared of fruit are heavily syringed daily, and

the borders are as well cared for in regard to water as they were earlier in the season when the fruit was swelling. Watered Vines, and as the new fermenting material that was added to the plunging bed has caused it to get rather too hot, the plants were lifted up and set down again very lightly to admit of a portion of the heat escaping by the sides of the pots; as the bed cools down the leaves will again be pressed firmly round the pots. Stopped laterals and thinned out the strong fruitless growths of Melons and Cucumbers. Cleaning up generally.

JULY 20 AND 21.

Rain threatens, but does not come, and artificial watering has been continued. As showing how severe the drought is now getting in this county, Apples and Plums are dropping badly, and some of the trees look as if they would die outright. Last year's rainfall was 6 inches under the average, and this fact, coupled with the present drought, is sufficient to account for the injury to the present year's fruit crops, and for which there is virtually no remedy, except that of mitigation for loss of fruit on such large trees by watering and mulching the smaller ones that are bearing large crops of fruit. Being dull, we have planted out other late Broccoli and sown the last batch of French Beans, and dug up all the Early Ashleaf Potatoes, and the ground is now being dug for planting on it Curled Kale or Borecole. Pegging down and pinching bedding plants, and tied up sub-tropical plants. Clipped Privet and Cupressus Lawsoniana hedges, and completed the edging and cleaning up of walks. Finished cleaning and top-dressing Gardenias and other stove plants, and began to re-pot Roses for forcing. Tied up tuberous Begonias and double Petunias that are intended for vases in rooms. Marguerites, Fuchsias, and Pelargoniums that are intended for the same purpose not being required for some time to come, the flowers have all been picked off to get more growth into the plants. Cut away the first layered lot of Strawberry plants and began potting them. Our staple soil is a loam of moderate texture, neither heavy nor light. A few bones, a small quantity of charcoal, and a bushel of horse droppings to every six bushels of loam, effective, but not bulky, drainage of pots, and firm potting are essentials as regards successful culture. HANTS.

## HARDY FRUITS.

MULCHING and watering now claim our constant attention, and well the trees will pay for the timely application of a good layer of half rotted manure or stable litter, which should have an occasional drenching with the hose during the continuance of this brilliant weather. Three weeks have now elapsed since we had any rain, and although the fruit has not yet shown any signs of suffering, we keep the hose constantly at work from 6 o'clock in the morning until 8 o'clock at night. Peas and late Strawberries which have been well mulched receive attention by day, but we do not allow the water to touch the foliage during the time the sun is upon it. When it gets low and there is no fear of scalding, the overhead bath is freely administered to fruit trees of all kinds, notably to Peaches and Nectarines on south walls, which cannot easily be overwatered. Also to Strawberries now showing a strong disposition to mildew and red spider. The two good old late kinds, Elton, still one of the best for preserving, and Oxonian, are extensively grown in this and the adjoining counties, and under good management in ordinary seasons they keep up the supply until about August 20. Here we plant them on north borders, mulch with stable litter before they come into flower, and truss the fruit as soon as it is well set. The old stools have three, in some instances four, sticks a foot or 15 inches in length placed round them; then a piece of matting 9 inches from the ground forms the truss which supports the fruit in a position where it is safe from slugs and snails, while full exposure to sun and air favour perfect ripening and long keeping after it is fit for use. Every bed is netted to circumvent feathered enemies, and as some of the walls are furnished with Morello Cherries and late Currants, the nets supported on slating battens run from the front of the border to the top of the coping. To

some this mode of management may appear tedious and expensive, but such is not the case, as good sticks will last three or four years. The nets, kept clear of the ground, dry quickly after rain, and the evening bath in dry weather swells every fruit to perfection. The Raspberry, another moisture-loving plant, also revels in a heavily mulched border and an evening shower, which may extend to an occasional deluge where water is plentiful, but on no account should spade or fork be introduced, and the removal of weeds should be performed by hand in preference to the hoe. When well planted and mulched annually, Raspberries can be kept vigorous and fruitful for an indefinite number of years. The old canes should be cut out as soon as the crop is over, and the young ones, thinned out to a reasonable number, tied to the stakes or wires to protect them from injury during the time they are forming and ripening up their fruit-bearing buds for another year.

## PEARS

On walls are this year either much too heavy a crop, or a complete failure. Where too thickly set they should be well thinned with a pair of scissors, the number left to ripen being regulated by the size which well-grown samples of the different varieties usually attain. The finest and best shaped fruits in each cluster are now sufficiently advanced to keep the lead, and Nature having pretty well relieved herself, all small, imperfect, and badly placed fruits should, without loss of time, be removed. All breastwood must, of course, be broken out, and leading shoots nailed or secured to the wall. Then, if not already done, slightly point up the hard trodden surface of the borders; apply a liberal mulch of any half decomposed material that may be ready to hand, wash down the foliage with the hose or garden engine, and give the roots a thorough soaking.

Newly-planted and recently root-pruned trees, whether carrying full crops of fruit or not, will also derive great benefit from the application of a surface dressing, followed by a thorough soaking that will penetrate to the lowest roots resting on or working in the drainage. Where trees are artificially drained and watering has not yet been resorted to, the subsoil in many gardens being extremely dry, good mulching and thorough watering combined form one of the most important operations in the whole routine of fruit culture. Had trees generally been well supplied with water last August when the weather was so intensely hot and dry, the blossoms, which were plentiful enough, would have been more perfect, and, notwithstanding the sulky spring, we should now have more regular crops of fruit, and there would be fewer complaints of dropping.

Newly-grafted trees will now require attention; if against sunny walls, a board placed against the vertical stems of Pears will protect them from the intense, if not paralysing, heat. All shoots that are taking the lead will require nailing in to preserve them from injury by the wind; and others, although they may not be wanted, as well as the spray from the stocks, will be best left for the twofold purpose of carrying off superfluous sap and producing shade. If any of the growths from scions on pyramids and bushes are taking a decided lead, they must be pinched to throw the sap into weaker channels, and so preserve the symmetry and uniform strength of the trees. A few stakes placed firmly in the ground or tied to the shortened branches of the stocks will form a suitable training trellis for the shoots, and at the same time prevent the blowing out of the scions when exposed to wind and rain. Examine all whipgraft ligatures and let them be slackened if needful when the young growths are made secure to the stakes.

Where Strawberries are grown on the three years' principle, a piece of ground should now be prepared for planting in August. Trench 2 feet deep, but avoid bringing the bottom spit to the surface, work in plenty of manure, and leave it for the present to pulverise and settle. If the plants are baking up in small pots give them a thorough soaking and turn them out into a moist shady border until the bed is in good condition for planting.

## POT VINES.

Where the earliest Grapes are still obtained from Vines in pots the canes should now be sufficiently advanced to admit of free exposure to the external



air, either by running down all the lights by day or turning them out of the house altogether. Should the latter course be decided upon, a south wall will be a suitable place, as the young rods can be well secured with shreds and nails, and the reflected heat will favour the complete maturation of the wood and buds. In order to economise labour and to prevent the roots from being injured by drought, some kind of protection must be provided for the pots. This may consist of long horse litter or dry Fern in preference to leaves or leaf-mould, which may produce mildew, or they may be partially plunged in the warm border at the foot of the wall. Whichever plan is adopted, sufficient water must be given to keep the roots fresh and healthy and the foliage will require frequent syringing on fine evenings to ward off attacks of spider.

The late or general batch of canes from eyes of the current year will not be quite so forward as the cut-back Vines, but if well managed and thoroughly ripened they may not be less fruitful. These it will hardly be necessary to move from under glass, unless they are too crowded, which is not likely to be the case, as all the laterals from the base up to the pruning bud may now be removed to let in light and air and facilitate the plumping of the buds. If any of the main leaves have been destroyed or injured, the lateral must not be cut close home, as it will be necessary to keep one leaf to feed the bud, otherwise it will be imperfect and fail to produce fruit.

Late struck planting Vines may still be fed and encouraged by good syringing and early closing with sunheat, but when the lower parts of the stems become brown and the buds prominent, less water and more air will best meet their requirements. If any of these have been planted out in internal borders, they should now be growing freely both above and below the soil. When this becomes evident and there exists no doubt that they have taken a good hold of the compost, the leading points must be pinched out to throw strength into the base buds, as these are of more importance than gross tops, which thicken as they grow and rob the lower parts of the Vines which it should be the primary aim to feed and strengthen. This pinching will not, however, stop the growth, as most, if not all, of them will push fresh leaders and laterals which may be allowed to cover the upper part of the trellis. Newly planted Vines should always be well mulched, not necessarily with very rich manure, as the fresh compost generally forces a vigorous growth, but with some light non-conducting material that will check the escape of surface moisture and so prevent the roots from striking downwards into the lowest part of the border, and from thence into the drainage.

Early and midseason houses from which all the Grapes have been cut must be well syringed with tepid water every evening until the old foliage is perfectly clean and fresh laterals start into growth. If the main leaves are clean and healthy and completely cover the trellis, pinch all the gross laterals to prevent overcrowding, but in the event of the former having suffered from attacks of spider and other ills to which early Vines are always subject, allow the latter to grow on to prevent the premature breaking of the main buds so deprived of their natural safety-valve. Let external and internal borders be well mulched and have plenty of water, particularly during this hot dry weather, to keep the lower as well as the surface roots in action and to prevent the spread of spider and mildew—two parasites which revel in the favouring conditions produced by dryness at the roots. It does not often fall to our lot to complain of intense heat and drought affecting external borders, but this is an exceptional season following on the heels of an unusually dry autumn, and unless means are employed for keeping the drainage as well as the compost thoroughly moist spider and mildew will appear next season where possibly they have never been seen before.

**Ventilation.**—It is the too common practice to throw open all the ventilators, and discontinue closing them as soon as the Grapes are cut, but this abandonment of immature buds and foliage to the sudden changes which take place in many parts of this island is hardly consistent, as next year's succession greatly depends upon the treatment which the Vines receive

during the latter half of their season of growth. Old Vines that make weak, but thoroughly fruitful, growths may not be affected by constant exposure to the elements, but vigorous growers which make canes as thick as walking-sticks should be regularly ventilated, gradually reduced, and finally closed with sunheat and moderate moisture until the foliage begins to show signs of laying on the nankeen and crimson tinge so commonly seen in well-managed vineries. Then and during the remainder of the season the opening or rather the shutting of the ventilators and lights may be discontinued.

**Late houses.**—The weather during the past month having been so favourable to maximum heats and liberal ventilation, late Muscats, Lady Downes, and other kinds so subject to scalding have so far passed unscathed, and we may reasonably hope they are now safe, but should we have a change to sudden depressions, it may be well to be prepared to act before the bunches are disfigured by the loss of even a few berries. The scalding period extends over about three weeks, and during that time the pipes should be kept sufficiently warm by night to admit of a free circulation of air, which will prevent condensation of moisture on the berries when the morning sun begins to raise the temperature of the house. This night air with fire-heat generally prevents the disease from doing any damage, but to make the Grapes quite safe, the fires should be stirred early on dull mornings, and air should be steadily increased until the maximum is reached. Reducing should then take place in a similar way, and although the house may be entirely closed on bright afternoons to swell and warm the berries, moisture should be sparingly introduced until after the stoning process is complete.

Eastnor Castle, Ledbury.

W. COLEMAN.

**Russian bast mats.**—About 400,000 mats are annually exported from the port of Archangel alone, and large quantities also reach us by way of the Baltic and Black Sea. The exportation in this way amounts to about 1,500,000 mats a year. The manufacture of mats is mainly a domestic industry. The peasants employ their spare time in the maceration and separation of the liber of the Lime tree into slips, and in plaiting the latter into mats, which are purchased wholesale by commissionaires. Lime trees from twenty-five years of age are fit for decortication for the manufacture of mats, and in localities where the Lime is not sufficiently plentiful to supply the wants of the inhabitants in the way of mats and shoes it is replaced by the bark of the Willow and Birch. Indeed, in the government of Kostroma, one of the principal centres of this industry, the Lime forests are already destroyed, so that the materials to carry it on have to be procured from other districts. The bark is removed in spring or early in summer, about three weeks being devoted to this part of the work. The value of the mats exported to Europe in 1871 amounted to nearly £50,000.

### QUESTIONS.

5367.—**Preserving Tomatoes.**—Will some of your readers kindly inform me of a good and safe method of bottling or preserving Tomatoes, either whole or as sauce? I have a large quantity now almost ripe, and would like to keep them for winter use.—G.

5368.—**Gum Cistus.**—I should feel much obliged to any one who could send me a spray of the Gum Cistus (*C. ladaniferus*) as figured in Sweet's "Cistinez," No. 1. The plant I wish to see has narrow, clammy, almost sessile leaves, with one large terminal flower, pure white, with a dark spot at the base of each petal.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

5369.—**Crocuses.**—I should be greatly obliged if any reader of THE GARDEN could give me some information about *Crocus nivalis*, *C. obesus*, *C. pyrenaicus*, and *C. pusillus*. They are down in Messrs. Roosen's list at a moderate price, but I cannot find them in any book, nor in the long and, as I thought, complete list of Croci published in THE GARDEN some years ago.—M. F.

5370.—**Large root growths on bulbs.**—Can any reader say what is the function of the thick succulent root-like appendages not unfrequently attached to bulbs of the Scilla tribe? Is the bulb the better or the worse for them? They appear on bulbs of all ages, but are most frequent on those that would be about in their second year. On lifting some patches of *Scilla bifolia*, and of *Chionodoxa Lucilia*, and *C. sardensis*, these mysterious appendages are present in the proportion of about one in twenty cases. They have something the appearance of *Alstroemeria* roots, but are more watery and semitransparent.—G. J., *West Surrey*.

## KITCHEN GARDEN.

### KIDNEY BEAN OR FRENCH BEAN.

(Continued from p. 69.)

#### Edible-podded Kidney Beans.

*French*, Haricots sans parchemin. *German*, Zucker-, oder Brech-, Bohnen. *Danish*, Snitte bonnen. *Italian*, Fagiolo mangia tutto.

#### I. TALL-GROWING VARIETIES.

THE BLACK COCO (H. Coco Noir), a tall-growing and productive, but rather late kind, is distinguished from the Algerian Wax Bean by the greenish colour of its pods. As a variety, it does not possess much interest.

EDIBLE-PODDED BLACK SCIMITAR RUNNER BEAN (Haricot Sabre Noir sans Parchemin).—A very



Edible-podded Giant White Kidney Bean (plant,  $\frac{1}{2}$  ft.; pods,  $\frac{1}{2}$  seed, full natural size).

distinct kind, producing (like the two following varieties) flat kidney-shaped seeds, and pods entirely free from membrane. It is a tall-growing plant, being over 8 feet high, with thick, pale green stems. Leaves large and broad, rather distant from each other, of a palish green colour, and crimped; flowers lilac; pods long and broad, not curved, but frequently bulged or undulating on the edges, 6 inches to 8 inches long, of a violet colour at first, but losing this as they increase in growth, each containing six to eight seeds of the same size as those of the White Dutch Kidney Bean, but somewhat more humpy and irregular in shape, and with a very glistening, brilliant black skin. A litre of them weighs 700



grammes, and 100 grammes contain about 185 seeds. This variety is remarkable for the great size and beauty of its pods. It is very productive, but rather impatient of damp, and half-late in ripening.

**PURPLE-PODDED RUNNER KIDNEY BEAN** (Haricot à Cosse Violette).—A very vigorous and tall-growing kind, sometimes attaining a height of 9½ feet and upwards. The stems, which are stout and rather thick, are of a purple colour, as are also the leaf-stalks and the calyxes of the flowers; the leaves are rather distant from each other, very much crimped, and of a dull green colour; flowers lilac; pods very numerous, straight, slender, and at first of a very deep purple colour, but, as they advance in growth, they become paler in hue, and more or less bulged and undulated, but always remain very solid and fleshy. They sometimes attain a length of 10 inches, preserving a relative degree of slenderness,



Early Yellow Canadian Dwarf Kidney Bean (½ natural size).

and contain six to eight seeds each. The seeds are elongated and flattened in shape, and are something larger than those of the Flageolet Kidney Beans, while they are almost of the same shape, and are of a rosy colour, marbled with greyish lilac. A litre of them weighs 730 grammes, and 100 grammes contain about 250 seeds. A rather early and exceedingly productive kind, and one of the best edible-podded sorts. The pods of this variety are quite free from membrane; they lose their purple tinge in cooking, and become as green as those of any other kind.

**EDIBLE-PODDED GIANT WHITE KIDNEY BEAN** (Haricot Blanc Géant sans Parchemin).—This very fine new variety appears to be the offspring of the preceding one, of which it exhibits all the vigorous-growing and productive qualities; it has, moreover, the advantage of producing green pods and white seeds; that is to say, it is free from the only two blemishes that can be attributed to the Purple-podded Kidney Bean in the objectionable colour of its pods and seeds. It is a half-late, but productive kind, with stout stems 6 feet to nearly 10 feet high. Leaves very large, but not numerous; leaflets rounded and crimped. The flowers are white; pods very broad and very numerous, 4 inches to 6 inches long, entirely free from membrane, thick and fleshy, each containing four to six flat white seeds, resembling those of the White Dutch or Case-knife Kidney Bean. A litre of them weighs 730 grammes, and 100 grammes contain about 250 seeds. When grown under favourable circumstances, this variety produces such an abundance of pods as to weigh down the stakes which support it.

From amongst the almost innumerable other varieties of tall-growing edible-podded Kidney Beans, we may also mention the following as possessing the greatest degree of merit:—

**GIANT JAPAN BUTTER BEAN** (H. Beurre Géant du Japon).—A tall kind, with long broad pods of a pale yellow colour, somewhat resembling those of the Edible-podded Black Case-knife Kidney Bean, but with smaller seeds, which are of the colour of roasted Coffee Beans.

**SAINT JOSEPH BUTTER BEAN** (H. Beurré Saint Joseph).—This variety forms the connecting link between the Prague Kidney Beans and the Butter Beans properly so called. Its pods are straight or slightly curved, and are streaked with red on a ground of butter-coloured yellow. The seeds are indifferently marbled, either with violet on a rose-coloured ground or with rose colour on a violet ground. The plant is not a tall-growing one, as it seldom exceeds about 4 feet in height. It was raised about the year 1860, at the agricultural colony of Cîteaux, near Dijon.

**IMPERIAL KIDNEY BEAN** (H. Impérial).—This is distinguished from the Tall White Butter Bean only by the colour of its stems and pods, both of which are green instead of butter-yellow.

**CLIMBING YELLOW OR DUNES YELLOW KIDNEY BEAN** (H. Jaune à Rames).—Of medium height, productive, and tolerably early. Seeds yellow, nearly cylindrical, resembling those of the Yellow Hundred-fold. Pods straight, very fleshy and tender, and from 4 inches to 6 inches in length.

**LAFAYETTE KIDNEY BEAN** (H. Lafayette).—A tall variety, rather late, and with pods not altogether free from membrane. Flowers white; pods pale green, becoming yellow when ripe, each containing six to eight chamois-coloured seeds marbled with light brown and shaded with reddish brown around the hilum.

**ASPARAGUS, OR YARD LONG KIDNEY BEAN** (H. Olive sans Parchemin, or H. Asperge).—A very tall-growing kind, nearly 10 feet high. Leaves very large and distantly placed; flowers copper-coloured or lilac; pods almost cylindrical, exceedingly long and slender, sometimes more than a foot in length; seed very long, nearly cylindrical, but narrowed at both ends, of a more or less coppery chamois colour. A late kind, requiring a warm climate.

**ROSE-COLOURED PRÉDOME BUTTER BEAN** (H. Prédome Rose à Rames, or H. Mange-tout).—A plant of medium height, seldom exceeding 4 feet, but branching and clumpy. Flowers rose-coloured; pods



Oval Yellow China, or Robin's Egg, Kidney Bean (½ natural size).

exceedingly numerous, growing in profusion from the base to the top of the stem, but seldom exceeding 2 inches or 3 inches in length, and each containing four to six small, nearly round white seeds of a salmon-rose colour.

**VAL D'ISÈRE KIDNEY BEAN** (H. de la Val d'Isère).—This is a very vigorous-growing leafy, late kind, laden, in the end of autumn, with green, fleshy, well-filled pods, which are very much curved. Seed black, egg-shaped.

**VILLETANEUSE KIDNEY BEAN** (H. de Villete-neuse).—This variety, which was formerly very much grown about Paris, is now almost entirely superseded by the tall-growing Butter Beans. It is a productive, sometimes late kind, bearing rather long, tender, and thick pods, each containing five or six flattened, almost square, coffee-coloured seeds marbled and streaked with brown.

**GREY ZEBRA RUNNER KIDNEY BEAN** (H. Zébré Gris à Rames).—A late and very vigorous-growing

kind, nearly 10 feet high, with large, spreading leaves and lilac flowers. Pods thick, fleshy, curved, streaked with violet on a green ground; seeds egg-shaped, of a dark grey colour, dotted with lighter grey, and striped with black. Raised by M. Perrier de la Bathie.

The American variety, Giant Red Wax Pale Bean, is a tall-growing edible-podded Kidney Bean, 6½ feet high, with large flat white or yellow pods, resembling those of the edible-podded Black Case-knife Kidney Bean, and red seeds. It is a rather late kind.

## II. DWARF EDIBLE-PODDED VARIETIES.

**PREDOME DWARF KIDNEY BEAN** (Haricot Prédome Nain).—The pods and seeds of this variety are exactly like those of the tall-growing Prédome Kidney Bean, but less abundantly produced, and this deficiency is not redeemed by any other particular merit. A litre of the seeds weighs 830 grammes, and 100 grammes contain about 560 seeds. The ordinary Prédome Kidney Bean does not require very tall stakes, so that it is not one of those kinds in which the raising of a dwarf variety is any very great improvement.

**PRINCESS DWARF KIDNEY BEAN** (Haricot Princesse Nain).—This is not a very vigorous-growing kind, and its crimped and rounded leaves are very liable to disease, arising either from the attacks of insects or from minute fungus growths. It is also rather late. The pods are short and curved, free from membrane, and of a deep green colour. A litre of them weighs 850 grammes, and 100 grammes contain about 400 seeds. The remark made upon the Dwarf Prédome is also applicable to this variety; however, as the ordinary variety of the Princess attains a tolerable height, it may sometimes be advantageous to have a dwarf form of it.

There is a variety grown in Holland, under the name of the Large-seeded Princess (H. Princesse à Gros Grain), which is quite distinct from the Dwarf Princess. It has curved, green, and rather fleshy pods, and comparatively large egg-shaped seeds, which resemble those of the White Coco Kidney Bean.

**PREDOME DWARF FLESH-COLOURED KIDNEY BEAN** (Haricot Prédome Nain Rose).—A small variety, distinguished by the colour of its seeds, which is unlike that of any other kind. Stem short, very branching, flowers white; pods short, straight, rather bulging over the seeds, tolerably fleshy, and very free from membrane; seeds nearly round or egg-shaped, of the same size as those of the Prédome Kidney Bean, but of a uniform salmon-rose colour, except the hilum, which is white, surrounded by a brown circle. A litre of them weighs 815 grammes, and 100 grammes contain about 400 seeds.

**PINK-MARBLED DWARF PRAGUE KIDNEY BEAN** (Haricot de Prague Marbré Nain).—A very dwarf, compact-growing, moderately productive kind, with rather abundant greyish green leaves and lilac flowers. Pods green, straight, or very slightly curved, plentifully striped with red, each containing four or five seeds resembling those of the common Cranberry Bean, but somewhat smaller. A litre of them weighs 810 grammes, and 100 grammes contain about 250 seeds.

**EARLY YELLOW CANADIAN DWARF KIDNEY BEAN** (Haricot Jaune du Canada).—A very good variety, hardy and productive, but somewhat late, well adapted for market garden or field culture. Stems rather vigorous, branching, 16 inches to 20 inches high, thickly covered with medium-sized uncrimped leaves of a clear green colour. Flowers lilac; pods very numerous, green at first, changing to yellow, each usually containing five egg-shaped seeds a little smaller than those of the Prague Kidney Beans and of a deep yellow colour, merging into brown about the hilum. A litre of them weighs 815 grammes, and 100 grammes contain about 260 seeds. The dried seeds of this variety are much esteemed. The pods, to have them tender, should be gathered before they are fully grown. Although closely resembling the Yellow China Kidney Bean, this variety is distinguished from it by the deeper colour of its seeds, and by its leaves being larger, less crowded together, moderately crimped, and of a darker green colour.



**OVAL YELLOW CHINA, OR ROBIN'S-EGG, KIDNEY BEAN** (Haricot Jaune de la Chine).—A rather branching kind, with stems about 16 inches high, forming an airy-looking clump. Leaves medium-sized and of a lively green colour, those at the top of the stem being small and long-stalked; flowers white; pods green, turning yellow when ripe, each containing five or six egg-shaped seeds of a sulphur-yellow colour, with a more or less marked bluish circle around the hilum. A litre of them weighs 825 grammes, and 100 grammes contain about 300 seeds. This variety is one of the most widely cultivated in different parts of the world, and is to be met with almost everywhere in the colonies and America, under the same name and exhibiting the same characteristics.

(To be continued.)

**Tomatoes without manure.**—That plenty of good Tomatoes may be grown with little or no manure I have had abundant proof in the case of those who grow them for the Bristol markets. I have seen long houses filled with Tomatoes that had only a bit of ordinary soil in an old packing case to grow in, and I have seen them producing plenty of large and fine fruit and the proprietor well satisfied with his returns. It, however, requires more skill to grow Tomatoes successfully without manure than with it. The growth requires constant care to regulate it, and to cut away all that is not wanted; useless leaves must be removed before they have exhausted the roots; careful attention to the roots as regards moisture and stimulating liquid just when the condition of the swelling fruit requires it is a prime necessity. These are the lines on which those work who cannot command plenty of manure.—J. C. C.

## ORCHIDS.

### ORCHIDS AT THE DELL, EGHAM.

THE Orchid riches which Baron Schroeder has accumulated in his beautiful garden on the confines of Windsor Park are a never-failing source of enjoyment to those privileged to inspect them. The best time to see such a collection is, of course, when any of the great sections are in their greatest beauty. The Cattleya season, for instance, extends from May to July; in early spring the bulk of the Dendrobates and other East Indian kinds is in flower, and in winter the Odontoglossums are most enjoyable. On the occasion of a recent visit, we found that great additions had been made since last we saw the collection, new houses for special sections having been erected and others enlarged—sure signs of progress. One finds at The Dell so much that is rare, that one is always tempted to pass over all Orchids that may be seen in any ordinary collection.

We were fortunate to find several of the choicest varieties in bloom, chief among them being the precious Cypripedium Stonei platytanum, which, as every orchidist knows, only exists in a very few collections. Here it was flowering side by side with the original Stonei; but handsome as the flowers of the latter always are, the broad-tailed variety overshadowed them. The great breadth of the pendent tails renders this variety so handsome, seeing they are coloured in the same rich way as those of the original. Sometimes the extreme rarity of an Orchid alone renders it priceless, but in this one both beauty and rarity are combined. So few have the opportunity to see the flowers of this wonderful variety, that a good illustration of it would be desirable. The Cypripediums are well represented in this collection, and the commonest may be found as well as the most rare. It abounds in hybrid varieties, one of which, C. grande, which is also one of the handsomest, was in bloom. It has pale, ruddy-tinged flowers with tails quite 9 inches in length. The new C. Godefroye has found congenial quarters here treated the same as C. niveum and concolor. A gigantic specimen of C. Stonei, bearing about a dozen spikes, was a remarkable sight, the specimen being without doubt the finest in existence in gardens.

The most beautiful plant, we thought, in the whole collection was the yellow Sobralia xantholeuca, a great rarity and at the same time one of the grandest of all Orchids. To describe it one need only compare it with the well-known S. macrantha. It has

the same kind of growth, though perhaps not so tall. The flowers are as large and of the same shape, but instead of lasting only a day they endure for a considerable time, and are then followed by others from the same sheath. The colour of the flowers is the loveliest chrome-yellow imaginable, deeper in the lip, paler in the sepals; indeed, it is the gradation of tint that makes the flower so beautiful. Baron Schroeder considers it one of the most charming of all Orchids, and he is certainly not far wrong. If importers could introduce it in quantity, they would merit the thanks of Orchid lovers, although it would take away from it the term rare, which to orchidists constitutes a charm little short of real beauty. A coloured plate of this yellow Sobralia will be found in the twenty-second volume of THE GARDEN, but the variety there represented is much paler than that we saw at The Dell.

Among the Cattleyas and Lælias there were a few noteworthy varieties, but the glow of the Cattleya flower season was over, only a few stragglers being in bloom. There was the white form of C. Mossiae called Reineckiana, a very lovely plant with pure white flowers, save a few faint pencillings on the lip. Another great beauty was C. speciosissima Schroederi, having pure white sepals and a lilac-tinged lip. It also is a superb Orchid and one probably that may never occur again in an importation. It also has the large size and refined form of flower which makes speciosissima itself so beautiful, and possibly it may turn out to be a free bloomer. C. gigas and its varieties contributed most to the attractiveness of the Orchid houses. These are particularly well grown here, as may be judged from the fact that on one small plant of Sanderiana there were three spikes, one of which bore five flowers, large ones, too, and superbly coloured. C. Warneri was going fast, its place being taken by C. Gaskelliana, which is unquestionably one of the most valuable Orchids that has been introduced for many years, as it begins to flower when most other Cattleyas are past. Of Lælias there was the scarce L. grandis, which has distinct-looking smallish flowers, yellow sepals, and white lips tinged with carmine. There were varieties of L. purpurata out of number, all being eclipsed by the Williamsi, of which we saw there the grandest specimen probably in existence. It bore six spikes, and five and even six blooms on some of the spikes. It was indeed a grand specimen such as Orchid growers are delighted in seeing. The enormous lips of the flowers of this variety is the most remarkable point in it, and being almost a black-crimson they are highly attractive.

Among the East Indian Orchids a great show was made by the Aerides, and these included several specimens of the rare A. Schroederi, considered to be the handsomest of the section. It is indeed a beautiful species, the flowers being borne in long dense, yet graceful, spikes, as in A. Fieldingi and others. The sepals are copiously spotted with amethyst on a white ground, while the lip is richly tinted with the same colour. We were much pleased with A. Houletii, which has peculiar buff-tinted flowers and delightfully scented. In the East Indian house there were also in bloom the snow-white Dendrobium Dearei, which is highly valued here, also the pretty D. Bensonæ and Parishii, both invaluable for midsummer bloom when most others are out of bloom. There was also in the same house the singular D. Rehmanni with yellow-green long sepals, which spread in a way peculiar to all the North Australian Dendrobates. Equally remarkable was a noble specimen of Epidendrum prismatocarpum carrying no fewer than thirteen spikes. The individual flowers of this species are not showy, but when seen in such profusion as this they have a fine effect.

The Odontoglossums were past their best, but there were still crowds of spikes of O. crispum, among which an inferior variety could not be detected, every plant having the lovely broad sepalled flowers always so much prized. The most remarkable Odontoglossum we saw was a gigantic form of O. Halli, which was fully twice the ordinary size, and at the same time richly coloured. It is so extraordinary, that no doubt it will cause quite a surprise when it is exhibited. A Phalaenopsis house has been recently constructed embodying special details of construction,

so the Phalaenopsis collection will soon be, no doubt, one of the chief departments of this garden.

**Renanthera coccinea.**—This Orchid is so rarely seen in bloom, that it may be interesting to orchidists to know that a plant of it, a fine tall specimen, in the Royal Exotic Nursery, Chelsea, has developed two flower-spikes, and will shortly be in flower. It is growing in the large Cattleya house at present.

**Oncidium dasystyle.**—This is one of the most interesting Orchids now in flower at Kew. In a genus where there is such a strong similarity among the yellow-flowered species, it stands out from all the rest. The flowers are about an inch across, of a pale straw colour, while the centre is jet black. The spike is sparsely flowered and graceful, and lasts a long time in good condition. Those who wish to grow only choice and distinct Oncidiums need not hesitate to include this in their collection.

**Mormodes luxatum eburneum.**—This extremely handsome Orchid, probably the finest in the genus, may now be seen in bloom at the Royal Exotic Nursery, Chelsea. It differs from the typical form of M. luxatum only in the flowers being of ivory whiteness. They are of singular form, and being large and arranged numerous in a dense spike are highly attractive. As in other Mormodes, the flowers endure a long time in perfection, and those of this variety appear to be of even thicker texture than the flowers of the others. It is one of the handsomest Orchids we have seen for a long time, and its rich fragrance heightens its value.

**Odontoglossum ramosissimum.**—Among the crowds of Odontoglossums in Messrs. Shuttleworth and Carder's nursery, Clapham, this distinct species stands out conspicuous from the rest, not that the individual flowers are large or richly coloured, but on account of their numbers and the manner in which they are produced on branching spikes. They have pointed sepals bluish pink, and a deeper tinged lip, and being so numerous they are attractive. The species is aptly named, as its flower-spike is branched in all directions. It is grown successfully by Mr. Shuttleworth in the same house as O. crispum, Pescatorei, and others.

**Oncidium Lanceanum.**—The flowering season of this beautiful old Orchid has again come round, enlivening Orchid houses with a beauty very different from that of the generality of Orchids. In the Orchid houses at Coolhurst, Horsham, there is a fine specimen of it, on one spike of which there are fifteen flowers. These measure some 3 inches across the outspread sepals, which are yellow, copiously and heavily blotched with chocolate, while the broad lip is a pale mauve-pink below deepening into a rich purple above. A fine spike of this Orchid is very handsome, and the broad leaves pale green and minutely dotted add to its beauty. There is also at Coolhurst an uncommonly fine form of Miltonia spectabilis with ivory white sepals and a broad, flat labellum of a deep rich purple margined with lilac.

**Cattleya gigas Shuttleworthi.**—Numerous as are the varieties of Cattleya gigas, we have seen none to equal in colour one that is now in flower in Messrs. Shuttleworth and Carder's nursery at Clapham. The richness and intensity of the colouring of the lips of the flowers would be difficult to describe. As a set-off to the deep amethyst colour of the lip are two conspicuous lemon-yellow blotches in the throat, and these run off into white; a frilling of white also adorns the margin of the lip. The sepals are of a deep lilac. Not only is this variety remarkable for colour, but for size also. The whole flower measures 8½ inches across by 8¾ inches in depth; the lip is 3 inches across by 3¾ inches in depth. Such a brilliant variety as this must as a matter of course always remain a rarity, for among the thousands of plants imported but very few can even approach it in colour. As a contrast to this rich tinted form there is in the same nursery a variety of C. gigas imperialis with flowers unusually light—a pale mauve-lilac, in fact, which renders it as conspicuous among others as it is delicate in tone. We hear also of the safe arrival of an albino of Cattleya gigas whose flowering is awaited with interest.



## NOTES OF THE WEEK.

**Euonymus radicans** flowering.—Mr. Phix sends from Mount Charles, Truro, some sprays of the variegated *Euonymus radicans* covered with dense clusters of minute yellowish flowers. We do not remember having seen this climbing shrub in flower before. It has a pretty effect in a vase.

**Sphenogyne speciosa**.—For an annual in sunny places this is hard to beat. It is related to the *Gazania* section of the Composites. It has deeply cut Fern-like foliage and large chocolate-coloured flowers with a fine black ring round the eye. Seed of it may be sown in the open border in spring with the other annuals.

**Pentstemon barbatus**.—This is flowering freely this year, owing, no doubt, to the dry hot summer which we have had. Its numerous spikes of bright scarlet flowers are very attractive. The variety *Torreyi*, which has broader leaves and slightly larger flowers, is, of the two, much the better garden plant, as it seldom fails wet or dry to produce in plenty its welcome flower-stalks.

**Calla hastata**.—Mr. Rawson, of Windermere, sends blooms of this handsome Aroid, which is not so commonly seen as the *C. æthiopica*. The flower-spathe is creamy white with a heavy blotch of blackish crimson at the base. The way in which the spathe folds itself is very beautiful. This is decidedly a plant worthy of being better known, and it is quite as easily grown as its commoner relative.

**Salvia patens alba**.—This makes a fine plant for the open border during the summer. It has thrown up over a dozen spikes of large, pure white flowers, as large as those of the more common *S. glandulosa*. It strikes freely from cuttings, and winters well in a cool frame. We almost think it would stand anything, but severe winters, in a sheltered nook on the rockery.

**White Armeria cephalotes**.—Miss Owen sends us flowers of this uncommon plant which she says is most effective just now in her garden at Knockmullen, Gorey. The flower-heads are white, and borne on slender stalks about 2 feet high. She also sends a deep rose-pink *Armeria* called *grandiflora*, apparently a richly coloured form of *A. cephalotes*, but it has shorter stems and smaller heads than the white form.

**Fuchsia General Gordon**.—Flowers of this new *Fuchsia* have been sent to us by the raiser, Mr. Robert Owen, of Castle-hill, Maidenhead, who considers it the largest single-flowered variety at present known. The flowers are indeed very large, the sepals being as much as 2½ inches long, while the corolla is proportionately broad and spreading. The sepals are scarlet and petals reddish purple. Those who care for large-flowered *Fuchsias* will, no doubt, welcome *General Gordon*.

**Blue Himalayan Poppy**.—Growers of this should be wary of allowing the variety *fusco-purpurea* a place in their collections. It is inferior in every way as a garden plant to the true blue *Wallichii*. The latter is a most desirable plant, well repaying all extra attention that may in any way be bestowed upon it. The flowers, which vary in size, are of a most beautiful soft blue, while the name of the other is the only beautiful thing about it.

**Clematis Viticella**.—Notwithstanding all our late introductions and reputed improvements in wall and other climbing plants, few seem to us to be more interesting than our common *Virgin's Bower* (*C. Viticella*). The colour of its flowers vies with that of *C. Jackmanni*, over which it has the advantage of requiring no special attention in the way of culture, and also of being a surer flowerer. Established as seen at Kew, few plants are more desirable for covering walls.

**Brodiaea volubilis**, flowering from the top of a stem 10 feet high, is quite unique in its way in this class of plants; beginning from the bulb, the flower-stem slowly winds itself round the support until it reaches the summit, when it develops an extraordinary large bunch of extremely handsome rosy coloured flowers. It has been almost a month in

flower on the old bulb border at Kew, and is well worth the attention of those who cultivate curious plants.

**Balearic St. John's Wort**.—A flower-laden branch of the pretty *Hypericum balearicum* has been sent us by Miss Owen, from Gorey, where the plant is quite hardy. It is a little dwarf evergreen much branched, and has tiny leaves, which, with the bark, are covered with peculiar gland-like excrescences. The flowers measure about an inch across and are bright yellow. Miss Owen remarks that she finds it to be one of the slowest in growth of all the *St. John's Worts*, and that it has never flowered freely with her before this year.

**Allamanda Hendersoni**.—Of this noble and beautiful stove climber some uncommonly fine specimens have reached us from the gardens at Stanley Hall, Bridgnorth. Its flowers are very large, of a rich yellow, and produced in dense clusters. Mr. Field, who sends them, remarks that "the plant from which they were cut was planted out in a stove about eighteen months ago. It now partly covers the roof, and is bearing hundreds of blooms. The flowers when cut last a long time in water, and are very useful, either for exhibition or decorative purposes."

**Rosy Zephyr Flower**.—Among Mexican bulbs requiring frame or greenhouse culture this variety of *Zephyranthes carinata* is certainly one of the most beautiful. The flowers are about 3 inches across, finely formed, and of the most pleasing rosy pink colour imaginable. The foliage is Grass-like, and each bulb bears one or more flowers, which continue for a week or more in perfection. We were much charmed with it the other day in Messrs. Veitch's nursery, where it is grown and flowered very successfully in cold frames.

**Iris Kämpferi**, or *lævigata* as it is now called, well illustrates a remark made the other day, that we do not yet know the full capabilities of three parts of our hardy plants. Some of our best authorities say, grow them in loam—in fact in anything; let them have plenty of water and good drainage. Others say plant them with their heels in water. The latter course has been followed in several places to our knowledge with striking results, some of the flowers of the variety called *Duchess of Edinburgh* measuring almost 10 inches across, and in substance and colour being all that could be desired.

**Wormia Burbidgei**.—This new Bornean shrub is a noble leaved plant, and at the same time bears handsome flowers. The leaves on pot plants are as much as 2 feet in length and half as broad, and as they spread out horizontally from erect stems they have a handsome appearance. The flowers are produced in clusters on stalks rising well above the foliage. Each flower is about 4 inches across, shallow, saucer-shaped, and of a clear yellow. Several flowers are produced in a cluster and open in succession. It may be seen in bloom in Messrs. Veitch's nursery at Chelsea, whence it was first put into commerce two or three years ago.

**Campanula turbinata** crossed with *pulla*, sent out from the York Nurseries, is a choice little plant, but we fancy we have met with it before under the name of *G. F. Wilson*, a name given by the late Mr. I. Anderson-Henry, who raised it some years ago from the same cross, and under which name it has been distributed amongst his friends. It is perfectly hardy if planted on slopes. Its flowers are in the way of those of the *carpatias*, but in foliage it is more nearly related to *pulla*, which at the best of times has always a sickly, yellow appearance, though the plant seems perfectly healthy.

**Mirabilis multiflora**, now rarely seen in gardens, is one of the most beautiful plants in flower in the herbaceous ground at Kew. It has a neat prostrate habit, is freely branched, and literally covered with handsome reddish purple trumpet-shaped flowers, as large at the mouth as a florin, contrasting well with the fine glaucous leathery leaves. *Abronia arenaria*, a near neighbour, is also in flower. It forms lovely heads of sweet-smelling primrose-coloured flowers, not at all unlike the capitulate section in shape. It is perennial, and only wants protection from wet in winter.

**Crossandra undulatifolia**.—This is one of the handsomest plants one can have in the stove at this season, and as the colour of its flowers is so different from the generality of stove plants, it is all the more valuable. It is a dwarf and neat-habited shrub, but is apt to become straggly if not well grown. Each shoot is terminated by a dense cylindrical cluster of flowers of a sort of salmon-buff colour. As the flowers expand in succession from the bottom of the spike upwards the plant continues in bloom for weeks together. Seeing that it is such a showy plant, the wonder is that it is not generally grown in private gardens. It has been in cultivation a long time, and may be obtained at the large nurseries. Some plants of it may be seen in fine bloom in one of the stoves at Kew at the present time.

**Preservation of native plants**.—The council of the Midland Union of Natural History Societies is taking up the question of the preservation of indigenous British plants, many of which, through the recklessness and selfishness of collectors in certain localities, have become extirpated. Recognising the fact that restrictive legislation or police interference is neither applicable nor desirable, the council believes that it is by the indirect influence of example and the promotion of healthy public opinion that the evil in question can alone be combatted, and appeals to the members of field clubs and natural history societies to co-operate in checking the wholesale destruction of rare and local plants which is now so prevalent. In the interests of botanical science we trust that these praiseworthy efforts may be successful.

**Carnations from France**.—The raising of new Carnations is carried on extensively by some of the Parisian nurserymen, judging by a large gathering of flowers of seedlings sent to us by M. Forgeot, of 8, Quai de la Mégisserie. These include every conceivable shade of what the *Carnation* is capable of producing, some being beautiful selfs, others striped and flaked. We admire the selfs most, some of them being very rich in colour and fine in bloom. These are unquestionably the best for border culture, as they produce a decided effect; whereas in masses the striped and flaked kinds have an undecided look about them. Besides, there are numberless sorts of flakes and bizzarres; whereas every really good self is a gain, for though there are now a good many, we can never be overdone with them in the open borders.

**Lychnis Haageana hybrida**.—Following your directions in last week's *GARDEN*, I send herewith a flower which is well worthy of portraiture. Strange to say, I have never happened to see it done justice to in any one of the many hundreds of flower gardens I have visited and carefully examined. It has been here for years, flowers and seeds freely, and is as hardy as its relative, the *Rose Campion*. The deep chocolate foliage and stems make a striking contrast with the brilliant flowers in the specimen sent. I would send other colours—cream, pink, and orange-scarlet (the one sent is true vermillion), but they are not yet out. The season here is very late; indeed, the common *Rhododendron* and the late *Laburnum* are still in flower. The *Lychnis* thrives well in a light, rich loam, and once established takes care of itself, provided it is not overgrown with coarser things.—SALMONICEPS.

\* \* One of the freest, handsomest things we have seen for years! It is a plant much influenced by climate. It must be very fine seen growing when it produces such a bright effect on arriving in London after a long journey from the south-west of Scotland. We have had a drawing prepared of it.—ED.

**Royal Horticultural Society of Ireland**.—Lord Carnarvon, in reply to an address from this society on the occasion of his assumption of the Viceroyalty, spoke as follows: In my own home at Highclere the cultivation of American plants, perhaps, was first and earliest attempted in England, but since then it has overspread the country; and to my great satisfaction I noticed the other day at Emo Park that *Rhododendrons* and *Azaleas* have made their peaceful invasion upon Irish soil. You allude in your address to the elevating character of your peaceful pursuits, and I think he would be very dull and unappreciative who looked upon gardening as mere idle ornament and luxury. It exercises a far wider power for good than that. I am aware that



through your instrumentality cottage gardens have been improved, and that you have given prizes and medals, and that you have done much to stimulate that most wholesome, and, in a public point of view, useful taste.

**Photographs of the Paris flower show.**—M. Joly, the president of the National French Horticultural Society, has sent us some photographs representing portions of the International Horticultural Exhibition held in Paris in May last. The photographs show groups of pot Vines, Vines from Thômer, rockeries and interior views of the pavilions and tents, but we think that the graceful aspects of the show are not well shown in these photographs. As a rule, photographers do not choose the most picturesque points of view. The show was arranged in the usual pleasant style of Parisian shows; some of the bolder groups were very pleasing, but we decidedly object to the profusion of gaudy flags and bunting, which our Parisian friends seem to consider needful in order to produce striking effect. The harsh contrasts of the crude colours of these and the pure delicate tints of flowers and leafage are not pleasing. The distribution of these photographs is another proof of the thorough way in which every detail is carried out by our Continental neighbours.

**Indian and Colonial Exhibition.**—The secretary of the Royal Horticultural Society asks us to make known that the society are prepared, at the request of and in concert with the Royal Commissioners of the Indian and Colonial Exhibition of 1886, to offer their co-operation and assistance to such of the colonies as may desire to avail themselves of it. Some of the colonies have already expressed a desire to have, as a feature of their courts, illustrations of the indigenous flora in vestibules or plant houses. In addition to these the council believe that collections of ornamental and economic plants in a growing state and of fruits would be of much interest and value. The Royal Horticultural Society will be ready to give advice and practical assistance in preparing, arranging, and carrying out such illustrations to any of the colonies who may apply to them. But they desire to point out that it is essential for even a very limited display of growing plants that not a day should be lost. The assistant secretary and the superintendent of the society's gardens will be ready to meet and consult with the colonial commissioners and to take forthwith the necessary steps in conjunction with them.

**Ware's Panther Lily.**—Flowers of this new and beautiful Lily (*Lilium pardalinum* Warei) have been sent to us by Mr. Ware from his nursery at Tottenham, where it and other forms of *L. pardalinum* revel in the greatest luxuriance, and are now plentifully in bloom. This new Warei differs from all the rest in the flowers being of a clear uniform apricot yellow without a spot or trace of any other colour, the anthers even being of the same tint. The flowers are about the usual size of those of *pardalinum* and recurve in the same beautiful way, but it is altogether more compact in growth than the other forms. It does not exceed 4 feet or 5 feet high, while typical *pardalinum* is often 8 feet, and even 12 feet high. It is, indeed, a great gain among Lilies, for the beautiful self colour was just what was wanted as a relief from the spotted kinds. Other varieties of this Lily sent by Mr. Ware include those named *Bourgæi*, *Michauxi*, and *pallidifolium*, all differing more or less in stature and colour of the flowers, and splendens, remarkable for the intensity of colour of the petals, which is scarlet flushed with Indian yellow. What a beautiful July border might be made with these Panther Lilies alone! Their great value lies not only in their beauty, but in their suitability for our climate. When once established in a suitable spot they flourish year after year as luxuriantly as in their native habitats.

**Varieties of Gaillardia.**—A numerous gathering of varieties of *Gaillardia* from Messrs. Kelway, of Langport, show what strides have been made in the improvement of these flowers during the past three or four years. At one time there were but a few varieties of *Gaillardia pulchella*, the species which has been operated upon chiefly. Now there are dozens of named sorts varying more or less from each other in point of colour. In some cases the difference between the named sorts is so slight, that they appear

to be the same to ordinary observers. As yet there is not a wide range of colour, the predominant tints being red and deep yellow, but some sorts are wholly red, others wholly yellow. Among the sorts Messrs. Kelway sent we singled out the following as the most distinct: Addison, flower large, broad florets, deep red tipped with yellow; Camelot, a large yellow self, the centre only being brownish red; Arnolf, yellow self; Miranda, yellow, with zone of red round disc; Lorenzo, very fine deep red; Titania, very large flower, with the florets in two rows, palish red, broadly tipped with yellow; Comus, florets tubular, but in one row only; Princess Beatrice, florets tubular, bright yellow; Iras, a neat broad-floreted flower, clear bright yellow. The foregoing selection represents the whole range of colour and form to be found at present in the *Gaillardias*, with the exception of the double *Lorenziana*, which, however, is an uncertain kind. These are such continuous, and free-flowerers on light, warm soils, that they constitute an important class of open-air flowers. Some cultivators cannot manage them, and if Messrs. Kelway could send us a few hints upon their mode of culture, we are sure that they would be useful to many of our readers.

**Crimson-banded *Lilium auratum*.**—We send some blooms of a seedling *Lilium auratum* with crimson bands. We grow quantities of this Lily, and, as they are all raised from seed, of course there is some variation in the marking of the flowers as well as in the size. Some are of the purest white, with a pale yellow band down the centre of each petal, and only faintly spotted with crimson. Many crimson-banded ones come amongst the seedlings more or less distinctly striped; but we are at a loss to know how this crimson stain is imparted, as they cannot have been crossed with any other kind, *auratum* being the only Lily we grow. Our soil, being of a light and sandy character, suits this Lily well, and when in full bloom its effect is very striking. At the present time we have thousands of blooms just expanding, and although the bulbs are only six or seven years old, and the tallest stems do not reach 3 feet in height, most of them carry heads of flowers, say, two to five on each, generally speaking, and some as many as seven. This Lily is perfectly hardy, and has stood several winters in our nursery quite uninjured. We save our own seed, sow it in pans, and plant out the little bulbs as soon as they can be handled in the open ground. If taken up in the autumn, we find they will keep well in our cool sheds for several months if laid in sand and just kept slightly moist. We read and hear much as to failure with imported bulbs, they being so liable to shrivel and decay, but although we have for many years grown and sold *auratum* bulbs, we have never had a single complaint of their having done badly.—ISAAC DAVIES & Son, Brook-lane Nursery, Ormskirk.  
\* \* \* The flowers sent have bands almost as deep as in the variety *cruentum*.—ED.

#### NOTES ON RECENT NUMBERS.

A ROSE wanted by "*Salmoniceps*" (p. 21) sounds by the description given very much like one called "*Camellia*," or sometimes "*Camellia japonica*," which though it has been for many years in England, chiefly I believe in private collections, is still comparatively unknown. I saw it mentioned last year in two nurserymen's catalogues, so there is a chance of its getting about. The flowers are quite single and pure white, and the petals, as "*Salmoniceps*" says, "of greater substance" than in *rugosa*; in fact, very much like those of a "*Camellia*," hence its name. It is a profuse bloomer, and I believe perfectly hardy in most parts of England. The foliage is not quite so dark in colour or so large as the white *Macartney*. It is just the sort of Rose to fascinate the modern flower lover, and will, I expect, make a sensation some day as a novelty. Our plants are only small and not flowering this year, or I would have been glad to send blooms to "*Salmoniceps*" for his identification.

**Iris Kämpferi** (p. 26), which was recommended at one time as a sub-aquatic, I planted in a moist, boggy spot among *Osmundas*, with the result that though it makes rank growth it does not flower; whereas a piece not far off in a sandy bed with moist

subsoil does not fail to bloom each season. Mr. Wilson recommends loam in a moist place, and his verdict as to treatment many of us have been anxiously expecting after seeing the request in Mr. Barr's list. Where it is intended to plant varieties of this Iris by the side of ponds or streams in soil of a heavy or retentive character, it would seem advisable to keep the plant well above the high water-mark, so that it may be ripened off to a certain extent, leaving the roots within penetrating distance of the water.

**Hardy shrubs** (p. 28).—Many of these, especially the *Spireas*, are prepared to show us this season what they can do when they have such a good time of it for ripening the wood as they had last autumn. I never saw *Stuartia virginica* so fine as it is this year; not only are the individual blooms good, but the number of them on the branches make the bush quite a conspicuous object. *S. pentagyna* also promises better than usual, though I never have any complaint against it, except its refusal to be propagated. In this respect it has held out against all our persuasive inducement. Has either of the two ever been known to ripen seed in this country?

Sussex.

C. R. S. D.

#### WYNNSTAY,

THE house of the Wynns, is very near those great old dykes which are so striking a feature in Wales. In the best parts of the park one feels the beauty and dignity of the Oak, which we think a great many people in England never do. It is only in certain midland and western counties that we have seen the Oak in its true beauty and strength. There are many parts of Sussex where the Oak never gives one the impression that it does in Warwickshire or Herefordshire; in fact, many home country people do not know what the Oak is. So much in passing. The great old trees at Wynnstay cannot well be spoiled. That is one of the advantages of planting, that if we have a good result, it cannot easily be done away with by the next comer or by a change of taste. The avenue is very beautiful and long and the trees are varied as to kind.

In one place near the river there were originally many choice trees planted, and some of them still retain their beauty; but this department of the place has suffered a good deal of late. We suppose the cultivation of foxes and foxhounds is to some extent incompatible with the care that choice garden trees and plantations require. One does not think of neglect in the open and nobler parts of the park bordered by the river, which from many points of view presents picturesque effects. The gardening round the house at Wynnstay suffered somewhat from the observance of the disinterred style of broken bricks, smashed marble, narrow peaky beds, and other ways of treating gardening as one of the meaner "decorative" arts. However, the other seat of the Wynns—Llangedwyn—has most of the garden beauty of the estates, and that we hope to illustrate from original materials very soon. A photographer generally has such a "hard" idea of his work, that it is extremely difficult to get good photographs of the more beautiful parts of our country seats. Hard views of the house or stables, &c., are not so rare! We are unable to show the more picturesque parts of Wynnstay, and must content ourselves with one view, at least for the present.



## JULY IN THE MIDLANDS.

We are now in the enjoyment of one of the loveliest seasons which have ever delighted the inhabitants of what a foreign writer calls "this storm-cursed isle." June was a very pleasant month, and the summer which it heralded has amply fulfilled its fair promises. Our gardens are in their full beauty, and the whole country looks its best. Here in the midlands, where we have no grand landscapes to boast of, we are fain to content ourselves with quiet home-like scenes, having nevertheless charms of their own. In a northerly direction there stretches out a large tract of forest land, little changed (except in as you approach the flourishing villages which are dotted here and there) since the day when Robin Hood and his men hunted in "Merrie Shirewoode." Here grow giant Oaks, some of them with old historic names, and

more of this golden summer and harvest will begin. Last week we spent a few days in an out-of-the-way spot rather to the north of Lincolnshire, a part little visited by strangers, but not without interest from a historical point of view and the rather old-world character of the district and its inhabitants. Through the midst of it flows a grand river, which empties itself into the Humber and thus reaches the sea. The crops here are splendid, for most of the land was once bog and marsh, reclaimed in some parts in the time of Charles II. by Vermuyden, a Dutch engineer whom that monarch brought over to drain parts of England till then useless and uncultivated. Hence the fertility of the Isle of Axholme.

We noticed that many of the large meadows are divided into small holdings, and that white Poppies are grown extensively for medicinal purposes, the

is a charming mixture of vegetables and flowers. There is no attempt at formal gardening, but I never saw finer Roses, Pinks, and Sweet Peas, with countless other fine old-fashioned flowers

Which do best perfume the air.

A bed of handsome Foxgloves, from crimson through shades of soft pink dashed with dark spots down to creamy white, was greatly admired. This stately flower, the pride of the woodlands, cannot be too extensively grown in shrubberies and mixed borders where space is not an object, its only fault being that it is over so soon. Here in our midland garden we have many lovely things in bloom. Our Foxgloves are past their best; they have been very fine. We have a yellow variety which came from Germany, but it is hardly worth growing. Our Canterbury Bells are beautiful, some of intense blue passing through every



Wynnstay, from the park.

graceful Birches (a part of the district bearing the name of "Birklands"). These "green-robed senators of mighty woods" grow out of a carpet of Fern and Heath and divers "Grasses of silky feather," like that patriarch among Oaks whom the Laureate has rendered immortal.

To the south, our county, though tolerably wooded, is somewhat flat, and perhaps to casual observers uninteresting. But we are rich in having cornfields and fertile pastures, with here and there a picturesque village whose gabled houses and thatched cottages, bearing names and dates associated with a long buried past, attract the artist's pencil.

The hedgerows are now very lovely; they are garlanded, nay, almost covered, by the clinging sprays of the Rose, while large masses of the delicate Privet and the fragrant Elder scent the air. The hay is being cut—a plentiful crop. The corn is changing from bright green to a pale yellow. Two or three weeks

gardens which surround the farmhouses and cottages are carefully tended, and are full of gay flowers—blue Pansies, white Pinks, Sweet Williams of every shade, tall orange Lilies and Roses, particularly the large old-fashioned variety called here "The Village Maid." One remarkable feature here is the success achieved in window gardening. Most of the better sort of cottages present a lovely display of Geraniums of many colours, Hydrangeas, and the lovely blue Campanula with its trailing stems hidden under its starlike blossoms.

The Rectory garden of Epworth (a curious out-of-the-way town, but noteworthy as the birthplace of John Wesley) is a pattern in its way. It stands somewhat back from the village street, enclosed by a wall covered with fruit trees. A well-kept tennis lawn fills up the space in front of the drawing-room windows. This is shaded by old trees, but the other part, divided from the lawn by a row of tall shrubs,

shade of grey and mauve to clear white, double and single, some nearly 3 feet high. There are also some varieties of soft pink we much admired. The scarlet and orange Lilies are well nigh over, as are the early Pinks; the later ones and Carnations will be out shortly. The Delphiniums, of many shades of blue, are doing well, their slender spikes mixing well in floral decorations with flowers of various hues. Last season we had some fine Gaillardias, Dianthus, and Salpiglossis; they flowered late, and lasted till the frosts came. I hope we may be as fortunate with them this year. The double Deutzia, with its clusters of pinkish white blossoms, is very pretty just now. We have a good collection of these showy shrubs. The Limes are bursting into flower: Evelyn says, in his "Sylva," that they ought to be in full blow by July 13; but he lived before the "style" was changed, so our Limes are early. Among summer perfumes this is one of the most delightful. Near here is an



ancient churchyard long since closed, but kept in beautiful order. A row of Limes encloses it on one side, and it is planted with other trees and flowering shrubs. Thus is this God's Acre, sown with the seeds of sad mortality, converted into a garden of delight. But I must not forget the Rose, for this is the season when she holds her high court. Other flowers have their day. We welcome them as they appear, we enjoy their grace and beauty, and mourn their departure and decay; but she is without a rival—the garden's queen, immortalised by poets in almost every language, the emblem of youth and beauty and the symbol of the fleeting nature of all earthly things, she lives for ever in our memories and our hearts.

Roses never look so well as when planted in a part of the garden specially devoted to their culture. This space should be enclosed by a low hedge of Sweet Brier or Laurel. The colours of the different varieties, if well arranged, form a charming picture. Attention should be paid at this time to the removal of dead and fading flowers, and to keeping them free from suckers and weeds. Geraniums, Petunias, Coleuses, and Heliotropes, with other half-hardy things, are doing well. They do not suffer from the dry weather. They are very useful to fill up vacant places in beds or borders.

While we enjoy the present, preparations should be ceaselessly going on for the future. Sunflowers, Dahlias, Japanese Anemones, splendid indeed though they are, will soon remind us that summer is waning and that autumn approaches. These will soon be wanted to replace cherished favourites which have departed. So it is even in the floral warfare. As one soldier falls a comrade steps into his place. There must be no gaps in the garden ranks. This is a world of change. "Nothing continueth in one stay," but with care and thought our gardens should always present something new and interesting. Nothing should be left to chance. The summer programme should be carefully arranged beforehand. Then would our country homes always be delightful, and our gardens cherished possessions. W. N.

#### NOTES FROM THE CONTINENT.

**New fruit-gatherer.**—The advantage of possessing an instrument which renders the use of a ladder or steps superfluous in the gathering of fruit which cannot be reached in any other way is so apparent, that one wonders that such should not be in use in every garden where hardy fruits are grown. As a fact, fruit-gatherers are not popular, probably because none of them have hitherto fulfilled the requisite conditions of simplicity and efficiency. An implement of this kind, figured in the *Bulletin d'Arboriculture Belge*, seems to be an advance on those already in use. It is called the Cueilleuse Dubois (Dubois' gatherer), and, according to M. Rodigas, does its work in an efficient manner. By an ingenious arrangement, two blades fixed at one end of a hollow cane are made to work by means of a wire which passes through the cane, a button fixed just above the handle putting it into action at the will of the operator. The blades when shut securely hold anything, whether fruit, flowers, or grafts, which may be cut by them. Two forms of it are made, one for ordinary garden use, the cane of which can be had of any desired length, the other being of the dimensions and appearance of an ordinary walking-stick. Should this little implement answer to the description given, it ought to prove a useful auxiliary in gathering operations. When, as is so often the case, only a few fruits are to be gathered at a time, something is really needful to obviate the necessity of dragging about a ladder or steps, and it answers just as well for cuttings, grafts, or any necessary pruning or pinching operations on trees which may be out of reach. The Cueilleuse Dubois is manufactured in Paris; but could doubtless be obtained through nurserymen or seedsmen in this country.

**Potato Joseph Rigault.**—A great future is predicted for this Potato, which is the issue of two well-known early market kinds, the Marjolaine Tétart and the Nettle-leaved Marjolaine. It was raised by M. Rigault, of Groslay, near Montmorency, a district noted for the number of its market gardens. This Potato was exhibited at the autumn show of the

French National Horticultural Society, in 1883, for the first time, and it was put into commerce last year. Some four acres of it were grown last year by the raiser, and, as regards productiveness, earliness, and size, it is said to be all that could be desired. The writer of the report furnished to the Journal of the French National Society rejoices in the fact that at length a Potato has been raised in France which can rival in general usefulness the best English and American kinds, but as the standard of excellence in France differs considerably from that set up in this country, it may not suit our English markets, however much it may be prized there.

**The Queen Apple.**—M. Burvenich says that this, which has come as a novelty from England, is "just about as much English as the port wine which comes from the London docks. The Queen Apple is a German variety, which does not, however, detract from its merits, and perhaps this excellent Apple, owing to its having appeared as a novelty, may now find its way into gardens and orchards, for either of which it is equally suitable." M. Burvenich declares it to be identical with the Borsdorfer (the Gloire des Allemands of the Pomologist Diel), so called from having originated in the village of Borsdorf, in Saxony. It is a favourite Apple of the Germans, and, like many fruits which have become popular over a wide area, it has many synonyms. Fourteen of these are enumerated, four of which are French, whilst six are English, a fact which is accounted for by the reputed partiality of Queen Charlotte for this Apple, which was every year imported from Germany for her special use. This variety existed in the sixteenth century, being mentioned by Cordus as in cultivation in Saxony at that time, but it was not until 1785 that it was introduced into this country by the owner of the Brompton Park Nursery. The tree is of moderate growth, when young soon coming into bearing when grafted on the Paradise, and forms finely shaped dwarf trees, being wonderfully fruitful, Messrs. Transon asserting that in this respect it has no equal. It is also hardy, not subject to canker, attaining large dimensions in the course of time, its late flowering nature, which places it out of reach of the spring frosts, being another point in its favour. Whether the Borsdorfer, which has been so highly esteemed in Germany for many years, is identical with The Queen or not, it is evidently a valuable kind, and I am surprised that it should not be much grown in this country. Is it that our climate does not suit it? Some of your readers may be able to afford some information thereon. Many good fruits have been strangely neglected for a long period, and this may be one of them. The English synonyms are Garnet Pippin, The King, Queen's Apple, Bohemian Borsdorfer, Red Borsdorfer, and Leipsiger Reinet.

**Stock for Epiphyllums.**—A writer in the *Deutsche Gartenzeitung* strongly recommends *Cereus Macdonaldiae* for this purpose. Not only by reason of its stronger growth does it furnish a better support to the plant grafted on it, but it is also asserted that floriferousness is much greater than when the *Pereskia* is employed as the stock. By the method recommended, the *Cereus* is cut up into pieces of any desired length; they are immediately worked, and the cuttings being inserted in the usual way, they make roots whilst the grafts are taking, which is quite a novel process in the art of propagating. In the case of small specimens in 4½-inch and 6-inch pots, the slender growth of the *Pereskia* does not seriously militate against its usefulness as a stock, but it is otherwise when large plants are grown, and it would be well to use a stock having greater solidity, as being better able to carry the heavy weight imposed on it by some years of healthy development. When an *Epiphyllum* has had ten years' good culture the stem is ridiculously disproportionate to the head of foliage it carries, and one wonders how sufficient sap for the maintenance thereof can be passed up through this slender support. It is easy to imagine that the decadence of old plants is often due to insufficient nourishment arising from this cause. Some years ago I remember to have seen a kind of *Cereus* used as a stock for *Epiphyllums*, but I do not recollect the name. Mr. Wood, in whose nursery at Rouen I saw the grafted plants, told me that he no longer used the *Pereskia*, as the *Cereus* being hardier

the plants could be wintered in a lower temperature and they came into flowering size in less time.

**New race of Pinks.**—M. Regnier, nurseryman, of Fontenay-sous-Bois, announces the distribution by him of a Pink named Alexandre Regnier as follows: "This Pink forms the commencement of an entirely new and interesting race, the plant being robust and very hardy. The flowers are numerous produced, are borne on sturdy upright stems, and never burst." They are described as being sulphur yellow in colour, and are produced over a long period, this Pink being indeed a perpetual bloomer, in the way, it would seem, of Mrs. Sinkins, J. CORNHILL.

*Byfleet.*

## GARDEN IN THE HOUSE.

### FOLIAGE IN BOUQUETS.

By those who have a correct eye as regards the arrangement of cut flowers, a plentiful introduction of green foliage has ever been accounted indispensable. Yet the need for enough garniture of this kind to serve as a foil to the flowers, and as a relief to their forms and colours, used not to be so generally understood as it might have been. Even now, when the use of cut flowers for domestic decoration has become so general, that better things might be looked for, we sometimes see combinations of flowers put together with an absence of the leaf accompaniment, without which they are painful to look upon. It goes without saying that whatever foliage is used with cut flowers it should, in addition to being light and elegant in appearance, be of a nature that will enable it to keep up fresh without flagging as long as the flowers will last; for if it droops before they fade, the appearance of the whole is destroyed. For bouquets, button-holes, and small stands nothing has yet appeared that is such a general favourite as *Adiantum cuneatum*. There are other Ferns that answer better for large arrangements, such as where vases of large size have to be filled, but nothing satisfies the majority of people so well as *A. cuneatum*.

In the summer season many of the Grasses, both wild and cultivated, are unequalled for the elegant effect they produce when associated with cut flowers alone, or, what is preferable, in combination with Ferns. They are not nearly so much used as they deserve to be. Foremost amongst them are several of the Avenas (Oat Grass), *Stipa pennata* (Feather Grass), *Lamarckia aurea*, several of the Brizas, and others of plume-like habit. The different varieties of Myrtle, alike suited by the form and colour of their leaves as well as by their agreeable perfume, used to be more in favour than they are at present, having given place to things of a lighter and more elegant habit. In the same way the old-fashioned Southernwood (*Artemisia Abrotanum*) that still does duty in the country Housewife's Posy, has disappeared from the more fashionable arrangements of the present day.

The common Asparagus, after it gets sufficiently matured to stand in water, has a beautiful effect in large vases, whilst for such as are smaller as well as for bouquets and button-holes, the comparatively new *A. plu-*



mosus is beautiful both in form and colour, and for endurance when the leaves are old enough it has no equal. I have frequently seen it when kept in water as fresh at the end of a fortnight as it was when cut from the plants. Wild Ivy, grown on the chalk where it gets a beautiful bronze tint, has been much used of late in Covent Garden for button-holes, winding round the handles of small baskets filled with flowers, as well as for small vases. The street flower vendors who sell little bunches of flowers made up with Ferns and other greenery, the first essential of which is that it will stand exposure to the air, now use the shoots of Bilberry (*Vaccinium Myrtillus*) largely.

As already said, whatever green foliage is used amongst flowers it requires to have enough solidity to prevent flagging. The pale, yellowish, pea-green tints, common to the leaves of many plants in their young, tender state, are now preferred to the deeper green which mature leaves usually assume, especially Ferns when they are much shaded. To preserve this light shade of colour in *Adiantum* and other Ferns, when the fronds are hard and matured, the cultivators for Covent Garden Market now grow them in light houses, the plants well up to the glass, and with the least amount of shade that will suffice to keep the sun from burning them. So treated, and by immersing the fronds completely overhead in water for a time after being cut, they will stand for hours fully exposed to the open air, as evidenced by the thousands of button-holes one may see in the London streets in the hands of the flower vendors, where, under the influence of the sun and drying winds, *Adiantum cuneatum* keeps up as fresh as if growing on the plant. So much importance do the street flower sellers place upon having their *Adiantum* in a state that it will not flag under the unavoidable exposure, that they are careful to buy their supply from such of the growers as have a reputation for producing it in right condition.

T. B.

**Lawn mowers.**—What lawn mower is the best is still a vexed question; but will some of our readers state the number of knives on the cylinder which is found to work best? We have a machine in use, made by a well-known firm, and comparatively new, with eight knives on the cylinder. We could not get this machine to ever properly throw its cuttings into the box; consequently the draught was very heavy, and the machine got so often blocked up, that we had to stop to clear it out. So unsatisfactorily, indeed, did it work, that we ultimately decided to purchase a new cylinder—this time with five knives instead of eight. Thus altered, it now makes good work, and the draught is very considerably lessened. The machine is a 22-inch one.—W. CRUMP, *Madresfield Court, Malvern*.

**Diseased Peach leaves.**—I send some Peach leaves, and would be glad to know the nature of the disease with which they are affected. It begins with a yellow spot or blotch; the part then dies and crumbles away, leaving but the skeleton part of the leaf. The trees at one time were so severely affected as to be almost stripped of leaves. Now they are more sparingly attacked.—H. W.

\* \* The Peach leaves you forwarded are a complete puzzle. On first looking at them I thought the holes and notches had been eaten out by some insect,

but further examination made me feel very doubtful on that point, and I came to the conclusion that a fungus was probably the cause. The leaves were then submitted to one of our most eminent fungologists, who says: "I do not know what this is; it appears to me to be the work of an insect, but am uncertain. It is not fungoid." As I am much interested in this matter, would you kindly send some leaves direct to me, so that they may reach me as fresh as possible, and I will make another examination? It is possible the injuries may be caused by a very small mite, but I do not think they can have been by a caterpillar or weevil from the appearance of the edges of the holes.—G. S. SAUNDERS, *Cumberland House, Mount Zion, Tunbridge Wells*.

## FLOWER GARDEN.

### THE PERSIAN IRIS.

(*IRIS PERSICA*, *XIPHION PERSICUM*.)

THIS little spring Iris, a very old inhabitant of our gardens, is said to have been introduced about 1627 for Henrietta Maria, queen of Charles I.; it was known to Parkinson, who speaks of it ("Paradisus," 1629) as *Iris*



The Persian Iris (*I. persica*).

*bulbosa persica*, the Persian bulbous Flower-de-luce, and says, "It hath no other name." It was chosen by Curtis as the subject of the first plate in the *Botanical Magazine*.

There is a very distinct group of bulbous Irises separated by marked features from other bulbous Irises, and known generally by the title *Juno*. The terms *Scorpiris*, *Coresanthe*, *Thelysia*, and *Costia* have been used by various authors to denote the same group; but that of *Juno*, first used I believe by Trattinick, is the one which commends itself to most people, and the one which I shall adopt myself. The members of this group are bound together by so many common features, and, moreover, have habits so much alike and demanding such very similar modes of cultural treatment, that the use of a name to denote the whole group becomes very desirable. Of these *Juno* Irises, *I. persica* is one of the most common, other well-known members being the Algerian and Spanish autumn-flowering *I. alata*, or *I. scorpioides*, and the spring-flowering *I. caucasica*. There are many other members of the same group,

several of them very handsome, but these are not as yet in general cultivation.

The most marked features of the group are as follows: The leaves, of variable length, are flaccid, curving away from the axis of the plant, and thus spreading over the ground, each leaf being folded up laterally, so as to form a sort of trough; very frequently the edge of the leaf is hardened into a horny margin, the narrow point being similarly protected. The bulb, covered by thin membranous, white or brown skins, is furnished with a number of thick, fleshy, finger-like roots. The possession of these roots is very characteristic of the group. If an ordinary Spanish or English bulbous Iris (*I. Xiphion* or *Xiphoides*) be dug up in early spring or late winter, the bulb will be found to be furnished with similar, but less developed fleshy roots. These, however, disappear as the summer advances. The much more conspicuous fleshy roots of the *Juno* group do not disappear; they continue for more than one year at least, growing larger and stouter the while. How long exactly each lasts I cannot, however, tell. The flower, in all members of the group, whether sessile or borne on a scape, is characterised by the small size and peculiar nature of the standards or inner perianth segments. These, instead of being as large, or nearly as large, as the falls or outer perianth segments, are minute, and are either spread out horizontally or bent downwards. The falls are correspondingly large, and in most cases bear a small, but obvious, beardless crest along the middle of the fall; in most instances also the claw of the fall is furnished on each side with a delicate transparent colourless wing. The styles, by their breadth and length, and by the size of their crests, seem to strive to make up for the small size of the standards.

These features of the leaves, of the fleshy roots, and of the flowers, are characteristic of the group, and seem very curiously correlated with each other.

In *I. persica* the flowers are sessile, appearing in February or March before the leaves have attained any size (see fig.), these making most of their growth after the flower has gone; indeed, this is the habit of most members of the group. The colouring of *I. persica* is very distinctive, and enables it to be recognised at once. The greater part of the flower is of what Parkinson calls "a pale blue russetish colour," but the end of the blade of the falls is occupied by a large dark, almost black, purple blotch, fragments from which straggle on to the rest of the fall, while the median crest is coloured with a bright orange-yellow, thus affording a very pleasing contrast. Besides its beauty, the flower has the merit of frequently being fragrant with an odour somewhat like that of the Violet, but this is sometimes absent.

Though this Iris has been in cultivation so long, and repeatedly raised from seed, very little, if any, variation, as far as I at present know, has been observed.

As its name indicates, its native habitat is Persia, but it stretches westward into Asia



Minor, where it ceases; its exact eastward limit I have not yet been able to ascertain.

Parkinson speaks of it as "tender"; but since it thrives in South Persia at the height of 6000 feet, our winters do it harm by reason not of the hard frosts which they bring, but of their muddled, uncertain temper. Thus it sometimes is stimulated, with us, by a mild Christmas to start too early; and late frosts, spoiling its flowers and damaging its yet tender foliage, often shorten its life or at least weaken its growth. To make it thrive, it should be placed in some spot where its leaves, sheltered from cruel winds, may wax and grow fat under all the sunshine an English spring can bring them; and, what is perhaps still more important, where the work of a summer sun in drying up the failing leaves and ripening the bulb is not hindered by the shade of neighbouring plants, or by too great drenching with water, either from the clouds or the watering-pot.

If structure can ever give hints about culture, the fleshy roots of which I spoke above tell us tolerably plainly that the bulbs should be moved as little as possible, and kept out of the ground for as short a time as possible. The true, dormant bulbs of the Spanish and English Iris may be taken up and stored away for some time without any great harm, though I doubt if even these receive benefit by the process unless their earthy homes be unhappy ones; but the Juno Irises, which are not true bulbs in a certain sense of the word, keep withering and fainting and growing weaker and weaker all the time that they are being packed away in paperbags or on wooden shelves. The first start at all events of the growth for the new year depends as much on the fleshy roots as on the bulb itself; these will, if sound and plump, adequately feed the shooting flower and new leaves. How can they do this if they are allowed to shrivel and wither, or, worst of all, if they are broken off and left behind in the bag or on the shelf? If anyone wishes to grow these Irises well, he should purchase and plant the bulbs now as soon as they can be got, and not wait for an October sale. If autumn rains are to be feared, and I doubt if they do much harm if they follow an adequate summer ripening, a light covering over the planted bulbs will be the remedy.

The question of soil presents to my mind certain difficulties. *I. persica* and other Juno Irises are grown, I believe, in Holland in sandy soil, and a sandy loam is generally recommended for their cultivation. At the same time, wherever I get accurate information as to the soil in which these plants are growing in their native homes, the report generally is that the soil is a stiff loam, often very stiff clayey loam, damp at all events in spring and early summer, or at least in the plants' growing time. And my own experience is that all these Juno Irises do better with me in a somewhat stiff, though still open, loam than in a more sandy lighter soil, and better in a situation which is somewhat moist than in one which

is over-dry. I would, therefore, venture to recommend anyone planting the Persian Iris for the first time to choose such a loam rather than a lighter sand, and, while avoiding any situation likely to be water-logged in winter, not to select a spot which is too dry in spring. The wholesome practice of covering the bulb itself with sand is, of course, a different matter; what I mean is, that the soil into which the roots descend should not be too light or too dry.

M. FOSTER.

#### SEEDING OF DAFFODILS.

MR. ENGLEHEART (p. 62) asks if I am certain that I obtained seed from *N. gracilis*. I recorded the fact, as I always do, just as I observed it, and the time is now over for renewed investigation. I find to-day that on two clumps of *N. gracilis* there are a great many seed capsules, and that they are mostly barren ones; but I have no doubt whatever that seed may be obtained from this variety fertilised with good pollen. I will observe it afresh next season, now that attention is specially directed to it, and reserve my full reply until then—nevertheless, believing in the record I made of this year's experience.

Mr. Engleheart says that Dean Herbert found this *Narcissus* to be sterile in his own experience, and could obtain no record of its seeding either here or on the Continent. Will he kindly give us the exact words in which Dean Herbert makes this statement, as I am quite unable to verify it, although I have, I believe, all Dean Herbert's writings at hand, and have searched diligently for the paragraph? I find in his "*Amaryllidaceæ*," pp. 316, 319, two references to the seeds of *gracilis*, and he evidently considered it capable of seed-bearing when he completed that work. But in a later note he states that the seeds he had referred to as above proved to be Jonquil seeds, erroneously communicated by the cultivator. The Dean had found great difficulty in obtaining results from home-grown bulbs, which seldom bore ripe seeds, and he had been at the trouble of corresponding with foreign growers and botanists, from whom he obtained seeds, and the remarks he made on *N. gracilis* were of this sort. He adds: "On further investigation of the subject it appeared that, although most of these plants (*Narcissi*) had been cultivated above 200 years, their places were unknown, and a suspicion had arisen that they were artificial breeds, which some cultivator had imposed upon the public as mountain plants." He therefore advertised, stating the suspicion, and requesting a communication of their seeds. The result was that many in remote districts kindly sent him bulbs of *N. gracilis*, but no seeds were forthcoming.

He supposed *N. gracilis* to have been a hybrid between *N. poeticus* and some Jonquil, but he never arrived at the proof, and here the matter rests until now. The same remarks apply to several other *Narcissi*.

Dean Herbert found that the pollen of *Narcissi* cultivated long by offsets became obsolete and sterile, and this fact, no doubt, obtains with most of the bulbs we experiment with, until they have had rest in our gardens. This no doubt was the case with *N. Horsefieldi*, which never had a chance of bearing seeds in its earlier history, and hence a belief spread that it was a sterile variety. Mr. Engleheart seems to have overlooked the fact that I had gathered seeds from *Horsefieldi*, as he merely records my mention of its having been considered sterile. A great many ripe seed capsules have been gathered here from *Horsefieldi* this year. I think it likely that many more *Narcissi*, at present considered sterile, will be found to produce seeds if properly fertilised with suitable pollen.

WM. BROCKBANK.

**Iris cuprea.**—One of the finest plants at present in bloom in the rock garden of the Edinburgh Botanic Gardens is this fine Iris. It has not a prepossessing name, and I was, therefore, surprised to see such a

beautiful flower. There is no display about it; in fact, it is only when you examine it closely that you realise the high character of this plant in darkest maroon, yellow, and blue tints. It grows about 2 feet high, is quite hardy, and should be in every garden. —RUBY.

**Campanula G. F. Wilson.**—Mr. Tynons asks (p. 58) how this *Campanula* was named. I am glad to be able to tell him. Some few years back I went to see my friend, the late Mr. I. Anderson-Henry, near Edinburgh. He said, "You have come just at the right time. I have a new hybrid from pulla, a good thing, and as you have called, I will name it after you, G. F. Wilson." When grown in a place that suits it, this is beautiful; in too dry a place with us the leaves have an unhealthy colour. —GEORGE F. WILSON, *Heatherbank, Weybridge Heath.*

## GARDEN FLORA.

### PLATE 502.

#### LINARIAS AND PHYTEUMAS.\*

BESIDES the alpine species of *Linaria* here enumerated, many others are included in this family well worth notice. They vary in growth from 1 foot to 2 feet and even 3 feet in height, furnishing diversity both of form



*Phyteuma orbiculare.*

and colour. They include *vulgaris* and its handsome variety *Peloria*, *triornithophora*, *purpurea*, *capraria*, &c. They grow well in ordinary garden loam, and make handsome specimens when well managed. They can be readily increased by means of cuttings, or they can be raised from seed, which ripens well. Among annual kinds may be mentioned *reticulata*, *aureo-purpurea*, *triphyllo*, *tristis*, *amethystina*, *maroccana*, &c., all of which are worth the attention of even the most fastidious cultivator. They are all hardy, and may be sown in spring in the open border where they are to remain. The Alpine Toad-flax (*L. alpina*) is, as will be seen, an elegant little perennial long known in English gardens, where it is said to have been cultivated as long ago as 1570. In low-lying gardens it is, however, difficult to keep for any length of time, owing probably to the dense foggy atmosphere prevalent in such situations, so different from the clear, cool, bracing air on its native heights on which it reaches almost to the snow line. In high-lying gardens it will thrive for an

\* Drawn in Messrs. Backhouse's nursery, York, by the late Mr. Noel Humphreys.





LIQUIRIA ALBA



ERYTHRAEA HUMILIS







indefinite time planted on rockwork, where, when fully established, it increases rapidly from self-sown seeds. A partially shaded place seems to suit it best, where it gets plenty of moisture during the growing and flowering season. Planted on steep, sloping shelves, or amongst loose stones or *débris*, it gives little or no trouble, and its truly handsome flowers make a brave show usually from the end of May until the frosts set in. In districts in which it is used in the open air only during the summer months it may be readily perpetuated by means of cuttings, which, taken off in autumn and inserted in pots and plunged in a cool frame or handlight, will be ready for planting out when genial weather sets in; they should be kept comparatively dry until planted out. It may also be increased from seed (which it ripens in abundance), sown as soon as collected and kept under cover until spring. This species also makes a neat and attractive pot plant, and where collections of rare alpine are kept in this way this Toad-flax should on no account be omitted. It is easily managed, never failing to produce an annual show of bloom. It varies in height from 1 inch to 6 inches—rarely higher—and has a spreading or decumbent, but neat, habit, with smooth glaucous linear or almost lance-shaped leaves, four together in a whorl. The flowers average about a dozen on each stem, and associate prettily with the whitish foliage. It is a native of Switzerland (where it grows and thrives amongst the gravel), Alps, Pyrenees, &c. It is the *nitirrhinum alpinum* of the *Botanical Magazine*, tab. 205.

*L. CYMBALARIA*, the Ivy-leaved Toad-flax, although said to be an alien in this country, is found plentifully enough out of the reach of any garden. It establishes itself with remarkable freedom on old walls, the fronts of which have begun to decay, hanging in long, graceful wreaths, 1 foot or 2 feet in length. Loose dry stone dykes we have often seen made beautiful with this plant, and even outhouses and other buildings. It is, however, rather a troublesome pest when established on fruit walls, as it is sure to grow thickly amongst the branches of the trees. There is also a handsome white flowering variety of it and one with variegated foliage, all of which are worth growing in their right places.

*L. ORIGANIFOLIA* (the Marjoram-leaved Toad-flax) is a charming little alpine rock plant, perfectly hardy with us in the south, where it flowers with a profusion almost unequalled amongst plants dwarf and neat in character. The variety *crassifolia* figured in the *Botanical Magazine* (tab. 5733) has much larger flowers and broader and more acute leaves than the type. The latter, which is plentiful in cultivation, flourishes well on dry rocky places fully exposed to the sun's rays. It does not increase from self-sown seeds like *L. alpina*, but cuttings of it strike root readily in a cool frame. It rarely exceeds 6 inches or 8 inches high, has numerous erect, much branched stems, and bears flowers three parts their entire

length. The oblong leaves taper gradually to the bottom without any defined stem. The flowers are bluish violet, varying to pale purple, and rarely white. It is a native of Southern France, where it is found on rocks, Pyrenees, &c., and flowers from June until October.

*L. PALLIDA* is a common plant in gardens, in which it is used with considerable effect on sloping banks in damp, low-lying situations and on old north walls. Its worse fault is that it is almost sure to run over everything else with which it is associated if not kept within proper bounds. Its roots penetrate deeply underground, running long distances in a horizontal direction and cropping up in the most unlikely places. It is when given plenty of room a valuable and free-flowering plant. It grows only 2 inches or 3 inches high, has glaucous heart-shaped three to five-lobed leaves, and flowers pale blue and sweetly scented. It is a native of Abruzzo, and flowers from July to September. *L. hepaticæfolia*, the small Liver-



*Phyteuma comosum*

wort-leaved Toad-flax, and *L. æquitribola* may both be included here, having much the same habit and general character as *L. pallida*. The former does not grow more than half an inch high, and covers stones and even flat places with as great rapidity as the pretty white Balearian *Arenaria*. At several places where bulbs are grown in large beds this humble plant is used very effectually as groundwork for them. The profusion with which its pretty blue flowers are produced, almost hiding the little round leaves, always makes it welcome when the bulbs have died down. This plant would, we think, from its low growth make a much better carpet for Orchids than the sometimes over-rank *Veronica* at present in use. It is a native of Corsica. *L. æquitribola* differs little from it except in its having much larger flowers and three-lobed leaves. It flowers all the summer and is a native of Corsica. *L. pilosa*, also in cultivation, is not hardy in the open air. It is useful in pots for the front stages of cool houses.

#### ALPINE PHYTEUMAS.

In the alpine garden the *Phyteumas* are important plants. They belong to the *Campanula* family, and the genus includes about fifty species inhabiting Europe and temperate Asia. Of these comparatively few have as yet found their way into cultivation, useful as they are either for the mixed flower

border or for the elevated rock garden. *P. comosum*, however, will probably produce larger and better flowers in pots than planted out. It may be increased by division; indeed, most or all of the species hereafter mentioned may be readily increased by dividing the roots, an operation best done after they have started to grow in spring; seed, too, is ripened freely by the majority of them. *P. humile*, illustrated in the accompanying plate, is, with the exception of *P. pauciflorum*, the smallest of the group to which it belongs. It is a real alpine gem, and, when well flowered, very effective. Dwarf alpine, such as this, *Campanula, cenisia*, *Raineri*, &c., should, if possible, be grown together; when planted promiscuously on rockeries they are apt to get overlooked or else smothered by taller and coarser growing plants; a small piece of rockery specially built with small pockets and with a plentiful supply of fissures, which these dainty plants love, would well repay the trouble involved in its construction. *P. humile* is quite an exceptional plant; it is perhaps the easiest to establish of all the dwarf-growing species, lasting an indefinite time when well sheltered during winter; fissures of rocks with a southern exposure into which plenty of light rich soil has been firmly rammed is its favourite position. Like *P. comosum*, it is essential that copious supplies of water be given it during the growing season, otherwise the flowering will be impaired both in quality and quantity. It seldom exceeds 3 inches or 4 inches in height, but appears to be a variable plant according, probably, to the elevation at which it is grown. The lower leaves are narrow, lanceolate, and crowded at the base and of a pretty soft green. It is a native of Valais, &c., and flowers with us in July and August.

*P. CAMPANULOIDES*.—This is the tallest and most robust of all the *Phyteumas*, and an extremely useful plant both for borders or flower beds. A large clump of it a yard through planted in the centre of a round bed with *Salvia patens alba*, and edged with dwarf-growing *Gaillardias*, has a grand effect. The straggly flower-spikes of the *Phyteuma*, interwoven with the white *Salvia*, were most pleasing. It grows remarkably well in ordinary garden soil; the greatest trouble belonging to its cultivation is keeping it within bounds, which may, however, be easily done by annual notching. It grows, as a rule, about 2 feet high. Its flowers are produced in racemes (generally three) about half way down the stem together on very short stalks. They are blue, fading purplish, rotate or wheel-shaped, and not unlike some of the extreme forms of *Campanula rotundifolia*. It flowers through the months of July and August. Native of the Caucasus.

*P. COMOSUM* (the tufted or glaucous-horned Rampion) is a rare and extremely interesting alpine, said to have been first introduced by Mr. Maw, of Broseley, from Monte Tombea, but as it is mentioned in Miller's "Dictionary," it was probably in cultivation at that time and afterwards lost. On rockeries, although doubtless hardy, it requires renewing every few years, at least such is our experience; therefore a stock of it is constantly kept in pots, and the renewal is effected by breaking up the larger and older pieces. On a shady piece of rock it never fails to produce plenty of flowers, the result doubtless of its roots being kept perfectly cool. It seems to suffer most in winter from its crown being exposed, and this we remedy by a thick covering of rough sand, leaving it on until the shoots have commenced to grow in



spring. In pots it is more easily managed; light soil well mixed with pieces of sandstone about the size of marbles and wedging the roots tightly between very hard stone are the main essentials as regards success. It should be kept comparatively dry during winter and watered only when growth commences, continuing it until the flower-heads are formed; the pots will be all the better for being plunged in cool material and partially shaded.

**P. COMOSUM.**—This grows from 3 inches to 6 inches in height, and produces numerous unbranched stems from the crown, terminated with large bundles of nearly sessile flowers, varying from ten to thirty in a head; the lobes of the corolla are attached at the extreme points, the only openings being slits at the base or inflated portion. The flowers are about an inch long, pale or dark lilac, and very handsome. The leaves all rise on short stalks from the crown. They are almost round in outline, with a cordate base, and are deeply and sharply toothed. It is found at elevations of from 4000 feet to 5000 feet on dry rocks on the Eastern Alps of Austria, &c. It flowers in July—often later.

**P. HALLERI.**—This pretty species was lately introduced to this country from the Continent. It grows over a foot in height, and when grown in large patches makes a handsome border plant. It seems to thrive best on dry sunny spots on a southern border. The lower leaves, which are on long stalks, are heart-shaped with a deep cordate base and deeply serrated; those on the stalks are much narrower. This species appears to be allied to *P. spicatum*, of which it may probably be only a variety. It flowers profusely in July and August. It is a native of the Piedmont, Lower Alps of Provence, &c.

**P. HEMISPHERICUM** (the Grass-leaved Rampion) is an extremely pretty little plant, and one that with ease may be established on rockeries. It thrives best in dry stony places, particularly in the cracks of a crumbling brick wall. Where the latter is not available it should be planted on a steep slope with a southern exposure, and well watered during the growing season. It grows from 1 inch to 6 inches high, and the unbranched straw-like stems are terminated by a spherical head of beautiful deep blue flowers, surrounded by oval-shaped bracts. The leaves are narrow, entire, and Grass-like, about half as high as the stem, and rising directly from the crown. There is a white form seldom seen in cultivation. It is a native of Southern Europe, and generally flowers in July. (Syn., *P. graminifolium*.)

**P. LIMONIFOLIUM** (Sea Lavender Rampion) answers in many particulars to the commoner *P. campanuloides*, notably in the arrangement of the flowers, their colour, &c. It is, however, much inferior to that species for ordinary garden purposes, and unless as a botanical curiosity it need not be a desideratum where the other is established. It grows from 2 feet to 3 feet high, and has a sparingly branched stem. The lower leaves are on long stalks slightly toothed and smooth. Three-parts of the stem are covered with flowers, not large, two or three together, light blue and having pretty yellow anthers. It is a native of the Levant, and is also found on grassy places near the summit of the Bithynian Olympus.

**P. ORBICULARE**, although a native of this country, is not so often grown in gardens as its superior merits as a flowering plant entitle it to be. It has given rise to numerous varieties. There is just a trifling botanical difference between this and *P. Silberi*. *P. Charneli* is quoted as a variety, having the habit of the Bluebell; it differs little from the type, and is extremely little removed from *P. Scheuchzeri*, except that the bracts are longer. These are all useful and showy plants for mixed borders or beds, where they may be used with telling effect. Ordinary garden soil suits them well, and they flower freely either exposed or in the shade. *P. orbiculare* varies from 1 foot to 18 inches in height, and throws up numerous slightly angled erect stems, clothed with alternate narrow sharp-pointed leaves and terminated with a head of bright blue flowers. It flowers in July and August. It is found generally on or near chalk in this country. *P. linifolium* is nearly allied to this species; it has much the same habit, but has ragged, inferior flower-heads. *P. Micheli* is also nearly related and may be included under this head.

**P. SPICATUM.**—This is a striking species, but unfortunately not very plentiful in cultivation. It does well on rockwork in fully exposed positions, where it can be established with ease. It grows from 1 foot to 18 inches in height, and throws up numerous angled, unbranched stems. Its flowers are sessile and packed closely together, forming an oblong head about 2 inches long, not unlike an old-fashioned bottle-brush. The flowers are creamy white varying to light blue, and in the latter state very handsome. The lower leaves, which are oval, are acute with a slight cordate base, and with the margins twice serrated: those on the stem are few and narrow. This is said to be a very useful bee plant. It flowers in July and August, and is a native of Southern Europe generally. D. K.

**Cistuses.**—Happily, there are compensations in all things, and those who live in the poor, hungry, sandy soils, insatiably voracious of "good stuff" and water, can grow to perfection some charming plants that cannot be enjoyed in their fullest beauty by others more happily placed for general gardening purposes. Of these, the *Cistuses*, now at their best, are perhaps the most important, forming dense bushes smothered in flowers, and enjoying the blazing sun and free air of an exposed hill-top that may faintly remind them of their original homes on the coasts of the Mediterranean region.—G. J., *West Surrey*.

**Tree Carnations.**—Mr. Douglas says (p. 538) that "no doubt the first Tree Carnations were the result of a seminal variation, which some shrewd observer propagated, and, once obtained, it was easy enough to raise other seedlings with this peculiar characteristic." Now, those acquainted with seedling Carnations are well aware of the frequent development of the tree habit, both of plant and flower, in every considerable batch grown, and that seminal variation is no more to be inferred from this than from the apparently limitless variety of form and colour which the *Dianthus* supplies.—A SEXAGENARIAN FLORIST.

#### MIXED FLOWER BEDS.

THERE are some arrangements of plants in a garden from which one never ceases to derive pleasure, whilst there are others which the eye soon gets tired looking on, however effective they may be as seen from some particular standpoint. Pretty nearly all that is possible both for and against the ordinary styles of modern bedding has been said; yet, where only a slight departure is made from beds confined to solid masses of some particular plant of one colour edged may be with something that gives relief in form and hue, or the wearisome lines of ribbon border that used to be so much in favour, one sees how much has been sacrificed to obtain the one object which the bedding style affords, that is, a uniform sheet of bloom with nothing as it were to mar the display of colour. Some of the beds in Hyde-park adjoining Park-lane that have this year been filled with a mixture of plants differing in habit and in colour go to illustrate the facts here stated, so much better in effect are they than where the filling consists of the ordinary common-place materials. A few of the beds alluded to have been planted as under: the common white Lily in single plants springing out of an undergrowth composed of pale pink Canterbury Bells and purple Pansies; another with *Verbena venosa* and *Abutilon Thompsoni* standing alternately in a groundwork of silver-edged *Pelargonium Queen of Queens*. Carnations of various colours along with *Grevillea robusta* associate well together standing in a yellow setting of *Harrison's Musk*. In another bed *Ficus elastica* plant for plant with the narrow-leaved *Dracæna congesta*, each about 2½ feet high, has a groundwork of the yellow-leaved *Abutilon vexillarium*. Other beds there are in which scarlet-flowered tuberous *Begonias* rest on an undergrowth of green *Sedum* and in this way look well. Golden-leaved *Fuchsias* in other places are mixed with blue *Violas*. These are some of the mixtures that go to relieve the ordinary filling of the rest of the long series of beds here, with a few that are arranged in the carpet style. The mixed

beds just named have each a border composed of two or three rows of some low-growing distinct coloured plants.

It is not unlikely that this departure from the old course of planting may fail to please those who delight in solid masses of glaring colour, but there is little question that others will approve of the change. The tender plants that are so much relied on for their distinct high-coloured leaves, the *Coleus* and *Alternantheras*, appear to have been so chilled by the cold weather that lasted up to midsummer, that they look as if they would not get over it. Even the splendid bright sun with warm nights, which we have had lately, seem to do little in the way of bringing them up to their wonted colour.

It is not so easy a matter as some might suppose to select plants wherewith to furnish the large extent of this description of garden here in a way that will not result in each succeeding year being almost like those that have preceded it, and to get away from the old line of bedders, and still make, as required, the whole of the filling look established and perfect in foliage and flower up to the end of the London season. For, doubtless, anything that came much short of this would not be deemed sufficient.

T. BAINES.

**The red Water Lily.**—It would be interesting to know whether anybody has got the red variety of the common Water Lily, about twelve plants of which were sent out by Messrs. Henderson in 1879. I inquired at the Pine-apple Nurseries the other day, but could not obtain much information. They have kept one plant, but not having conveniences have not propagated it, and it does not flower. My plant has done well, having nearly forty leaves and beautiful flowers. All who possess it have a treasure.—C. G. ISHAM, *Lamport Hall, Northampton*.

#### AUNT DI'S POT POURRI.

WE have now arrived at the full climax of everything that is lovely in our gardens, and if we care to keep the sweet recollection of these joys to help us over the dark short days of winter, now is the time to collect the sweet perfumes of our flowers. The days are gone by when each housekeeper made their own Rose, Elder, and Lavender water, and when each drawer of the guest chamber was furnished with a little muslin bag or satchel filled with Lavender blossoms; but no one who has the tiniest garden should forego the pleasure of a jar of "pot pourri." It is an unending enjoyment, and I cannot too strongly recommend those who have not already one to begin at once. I have an old recipe which has been used for several generations most successfully, and which I enclose under its old name in our family, "Aunt Di's Pot Pourri." I once saw a friend occupied in keeping her Roses that had died in a London drawing-room, but that would be an insult to the perfume. None but the very freshest and sweetest of Roses should be used. The petals should be just dried and then at once thrown in, and as the recipe says, a little bay salt added to each layer, and a stick should be kept in the jar, wherewith to stir it occasionally. I have many jars of pot pourri, but the oldest, now ten years of age, is the sweetest. In this one, besides the recipe given, many *Gardenias*, *Tuberoses*, and white *Jessamine* have been thrown in. Gifts from dear friends, some no longer here, and a young bride's wreath of fresh Orange blossoms also lie therein, so that when I stir this jar, sweet



memories, as well as a sweet perfume, fill the whole room. I hope that many others will try this simple recipe, and that in future years they will look back with pleasure to the moments spent in their gardens, collecting sweet flowers for their pot pourri. "Aunt Di's Pot Pourri" consisted of the leaves of Lavender, Lemon Thyme, Sweet Marjoram, Rosemary, Bay, Orange, and Verbena. The flowers of Violets, Cloves, Pinks, Oranges, Damask Roses, blown or in bud, Moss Roses and their buds cut up, white Lilies, or anything sweet that is liked. Put these in as convenient, but not the least damp, and between each layer that is thrown in add a handful of bay salt. Add to a good sized jar 1 oz. of Orris root sliced, 1 oz. of benzoin, and 1 oz. of Florax, a Seville Orange stuck all over with Cloves, dried for one year and then pounded, and also a whole one; a little Nutmeg may also be added to raise the scent. C. L. S.

#### CARNATIONS AND PICOTEEES.

THE blooming season of these has again come round, and the watchful cultivator who takes an affectionate interest in his plants has always something new to tell. Many do not grow seedlings, and therefore know not the pleasure experienced in anticipating the flowering period. "Hope springs eternal in the human breast," and therefore one is always expecting to raise a better scarlet bizarre than Admiral Curzon or a better Picotee than Mrs. Payne. After three or four years' experience, however, in crossing certain varieties to obtain these much-coveted results I have found that flowers possessing such high-class properties are not in every patch of seedlings. We talk of the advancement made in Carnations of the bizarre and flake type during the last few years, but I question whether we have much to boast of in that respect. It cannot be said that the plates in the first volume of the *Botanical Magazine* are exaggerated. The *Cyclamen persicum* is what we would expect it to be at that time, and the yellow Day Lily can be compared with the original in our flower borders. Plate 39 is a picture of Franklin's Tartar, scarlet bizarre Carnation, and in all qualities that constitute a first-class flower it is not behind the best varieties now in cultivation; in fact, it is superior to most of them. Curtis states that "The *Dianthus Caryophyllus*, or wild Clove, is generally considered as the parent of the Carnation, and may be found, if not in its wild state, at least single, on the walls of Rochester Castle, where it has been long known to flourish, and where it produces two varieties in point of colour—the pale and deep red." These are, no doubt, the parents of all the types which we have of the Carnation. The catalogues of Messrs. Veitch and Mr. Turner are now before me, but neither of them contains new varieties of the bizarre or flake types. I am told that those who love flowers for their sweetness and beauty, and who have little or no knowledge of the technical differences between bizarres and flakes, prefer self-coloured flowers, and this is verified by the much greater demand for them than for the others. Most of those, however, who cultivate self in preference to the others will, I believe, in time appreciate the beauty and greater variety to be found in the flakes and bizarres. Those who cultivate Carnations and Picotees for sale inform me that about ten years ago there was scarcely any demand for them, and where ten pairs were sold at that time a thousand can be readily disposed of now. The demand, which has increased year by year, must, I doubt not, be attributed to the National Carnation and Picotee Society, which has been the means of placing all the types of the flower before the public in their best form. Those who see them at exhibitions are enamoured with them, and wish to grow them in their own gardens. Not one in ten or even in fifty might care to exhibit their flowers; but it is doubtless by means of exhibi-

tions that special cultural knowledge is disseminated, and cultivators brought together from distant parts who otherwise would have no opportunity of meeting.

In order to obtain exhibition flowers of the highest quality, it is necessary to have a considerable number of plants in pots, a system of culture requiring more care and attention than some feel inclined to give; but those who have seen a houseful of well-grown Carnations and Picotees will not soon forget the sight. Beds of Carnations or isolated clumps out-of-doors are, however, sufficient for most people. In Messrs. Veitch's nursery Carnations are well cultivated out-of-doors; and of these probably six selfs or Cloves are cultivated to one of the striped kinds—a pretty good index as to which is in greatest demand. A large bed of the old Clove is very striking, while another bed of a crimson kind, Ouida, is brilliant in the extreme. There are large beds of other colours, such as the pale pink Corsair; the Clove-scented, rosy pink Celia; Vivid, bright scarlet; and Field Marshal, a rich full scarlet. Whole beds are there of snowy whiteness, the purest amongst them being Virgo; W. P. Milner, unsurpassed for good habit and handsome flowers; Hodge's Bride, an exquisitely formed flower, white with a flush of rose in the outer petals; and Ossian, fringed white. There may also be seen beds and masses of yellow kinds—some edged and slightly barred with red; and these, be it observed, not puny, weak plants, like the old yellow ground Picotees, but strong, vigorous specimens clothed with scores of fully expanded flowers and buds in various stages of development.

The best striped Carnations and edged Picotees are all well grown out of doors here. Some of the beds were planted as late as March last. Both Carnations and Picotees like a rich deep soil, and medium loam is better than that of a light sandy character; but the plants are not so fastidious as some people suppose them to be. If the soil is heavy, some road scrapings or sand improves it, and clayey loam would improve sandy soil. I would recommend seedling raising to everybody, for the quantity of flowers obtained in this way is almost beyond belief. We have at present two beds, containing 350 plants. I have just counted the open flowers and buds on a medium sized plant, and they number sixty-two, thus making 21,700 on the two beds. The seeds were saved in our own garden from good varieties; they were all taken from flakes, bizarres, or the edged type of Picotees. Many self-coloured flowers are among them, and also a good sprinkling of single blooms. A few amongst them show the habit of the perpetual flowering kinds, owing to the proximity of the seed-bearing parents to flowering plants of that type. The seeds obtained from the best double varieties are not of good quality as regards productiveness; they do not vegetate well. It is better, therefore, to sow them in pots or seed pans and raise the plants in a hotbed. Seeds that might perish if sown out of doors will produce plants in a frame, and, be it known, that the most unpromising seeds are likely to produce the best flowers. Early in April is the best time to sow, and when the seedling plants have formed their first leaves after the seed leaves, they may be pricked out into boxes, sufficiently far apart to allow them to develop themselves into plants with six leaves, less or more, when they may be set out in the open ground; 18 inches from plant to plant will be a sufficient distance asunder, but if allowed 2 feet they will fill up that space.

Layering may now be done—a much better method of propagating than taking cuttings. Cuttings or pipings, as they are termed, may be taken off when they are in such a position on the plants that they cannot be layered; they will form roots most quickly in a frame over a hotbed, but they are perhaps most certain to succeed, though they produce roots very slowly under close bell or hand-glasses. When rooted it is best to pot them off at once, or plant them out in the open ground. A large proportion of sand ought to be mixed in the soil either for layering or striking cuttings. J. DOUGLAS.

**Holly berries.**—The crop of Holly berries this season is a heavy one, young and old trees being alike fruitful; on young vigorous trees, indeed, they

hang in unusually long clusters. It may be worth notice, too, that trees standing in sheltered positions are carrying most berries. Even on such a hardy subject as the Holly there is, therefore, no doubt that when in flower the weather exercises some effect. —J. C. C.

## TREES AND SHRUBS.

### THE JUNIPER IN SURREY.

THE common Juniper is not a popular Evergreen, for few ever plant it; certainly it is not to be seen in good form in cultivation, except the upright variety of it. Nor does it take a high place among our native Evergreens, and we have been lately wondering why this is so on seeing specimens of it in Surrey. Anything more picturesque or beautiful it would be hard to see, and as Evergreens, quite worthy of ranking with the Box trees, Elm, and Yew, which in the same county are singularly beautiful, as, for example, on the hills between Guildford and Dorking. Reading Bentham the other day, we saw in the description of the Juniper that it was an "evergreen shrub sometimes procumbent, sometimes ascending or erect, 2 feet, 3 feet, or even 4 feet high!" This set us thinking of how much botanists pay attention to trifling details of structure while ignoring the larger facts and the beauty or stature of a plant or tree. It was so necessary in ages past, and till recently, to acquire a hold of some correct, or at all events understandable, system of naming plants, that perhaps this is excusable, but certainly it is nothing to be proud of. The aspect, beauty, flowers, fruit, varying shades of colour from time to time, effect in the landscape—all these are most important and delightful things for the artistic and gardening world generally, which are often wholly lost sight of in the books which teach one of plants. It is fair to say, however, that to acquire a knowledge of these facts more time and more observation is required than is necessary in the case of the structure of a plant, which can be examined in a dried specimen. Let no one, however, say that the points we are speaking of are less important than the shape of the individual leaf or any single detail. Thinking of this singular injustice to the native Juniper which we had admired in such profusion of beauty, we measured some of the specimens near Godalming, and the following is a list of the heights:—

#### JUNIPERS ON HIGHDOWN HEATH.

A tree 17 feet high by 13 feet wide. Several stems when young had been laid down by snow, and lie along the ground 3 feet or 4 feet before rising.

A tree 22 feet high by 6 feet wide. One stem, the trunk showing clear about 4 feet.

Old tree completely wrecked by wind and snow. 18 feet high, lying down.

Tree of spreading shape, 15 feet high by 14 feet wide. Four principal stems, one laid down; stems 7 inches to 8 inches diameter.

Large tree, 24 feet high. Five principal stems, the largest 1 foot diameter at 1 foot from the ground.

Largest tree of a fine group of ten; cannot be less than 25 feet high. Single stem; shape like an Italian Cypress.

It is curious to observe the variety of shape assumed by these wild Junipers.



Trees with single stems shoot up tall and straight, but even these take different forms; sometimes as massive columns 4 feet to 6 feet wide, of nearly equal width throughout their height, and with rounded tops; but oftener in spire shape, tapering gradually to the delicate little leader only a few inches

long, which hangs over with dainty grace. This spire shape seems to be the typical habit, as it may be observed in scores that have been sheltered and are uninjured, and a fairly typical measurement of one of them would be 2 feet 6 inches wide at the leafy base, and 12 feet to 14 feet high, with 18 inches of clear stem. When they grow with many stems from one root the forms they take are still more varied, and the spire shape, even of individual parts, is rarer. In this case they tend to make great bushy heads and long side branches, with somewhat the habit of an old *Arbor-vitæ*. The bush-shaped masses are very liable to injury by snow; a mass of snow resting on the top will split the whole bush open outwardly, but the stems grow upwards again from the prostrate ends, making at last still larger bush-shaped groups. This may be observed in a large proportion of cases, and what may be easily mistaken for a young tree, even at 12 feet distant from the root, proves to be the end of a fallen branch, the horizontal part being buried by Fern and Moss. The colour of

Junipers is at all times beautiful; in some lights silvery, in others a cool, dusky green, with rusty shadows; the rough grey bark gets a pale emerald green mossiness, fading to quite white, with the look of frosted silver, and the pretty masses of berries pass from palest green, through olive, to the colour of ripe purple Plums with a delicate bloom. The fruit and whole plant has a

delightful Myrtle-like smell when bruised. In the flowering season it is interesting to see the dense clouds of yellow pollen that are shaken out when a bird settles or anything moves a branch. Honeysuckle and wild Juniper are constant allies; the Honeysuckle shoots up through the branches and

May. In summer they are 6 feet deep in Bracken.

**Early coning of Conifers.**—One of the chief causes of young trees coning prematurely is the tying the stems upright which happen to be leaning to one side, from wind or other causes. The tying which

some of these plants are often subjected to, and the after neglect of taking off ligaments used, has a tendency to cut into the bark on one side, and often weakens the top, which results in early coning. Another cause is from transplanting, and is particularly noticeable in plants of the *Picea nobilis*. Although transplanting is often done for this express purpose, I have my doubts if the progeny of such trees can be relied on for producing permanent healthy plants. I am inclined to think that all these premature methods of inducing cones will produce a sickly progeny. It will be a service if those who have had experience in seedlings thus produced will kindly give the results of their experience; it would confer a favour on many cultivators by saving the extensive planting of trees that will not ultimately succeed. The sickly state of many of our young Larch plantations, I much fear, is owing to carelessness in seed collecting. —J. M.

#### Sowing Acorns.—

As regards sowing the Acorns where the plants are finally to remain, several writers recommend sowing the Acorns broadcast, and along with them Hazel nuts, Haws, &c., and allowing the whole to grow up together. The undergrowths in this case shelter the young Oaks during the requisite period; after which they cease to increase in height, and are by degrees gradually choked and destroyed by the shade of the Oaks. This, however, is merely growing Oaks among weeds of a larger and more permanent kind, and cannot be recommended as a scientific mode of raising Oak woods, or woods of any other kind, though it may be advisable to resort

to it under circumstances where plantations of any kind are better than none, and where there may be capital enough for procuring the seeds and committing them to the soil, though not enough for doing so in a proper manner. This mode was also recommended by Sir Uvedale Price, because if no more Oaks were sown than can stand on the ground as full-grown trees, no thinning or future care of the plantation will ever be required by the planter. With a view to picturesque effect, such a mode is judicious. —L.



Old Wild Junipers on a Surrey heath. Winter view.

tumbles out at the top in bunches and garlands and all manner of graceful shapes, and when an old tree dies it often takes complete possession and buries the old Juniper in a mass of new life. Examples of this may be seen in what look like solid bushes of Honeysuckle, 7 feet high by 9 feet wide. These wild Junipers are best seen in winter, or any time between October and



## FRUIT CROPS.

## SOUTH-WESTERN DIVISION.

(Continued from p. 56.)

**Shirburn, Tettsworth.**—With a few exceptions, fruit crops in this locality are scarcely satisfactory. Strawberries, Gooseberries, and Black Currants are good and heavy crops. Raspberries look very promising, but Red Currants are very scarce. Some kinds of Apples are bearing a good crop, viz., Keswick Codlin, Rymer, Bess Pool, Bedfordshire Foundling, Blenheim Pippin, Wellington, Irish Peach, Dumelow's Seedling, Lamb Abbey Pearmain, Transparent Crab, Claygate Pearmain, Sturmer Pippin, Pearson's Plate, Mannington Pearmain, Scarlet Nonpareil, Alfriston, Echlinville Seedling, Deux Ans, Maid of Kent, and Blenheim Orange. Others are very light, and some are a total failure, such as Cellini, Gooseberry, Beauty of Kent, Hawthornden, Reineette du Canada, Cox's Orange Pippin, Herefordshire Pearmain, Court of Wick, Ribston Pippin, Pitmaston Nonpareil, Northern Spy, Winter Queening, Lord Burghley, Court Pendu Plat, Beauty of Kent, Gloria Mundi, Red Astrachan, and Warner's King. Plums are generally a very bad crop. Cherries poor. Peaches and Nectarines fairly good. Apricots a splendid crop. Some varieties of Pears are a heavy crop, the following especially: Conseiller de la Cour, Beurré d'Aremberg, Beurré Diel, Jean de Witte, Beurré Rance, Josephine de Malines, Beurré d'Amanlis, and Williams' Bon Chrétien; others are very light, viz., Knight's Monarch, Marie Louise, and Jargonelle. The following are almost a total failure: Glou Morceau, Beurré Sterckmans, Doyenné du Comice, Van de Weyer Bates, Van Mons Léon Leclerc, Huyshe's Prince Consort, Winter Nelis, and Beurré Superfin. Walnuts are an excellent crop. Cob Nuts and Filberts very good.—T. BUCKERFIELD.

**Englefield, near Reading.**—Apples here are rather under the average; Pears much over and very fine; Cherries average; Gooseberries, Currants, and Strawberries good; Plums very poor; Peaches and Nectarines under the average; Apricots an average crop; Raspberries good. In regard to Apples most sorts succeed well here. Also Pears as a rule, excepting Beurré Rance, British Queen, Forelle, or Trout Pear, Louise Bonne of Jersey, Napoleon, and Easter Beurré; the first and last named kinds are a great loss to us, being such very useful sorts.

THE POTATO crop is very good at present—no trace yet of disease. Crops in kitchen garden good, but require rain now.—JAMES COOMBS.

**Longford Castle, South Wilts.**—Taken altogether, fruit crops this year are satisfactory, though a large percentage of Plums dropped from the trees owing to the frost in April and early in May. Apples are abundant; all varieties in orchards hereabouts, except in exposed situations, are alike heavily cropped with clean-looking fruits, conspicuous among them being such varieties as Alfriston and Blenheim Orange, the last the best Apple in cultivation for general use, being a free bearer, handsome, an excellent keeper, and possessing good table qualities. Keswick Codlin, another sure cropping and excellent variety, is bearing well, as are also Hawthornden, Irish Peach, King of the Pippins, Claygate Pearmain, Christie's Pippin, Quarrenden, and Ribston; the worst of this otherwise excellent old variety is its great liability to blemish. Of Pears the following varieties are carrying good crops of promising fruits—viz., Beurré Diel, Beurré de Capiaumont, Beurré Rance, Easter Beurré, Chaumontel, Calabasse Grosse, Althorpe Crassane, Jargonelle, Josephine de Malines, Jean de Witte, Passe Colmar, Louise Bonne of Jersey, Marie Louise, Glou Morceau, Ne Plus Meuris, Dunmore, and Catillac. On the other hand, trees of the following varieties are very lightly cropped indeed—namely, Nelis d'Hiver, Napoleon, Beurré Bosc, Beurré d'Aremberg, British Queen, Autumn Bergamot, Suffolk Thorn, Thompson's, Pitmaston Duchess, Hacon's Incomparable, Duchesse d'Angoulême, Uvedale's St. Germain, and Williams' Bon Chrétien. Of Plums—Orleans, Kirke's, Victoria, Fonthill, White Magnum Bonum, Jefferson's, Mitchellson's, Reine Claude de Bavay, Coe's Golden Drop, and Pond's Seedling are bearing average crops,

whilst trees of Green Gage, Washington, Denniston's Superb, Blue Impératrice, Ickworth Impératrice, Prince Englebert, and Nectarine Plum are but sparingly cropped. Peach and Nectarine trees—which had their blossoms protected from frosts in spring by means of cloths secured to narrow strips of inch board screwed longitudinally to poles let into the ground at 18 inches to 20 inches from the base of the wall and fastened at the top to semi-circular holdfasts driven into the wall underneath the brick coping, and raised and lowered when necessary by a series of pulleys and ropes—are bearing heavy crops, the fruits having to be severely thinned before and after the process of stoning had been completed. These included Violette Hâtive, Bellegrade, Sea Eagle (a grand late Peach), Late Admirable, Noblesse, Princess of Wales, Teton de Venus, and Barrington, and Pine-apple, Elruge, and Violette Hâtive are with us the best Nectarines. I have two strong-growing, healthy young trees of Stanwick and Balgown Nectarines which seem to be very shy bearers. I shall root-prune them in the autumn with a view to rendering them fruitful. Of Cherries—May Duke, Black Eagle, Governor Wood, and Morello are plentiful; as are also Gooseberries (some of the bushes of Golden Drop necessitating supports), Currants, Raspberries, and Strawberries, Walnuts, Filberts, Medlars, Figs, and Cranberries.—H. W. WARD.

**Tortworth Court, Falfeld.**—Apples are extensively grown in this district, and promised to be an abundant crop, but owing to circumstances over which we have no control I am obliged to say again this year that they are scarcely half an average crop. The later kinds appear to be the best, such as Hanwell Souring, Mère de Ménage, Annie Elizabeth, South Carolina Pippin, Yorkshire Greening, Betty Geeson, Bess Pool, Sturmer Pippin, Cox's Pomona, King of the Pippins, Cox's Orange Pippin, Warner's King, Tower of Glamis, Alfriston, Duke of Devonshire, &c. The very early Apples, such as the Codlins, are a complete failure; whilst Stirling Castle and Echlinville Pippin, two good early kinds, are bearing freely. Pears on walls are quite an average crop; the best this year are Huyshe's Prince of Wales, Bergamote d'Espérance, Conseiller de la Cour, Ne Plus Meuris, Beurré Diel, Van Mons Léon Leclerc, Chaumontel, Winter Nelis, Beurré Rance, Josephine de Malines, Jean de Witte, Glou Morceau, Madame Millet, Olivier de Serres, Marie Louise, and Beurré d'Amanlis; whilst on pyramids and standards the crop is very thin. Peaches and Nectarines are barely half a crop. I attribute the loss of some part of the crop to a severe attack of black fly when the weather was too cold to use any water on the trees. The latter are making promising growth now. Plums, generally speaking, are again a miserable failure. Cherries were at one time very promising, but many have fallen off, leaving barely half a crop. Apricots are very thin generally; Quinces, about half a crop; Medlars, abundant; Cob Nuts, Filberts, and Walnuts are very promising; Strawberries and Raspberries abundant, but small; the Strawberries are not up to their usual standard as regards flavour; Gooseberries are very abundant and good; Currants, a full crop, but badly affected with blight.

EARLY POTATOES are much smaller than usual, but exceedingly good and firm. The later crops look promising; indeed, except on very shallow soil and poor ground in such situations they look much distressed from lack of moisture and more liberal cultivation.—THOMAS SHINGLES.

**Badminton, Chippenham.**—In this neighbourhood generally, and in this garden in particular, the fruit crop is below the average; an adverse late spring, owing principally to the prevalence of cold easterly winds, ruined all hopes of an abundant crop. Apricots are fairly good, but Peaches and Nectarines are very thin, and green fly and blister most troublesome. Apples are a poor crop considering the splendid blossom which they bore; Pears are fairly good; Plums almost a failure on standards and pyramids, but on walls they are much better; Cherries are a fair crop, except Morellos, which are very thin, and the trees are much infested with black fly; Gooseberries are abundant, but Currants suffered from severe hailstorms in spring; Strawberries are a good crop, but the weather has been much too dry for them; Nuts seem to be plentiful.—WILLIAM NASH.

**Westonbirt, Tetbury.**—Apples, culinary, are an average crop; dessert kinds scarce. Apricots good. Pears plentiful on walls; average on espaliers, pyramids, and standards. Plums very few on walls; Damsons a failure, owing to birds destroying the buds in early spring; Green Gages are an average crop. Cherries—the blossoms escaped spring frosts and set well, but the fruit has dropped off, owing to blight. Peaches, late sorts, escaped frost, and are an average crop; early kinds blistered by the east winds and making late unsatisfactory growth. Filberts and Cobs are an average crop. Walnuts plentiful, but late. Strawberries are an average crop. Raspberries, Currants, and Gooseberries plentiful and good.

EARLY POTATOES were cut off by frost on May 12 and are very small; second early crops good; later kinds promise well, and at present are free from disease.—A. CHAPMAN.

**Elvetham Park, Winchfield.**—Fruit crops in the gardens here are not very good. On May 2 and 3 we had the severest hailstorm that has been known in this district for years, and every morning for the following week we registered 4° and 5° of frost, and, the situation being low, vegetation was injured; but from the chilling effects of the hailstorm the blossom suffered most, as in places in the neighbourhood that escaped the storm crops are good. Apples, being late, to a certain extent escaped the storm, and are a fair average crop, especially the following—viz., Court Pendu Plat, Cox's Orange Pippin, Court of Wick, Devonshire Quarrenden, Fearn's Pippin, Margil, Summer Golden Pippin, King of the Pippins, and Ribston Pippin. Of kitchen varieties the best are Blenheim, Hawthornden, Dumelow's Seedling, Dutch Codlin, Keswick Codlin, Lord Suffield, Golden Noble, Warner's King, and a local variety called Dusan, a certain bearer and a good keeper. Pears on walls of the following sorts are bearing a partial crop—viz., Forelle, Jargonelle, Glou Morceau, Louise Bonne of Jersey, Marie Louise, Pitmaston Duchess, Seckle, Winter Nelis, and Josephine de Malines. On bush trees the crop is poor; the following are bearing a few—Beurré d'Aremberg, Beurré de Capiaumont, Beurré Clairgeau, Beurré Hardy, Beurré Superfin, Duchesse d'Angoulême, Durandau, Knight's Monarch, Williams' Bon Chrétien. All the best known varieties of Pears have been tried here, but only those named are good in flavour. Peaches, where protected with frigi domo, are an average crop. Apricots are a failure. Victoria and Coe's Golden Drop Plums partial; other sorts a failure. Cherries on walls—May Duke, Elton, and Morello—are average crops. Strawberries and bush fruits of all kinds are below the average. Filbert Nuts good.—THOS. JONES.

**Toddington, Winchcomb, Cheltenham.**—Apricots here are an average crop. Moor Park, Peach, and Hemskirk are the best. Apples are under the average, though in some orchards there are fair crops. Lord Suffield, Manks Codlin, Hawthornden, Wellington, and Lord Nelson, a kind much resembling Emperor Alexander, do best with us. Plums are under the average. In the fruit plantations here, some 400 acres in extent, there are over forty varieties planted, but only a few kinds are fruiting. These are Victoria, Belle de Septembre, and Pershore, a local variety much grown in the district. Pears are under the average. We have fair crops of Jargonelle in places. Cherries are under the average. Peaches and Nectarines are a failure. Currants and Gooseberries average. Strawberries a good crop. Raspberries abundant. Filberts over the average.—JAS. CLEARE.

**Cleavelands, Lyme Regis.**—Of Pears and Apples we have scarcely an average crop. Many of the Apples were destroyed by weevils; Plums on walls are plentiful; Cherries, especially Morellos, are a fair crop; amongst bush fruit generally Red and Black Currants are scarcely an average crop; Gooseberries are decidedly below the average. In many places the buds were destroyed by birds, but what fruit there is good, and the trees free from caterpillar. Raspberries promised to be a good crop; Strawberries are late and below the average; they are also small from want of moisture. Birds of all kinds seem to have increased in extraordinary numbers, necessitating the



hanging up of all the nets available for the preservation of fruit.

THE POTATO crop looks well; early varieties are somewhat smaller than usual. Late sorts, however, promise to yield satisfactory returns.—H. MUNRO.

**Farnborough Grange.** Late frosts (7) had a bad effect on our Plums, both bush and pyramid trees. Pears in the open suffered; many of the tender sorts, namely, *Nouveau Fulvie*, *Passe Colmar*, *Bergamote d'Esperen*, *Zephirin Grégoire*, and others had their young shoots killed, while many others growing by their side did not get injured in either bloom or bud. Apricots are a grand crop, and when our hot, dry soil is well watered, they swell up well. Branch-dying is not so prevalent as sometimes it is. The Royal Apricot grows well, but is not appreciated like the *Moor Park*, *Kaisha*, *Shipley*, and *New Large Early*. I was obliged to thin them to a large extent. Plums are good; those on walls are *Oullins Golden Gage*, *Denniston's Superb*, *Bryans-ton Gage*, and *Coe's Golden Drop*. As bush trees we have *Diamond*, *Early Orleans*, *Prince Englebert*, *Victoria*, and white *Magnum Bonum*. The trees are covered with fly, needing much syringing. Damsons are a thin crop. Peaches and Nectarines are good crops, and clean where well attended to. Sweet Cherries are but a thin crop. Morellos bloomed and set enormously, but dropped largely in stoning, and are infested with black fly. Apples are a large crop on most trees. The heaviest croppers are *Codlins*, *Lord Suffield*, *Echlinville*, *Lord Burghley*, *Golden Pippin*, *Hawthornden*, *Wellington*, *Sturmer Pippin*, *Braddick's Nonpareil*, *Hanwell Souring*, *King of the Pippins*, *Betty Gesson*, *Hambleton Deux Ans*, and *Golden Noble*. Of Pears, the following are very heavily cropped, and needed much thinning, viz.: *Bon Chrétien*, *Jargonelle*, *Beurré Giffard*, *Colmar d'Été*, *Beurré de Capiaumont*, *Beurré Clairgeau*, *Beurré Diel*, *Louise Bonne of Jersey*, *Glou Morceau*, *Winter Nelis*, and *Marie Louise d'Uccle*. Strawberries are good on new plantations. Where the plants have stood long on the ground they are small and poor. *Vicomtesse Héricart de Thury*, *President*, *Oscar*, and *Keen's Seedling* are the best this season; but we are obliged to keep them well watered, our soil being dry and hot. Currants are poor and blighted. Some of the free-bearing Gooseberries are heavily loaded, and caterpillar has not done much damage as yet. Nuts are most abundant.—JOHN CROOK.

**Shardeloes, Amersham.**—Peaches and Nectarines are good crops and the trees healthy and clean. Of Apricots we have only a few trees, but they are all bearing a very fair crop. Plums, *Victoria*, plentiful; we find this to be the best sort for general use; others not at all abundant. Cherries, *Morello*, fine and in quantities, and less black fly than usual. Of orchard kinds there are also capital crops. They are grown largely in this county. Apples have dropped so much, that what looked like a big crop has come to a thin one. *Blenheim Orange* and *Winter Queening* are the two most useful sorts for cooking purposes and *Cox's Orange Pippin* for dessert. Strawberries we have in abundance and fine; Raspberries also good, but suffering from drought. Gooseberries and Currants are fair average crops. Filberts plentiful.—THOS. BAILEY.

**Beechwood, New Forest.**—Pears in this garden are grown as bushes and pyramids on the Quince stock and are root-pruned. We suffer very much from late frosts, as the garden lies low and the soil is very heavy and on a clay subsoil. The following varieties are bearing the heaviest crops this year—viz., *Doyenné d'Été*, *Williams' Bon Chrétien*, *Marie Louise*, *Chaumontel*, and *Louise Bonne of Jersey*—the last cracks here in wet autumns; *Beurré d'Amanlis*, *General Todleben*, *Winter Nelis*, *Eyeworth*, and *Glou Morceau* on a brick wall never fail to yield a crop; they are on the Pear stock. The following have not fruited this year—viz., *Maréchal de la Cour*, *Beurré Rance*, *Doyenné du Comice*, *Josephine de Malines*, *Bergamote d'Esperen*, *Knight's Monarch* and *Duchesse d'Angoulême*; some of these are trained on wooden walls and bear very little fruit even in the most favourable springs. Apples are a very good crop, especially *Hawthorndens Old* and *New Ribston Pippin*, *Kentish Filbasket*, *Tower of Glamis*, and *Blenheim*; that fine sort *Cox's Orange Pippin* is a

failure here this year. Plums are a complete failure except *Damsons*, of which there are a fair sprinkling. Cherries—*May Duke* and *Morello*—are a fair crop, but badly attacked by the black aphid. Strawberries not so good as last year; fruit small, owing to the dry season; the heaviest cropper here is *President*. Currants very good; Red very large. Raspberries do not succeed in this heavy soil; I intend letting them run wild and see what the result will be in a few years. Gooseberries good and fruit large. Apricots not grown here; the soil is unsuitable. Peaches and Nectarines are grown only under glass.—T. CLARKE.

**Powderham Castle, Exeter.**—Peaches, Nectarines, and Apricots are full crops. The great absence of rain has compelled us to mulch and water well, otherwise crops would have been seriously checked. Pears are very good generally. The principal varieties on walls bearing full crops are *Williams' Bon Chrétien*, *Moorfowl's Egg*, *Beurré d'Amanlis*, *Louise Bonne of Jersey*, *Marie Louise*, *Beurré Diel*, *Beurré Rance*, and *Glou Morceau*. Plums are above the average, and free from aphides. In the market gardens in this neighbourhood they are very plentiful, especially *Rivers' Early*, *Denyer's Victoria*, and *Yellow Gage*. Apples are good, both in garden and orchard. The most prolific varieties are *Lord Suffield*, *Old and New Hawthornden*, *Keswick Codlin*, *Cellini*, *Golden Noble* (always good), *Peasgood's Nonsuch*, *Alfriston*, *King of the Pippins*, *Echlinville Seedling*, *Lady Henniker*, *Flower of Kent*, *Cox's Orange Pippin*, *Pomona*, *Lane's Prince Albert*, *Loddington*, *Dredge's Fame*, and *Blenheim*. Early Cherries were good; Morellos not so satisfactory as we anticipated. More than half of the fruit fell off at stoning. Strawberries are a fair crop. They flowered well, but have suffered much from excessive drought. *Sir Joseph Paxton* is by far the best on our light, sandy soil. Figs are very plentiful. Bush fruits are all excellent, except *Black Currants*, which, though abundant, are small. Filberts are very abundant; also Walnuts.—D. C. POWELL.

**Heytesbury, Wilts.**—Fruit crops in this locality, although not quite so good as was at one time anticipated, are, nevertheless, far from being unsatisfactory; indeed, we may say there is a good average of all kinds, Apples and Plums excepted. Of Apples the under-mentioned varieties give the best results, viz., *Early Margaret*, *Kerry Pippin*, *Annie Elizabeth*, *Lord Suffield*, *Blenheim Orange*, *Peasgood's Nonsuch*, *Irish Peach*, and *Isle of Wight Pippin*. Apricots are a fair average crop; *Moorpark* and *Breda* are the two best. Pears, wall-trained, are over the average, but, on the other hand, pyramids and standards are much below the average, the difference in crop being accounted for by the latter being more exposed and unprotected when in blossom. *Marie Louise*, *Jargonelle*, *Winter Nelis*, *Chaumontel*, *Beurré Clairgeau*, *Beurré Giffard*, and *Citron des Carmes* are our most reliable kinds. Cherries very good, and the same remark applies to Peaches and Nectarines; of the two latter, the following varieties we regard as being the best for our district, viz., *Alexander*, *Early Louise*, *Royal George*, *Sea Eagle*, *George the Fourth*, *Barrington*, *Dr. Hogg*, *Walburton Admirable*, *Late Admirable*, and *Salway*. Nectarines—*Victoria*, *Downton Elruge*, *Pitmaston Orange*, *Pine-apple*, and *Violette Hative*. Figs very good, *Brown Turkey*, *Brunswick*, and *White Marseilles* being the only sorts which we find to succeed out-doors. Small fruits are plentiful, but somewhat under-sized, owing to the long spell of hot, dry weather which we have experienced.—J. HORSEFIELD.

**Cothelstone, Taunton.**—The crop of Apples is somewhat irregular. In some cases they are thin; in others the trees are carrying more than is good for them. On the whole, Apples will be abundant. Our most reliable sorts are *Lord Suffield*, *Hawthornden*, *Kentish Filbasket*, *Cellini*, *Small's Admirable*, *Cox's Pomona*, *Margil*, *Tom Putt*, *Stone Pippin*, and *Keswick Codlin*. Pears are a poor crop with us, but better in other places. *Williams' Bon Chrétien*, *Brookworth Park*, and *Althorpe Crassane* are bearing well. Of late sorts we have a few of *Ne Plus Meuris* and *Winter Nelis*. Amongst Plums, *Victoria*, *Green Gage*, and *Magnum Bonum* are bearing well; other sorts are thin. Apricots are an excellent crop, and the trees healthy. Peaches and Nectarines

in some gardens are bearing well on open walls, but there is a good deal of blister on the leaves. Strawberries and Raspberries are abundant. *Sir Joseph Paxton*, *President*, *Black Prince*, and *Comtesse Héricart de Thury* are our best sorts. *Sir C. Napier*, *British Queen*, and *Elton* do not thrive in our soil. Raspberries are a full crop; *Carter's Prolific* and *Fasloff* are the kinds we grow. Red and Black Currants are an average crop, but Gooseberries have not been so thin for many years. *Morello Cherries* are bearing well. Filberts in this locality are above the average. Walnuts a partial crop.—J. C. CLARKE.

**Wilton House, Wilts.**—Apples here are a fair crop, but both trees and fruit were much injured by frosts in the end of May and by the cold winds which prevailed in the early part of June. The varieties which have suffered least are *Quarrenden*, *Lord Suffield*, *New Hawthornden*, *Blenheim Orange*, *Cox's Orange Pippin*, *King of the Pippins*, *Margil*, *Scarlet Nonpareil*, *Warner's King*, *Alfriston*, *Dumelow's Seedling*, and *Striped Beaufin*. Apricots are an average crop; Cherries a light crop; Currants good, except *Black*, the buds of which were destroyed by small birds—a most unusual thing in this locality. Figs are a moderate crop. Peaches and Nectarines are good; great advantage has been derived by running down canvas blinds in the evening, after syringing the trees also for an hour or two in the daytime during the prevalence of cold dry winds. Pears are moderate; the fruit fell off very much early in June. Plums medium on walls; none on trees in the open garden. Raspberries abundant. Strawberries a full crop and good in quality. Nuts and Filberts are fair crops; Walnuts moderate.

POTATOES good in quality and free from disease, but moderate as regards crop; late varieties need rain.—T. CHALLIS.

**Killerton, Exeter.**—Apricots are a fair crop; among the best are *Royal*, *Hemskirk*, and *Moor Park*. Of Apples, some sorts are good, others light, chiefly owing to their carrying good crops last year; *Lord Suffield*, *Dumelow's Seedling*, *Blenheim*, *King of the Pippins*, and *Cox's Orange Pippin* are among our best. Of Pears, some sorts are so thick as to require thinning, such as *Comte de Lamy*, *Ne Plus Meuris*, *Knight's Monarch*, and *Beurré Clairgeau*; while *Glou Morceau*, *Winter Nelis*, *Louise Bonne*, and *Doyenné du Comice* are only bearing what may be termed good crops. Plums on walls are fair crops, but none on orchard trees. Among our best are *Imperial Diadem*, *Victoria*, and *Prince Englebert*. Cherries are below the average. Peaches and Nectarines are fair crops; among the best are *The Diamond*, *Royal George*, *Barrington*, and *Dr. Hogg*. Strawberries are good; and Currants, Gooseberries, and Raspberries plentiful and good in quality. Walnuts are a fair crop, and Nuts plentiful.

POTATOES are looking well, and, except a few early Ashleaves, free from disease. Our stock sorts consist of *Beauty of Hebron*, *Schoolmaster*, *Prince Arthur*, *Wormleighton Seedling*, *Magnum Bonum*, and *Scotch Champion*.—JOHN GARLAND.

**Dale, Milford Haven.**—Apples here are plentiful where sheltered from cold winds when in bloom. Pears are very scarce, and the foliage of many trees shrivelled as if burnt. Plums and Damsons are scarce; also Peaches. The latter never do well here for more than three or four years. Bush fruits are plentiful everywhere in this county.—E. LEES.

**Bowood, Calne.**—Fruits hereabouts this season are about an average. Apricots are very good. Of Pears there is a fair sprinkling with us. The following sorts are best, viz.: *Williams' Bon Chrétien*, *Seckle*, *Beurré Diel*, *Glou Morceau*, *Passe Colmar*, *Josephine de Malines*, *Thompson's*, *Comte de Lamy*, and *Pitmaston Duchess*. Apples are plentiful. *Victoria* Plums are very good with us, though rather scarce. Cherries particularly good. Peaches and Nectarines under the average, owing to the cold winds which we had during the latter part of May and beginning of June. Strawberries have been very good. Bush fruits, especially Gooseberries, are good, and free from caterpillar. Raspberries will be heavy crops provided we get some rain shortly. Black and Red Currants are well grown and good crops. Filberts are fairly good.—W. PHIPPS.



**Dogmersfield, Winchfield.**—Fruits in this locality are good and above the average. Some varieties of Apples are not quite so plentiful as last year, notably Blenheim and Ribston Pippin, while Mère de Ménage, Lord Derby, Court of Wick, Kerry Pippin, and Frogmore Prolific are bearing heavily. The last named variety seldom fails to bear very large crops of the best quality for culinary use, and should be more grown than it is. Pears are also good and promise to be large in size. Those bearing most are Beurré Clairgeau, Beurré Bachelier, Beurré d'Amanlis, Beurré Diel, Delices d'Hardenpont, Madame Treyve, Beurré Hardy, Belle de Fontenay, Pitmaston Duchess, and Seckle. Nearly all Pears do well here, as the soil is light and good. Apricot trees are looking remarkably well and are carrying heavy crops. Moor Park is our favourite variety. Plums are thin; Victoria is the only one bearing at all well in this district. Some standard trees of it in a cottage garden near here are borne down with fruit. Of Peaches and Nectarines we have an average crop. The trees on our warmest wall are fruiting the best; the varieties are Early Rivers, Early Beatrice, and Noblesse (Peaches), and Violette Hâtive and Pitmaston Orange (Nectarines). Small fruits of all kinds are most abundant. Strawberries are fine, and the bright weather we have had of late has made them unusually good in flavour. Our finest fruit have been gathered from plants that were forced about fifteen months ago, and afterwards planted out. The varieties which we like best are Vicomtesse Héricart de Thury, President, and Sir Joseph Paxton. Of Raspberries we have quantities, if we can but battle with the birds, of which "we should be pleased to send a few scores to those people who say they do no harm." Currants, both Black and Red, are heavy crops, a remark which may also be applied to Gooseberries. Nuts and Walnuts are very plentiful.

POTATOES are looking wonderfully well, and so far there is no trace of disease.—GEORGE TRINDER.

**Eaglehurst, Fawley, Southampton.**—Fruit crops hereabouts are fairly good. Apples are abundant in most places, but the trees are very much infested with American blight, and, in some cases, they are burned as if scalding water had been thrown over them. Several young trees in this garden are blighted, while others by their side are clean and healthy. The cause of the burning is to me a mystery; some shoots are clean and healthy, while others on the same bough are killed back to the old wood. The sorts of Apples that succeed best hereabouts are—Blenheim Orange, Harrison's Pippin, Ribston, Cellini, Reinette du Canada, Stirling Castle, Margil, Court of Wick, Sturmer Pippin, Dr. Harvey, Lord Suffield, Dumelow's Seedling, Golden Russet, Winter Codlin, Northern Greening, Winter Pearmain, Mannington Pearmain, and Warner's King. The varieties that do not succeed well here are—Gloria Mundi, Norfolk Beaufin, Waltham Abbey Seedling, and Cornish Gilliflower. Our best Apricots are—Alsace, Peach, Kaisha, and Royal; Moor Park and Hemskirk bear well, but are very subject to branch dying, especially in dry weather. Cherries, as a rule, do not do well in this locality; in most seasons they are infested with black fly, and particularly so this year. The sorts that bear best (we are trying several varieties to see which will succeed best as a guide for future planting) are Old Bigarreau, White Heart, and Morello. Gooseberries are a heavy crop and good in quality. Currants, both Black and White, are fair crops, but rather small. Strawberries and Raspberries fair crops, but late. Peaches and Nectarines bear well every season when the young growth gets a little protection in spring. Our surest varieties are—Royal George, Grosse Mignonne, Bellegarde, Stirling Castle, Barrington, Early and Late Admirables, Prince of Wales, Early Alfred, and E. Beatrice. Of Nectarines, Elruge, Violette Hâtive, and Balgovan. Of Pears on walls, the best are Louise Bonne, Williams' Bon Chrétien, Duchesse d'Angoulême, Beurré Diel, B. d'Amanlis, Ne Plus Meuris, Jargonelle, Easter Beurré, Vicar of Winkfield, Glou Morceau; on espaliers and pyramids the best are Beurré Clairgeau, Glou Morceau, Winter Nelis, Winter Crassane, Catillac, and Calebasse Tougard. Sorts that do not succeed well, or only bear partial

crops occasionally, are—Marie Louise, Passe Colmar, Beurré Rance, and Knight's Monarch. Plums are much infested with white aphid; the sorts that succeed best here are Jefferson, Diamond, Pond's Seedling, Golden Drop, Victoria, Early Orleans, E. Prolific, and Violette Hâtive. Varieties that only bear partial crops in good seasons are Washington, Green Gage, Transparent Gage, and Reine Claude de Bavay. Our soil is a light black loam, resting on a gravelly subsoil. Most kinds of fruit trees do well on it when deeply trenched and the surface kept well mulched during dry weather.—W. WATSON.

**Idsworth, Horndean.**—Fruit crops here are unsatisfactory. Apples bloomed abundantly, but were sadly crippled by uncongenial weather at that time, and on many trees there will not be more than half a crop. Pears are, generally speaking, better and the trees healthier. Plums and Damsons are very thin. Cherries set magnificently, but, with the exception of Morellos, are almost a failure. Apricots are not grown here, and of Peaches and Nectarines outside we have none. Figs are a thin crop. Quinces and Medlars not an average. Nuts are a fine crop, with the exception of Walnuts, which promised well, but have not kept up to our expectations. Gooseberries will not be an average crop. Red and White Currants medium, but Black a full crop. Strawberries bloomed and set well, but the drought has seriously affected them; they are not up to the average, and are going off fast. Could we have watered artificially last autumn, we should have had better crops of fruit. We had a singularly small rainfall in the autumn months, which, I think, seriously affected the proper development and future prosperity of our trees. On land with a cooler and moister subsoil crops are better.—N. F. FULLER.

**Maiden Erleigh, Reading.**—Nearly all varieties of Apples here are a heavy crop, but the following are kinds that seldom fail, viz., Keswick, Dutch and Manks Codlins, Frogmore Prolific, Stirling Castle, Lord Suffield, Alfriston, Small's Admirable, Lane's Prince Albert, Mère de Ménage, Golden Noble, Peasgood's Nonsuch, Wellington, Flower of Kent, Warner's King, Rosemary Russet, Blenheim, Ribston, Cox's Orange Pippin, King of the Pippins, Worcester Pearmain, and Irish Peach. Pears on pyramids and standards are a light crop, but the following on walls have required much thinning, viz., Jersey Gratioli, Zephirin Grégoire, Maréchal de Cour, Brockworth Park, Fondante d'Automne, Jargonelle, and Bergamote d'Esperen. Apricots are a heavy crop, and fewer branches are dying off than usual. Peaches and Nectarines were injured by the sharp frosts which we had the second week in May, but are now making good growth. Plums of the following varieties are a heavy crop on walls, viz., Victoria, Jefferson, Belgian Purple and Belle de Septembre, and Victoria, Grand Duke, and Duke of Edinburgh are good on standards. Cherries, especially Frogmore Early Bigarreau, have been particularly fine, and the trees clean and healthy. Governor Wood, Cleveland Bigarreau, and May Duke have also produced good crops. Morellos are an average crop, but the trees have suffered from aphides. Bush fruits are heavy crops, and the fruit is finer than usual. Raspberries also are a heavy crop; the variety is Prince of Wales, a kind which never fails to grow and fruit well. Strawberries, although abundant, have suffered from drought, and the fruit has in consequence been smaller than usual; we have, however, a good crop from plants on a north border, the fruit being fine and better flavoured than elsewhere, thus proving how desirable it is to plant in such a position. The varieties which we grow and which do well are Vicomtesse Héricart de Thury, President, Sir Joseph Paxton, James Veitch, and British Queen, and Elton Pine and Grove End Scarlet for preserving. Walnuts are a thin crop, but Cobs and Filberts are abundant.—T. TURTON.

**Heythrop, Chipping Norton.**—In this neighbourhood we have an average crop of Peaches and Nectarines. Pears are above the average. Apricots and Apples in places are thin. Plums on sheltered walls are good. Standard trees a total failure. Cherries, Raspberries, and Strawberries abundant. Gooseberries a fair crop. Currants are much blighted and the fruit small. Walnuts and Filberts are moderate.—H. DOWNING.

**Wormsley, Tettsworth.**—In this part of South Oxfordshire we are very much on the chalk and suffer a great deal from drought, as water is only obtainable from very deep wells. Amongst Apples there is no sort that does better than the Blenheim Orange. Apricots are a complete failure. Plums do well, especially Magnum Bonum and Golden Drop. Our best Cherries are White Heart, May Duke, and Morello. Pears do badly. Peaches and Nectarines are a failure out of doors. Figs do well. Gooseberries are good. Strawberries very small, owing to dry weather. Of Raspberries we have a fair crop.

POTATOES and Peas are suffering a great deal from drought; also Beetroot and young Celery, Cauliflowers and Broccoli.—J. E. EELES.

**Waddesdon, Aylesbury.**—Apricots here are a thin crop. Plums also are thin. Cherries good in some places and thin in others. Peaches are a fair crop, as are also Nectarines in some places. Apples are a very good crop and swelling well, although the weather is dry. Pears also good generally. Gooseberries and Currants very good. Strawberries abundant. Raspberries very good, and also Walnuts.

POTATOES promise well.—A. BRADSHAW.

**Canford Manor, Wimborne.**—Apples here are only half a crop. Pears a full crop, the best for several years. Plums half a crop. Peaches, Apricots, and Cherries full crops. Strawberries a full crop and very fine. Of bush fruits we have abundance of every variety.—D. WILLIAMS.

**Down House, Blandford.**—Of Apricots we have a good crop under glass copings; our sorts are Large Early, Hemskirk, and Moor Park. Plums very moderate; the best are Coe's Golden Drop, Denniston's Superb, Kirke, Jefferson, Bryanstone, and Green Gage. Damsons are a failure. Of Cherries we have none, except Morellos, and not many of them. Apples are the smallest crop we have had for several seasons; the best are Irish Peach, Cornish Gilliflower, Kerry Pippin, Striped Beaufin, Nonpareil, and Nonsuch; such sorts as Wellington, Keswick Codlin, Blenheim Orange, and Beauty of Kent, which bear freely most years, are a total failure this season. Pears are also very moderate; among the best are Madame Treyve (which should be more grown than it is, being a very fine early Pear), Beurré Diel, Beurré d'Aremberg, Chaumontel, Thompson's, Glou Morceau, Knight's Monarch, Winter Nelis, Ne Plus Meuris; and for stewing—Uvedale's St. Germain and Catillac. Small fruits, such as Gooseberries, Raspberries, and Currants, are all heavily cropped. Strawberries good, but not large in size, owing to the drought, which will also make them short-lived; our best sorts are Vicomtesse Héricart de Thury, President, Sir Joseph Paxton, and British Queen. On the whole, fruit crops this season hereabouts will be below the average.—THOS. DENNY.

**Sherborne Castle.**—Owing to the east winds and frosty nights which we had in spring and a great deal of blight, fruit crops here are very poor indeed. Apples bloomed strongly and set well, but are now badly blighted and fruit of most kinds will be scarce. Of the following sorts we have the best crops, viz., Lord Suffield, Hawthornden, Echlinville Seedling, Cox's Pomona, Manks Codlin, Cellini, Duchess of Oldenburg, and Kerry Pippin. Apricots are a failure. Cherries thin. Pears on walls promised well, but are now sadly diminished. Of Plums we have a few. Peaches and Nectarines have to be looked for, but we have a fair sprinkling of Figs. Of Gooseberries we have none, although in some places there is a great abundance. Raspberries and Currants thin. The long drought has greatly reduced the crop of Strawberries.

POTATOES, on the whole, are very good in quality, though in some cases slightly diseased, and they are small in size. The later ones look well at present, but want rain badly.—W. G. PRAGNELL.

**Orchardleigh, Frome.**—Fruit crops here are fairly good. Bush fruit abundant, Black Currants and Raspberries especially so; Strawberries are plentiful and of good flavour, but much smaller than usual; Apricots are an average crop; Apples under the average; Pears on walls a fair average, those in



the open very thin, excepting Beurré de Capiaumont, which generally does well with us. Figs are plentiful on walls and are likely to be of fine flavour if the present bright weather continues. The following varieties of Apple we find to be the most reliable croppers, viz., Cornish Aromatic, Cockle Pippin, Cox's Golden Drop, Cox's Orange Pippin, King of the Pippins, Juneating, Scarlet Nonpareil, Sturmer, and Cox's Pomona. For kitchen use we find Alfriston, Alexander, Annie Elizabeth, Rymer, Frogmore Prolific, Keswick Codlin, Lord Suffield, and Manks Codlin the best. Amongst Pears, Alex. Lambre, Beurré Bosc, Beurré de Capiaumont, Beurré Rance, Brown Beurré, Duchesse d'Angoulême, General Todleben, Gratioli of Jersey, Glou Morceau, Jean de Witte, Marie Louise, Passe Colmar, and Williams' Bon Chrétien are our favourites. Amongst Plums, Blue Impératrice, Cox's Golden Drop, Guthrie's Late Green, Jefferson, Orleans, Pond's Seedling, Prince of Wales, Reine Claude de Bavay, and Victoria are the most prolific. Amongst Strawberries, Keen's Seedling, La Constante, La Grosse Sucrée, Sir J. Paxton, Sir C. Napier, and Wonderful are the most suitable for our heavy cold soil. Peaches and Nectarines do not do well outside, but Cherries on walls are a fair average. Nuts, including Walnuts, are thin.

Both in gardens and fields in this neighbourhood POTATOES are looking well, but want rain. We have seen no appearance of disease up to this date. The early varieties that we are lifting for daily use came out very clean and firm. They are not large, but of fine quality. Veitch's Ashleaf and Mona's Pride are our favourites. The latter is one of the best Potatoes yet raised.—JOHN CHALMERS.

**Marston House, Somerset.**—A better lot of blossom on all kinds of fruit trees, Apricots excepted, could not well have been had; but frosts and cold winds, followed by a long drought, have done their worst, and we now have by no means a generally good fruit crop. Apricots are thin, notably on trees of Moor Park, but Kaisha and Hemskirk are bearing fairly good crops. Peaches—Hale's Early, Grosse Mignonne, Bellegarde, and Barrington—are all thinly fruited; trees, much injured by cold winds. Figs plentiful, Brown Turkey being the most prolific. Brunswick poor, as usual. The Apple crop is variable, some trees being crowded with fruit, others in the same garden or orchard quite bare. Codlins of different sorts and Lord Suffield are very good. Other varieties carrying good crops are Hawthornden, Irish Peach, Beauty of Bath, Cellini, Duchess of Oldenburgh, Stirling Castle, Tower of Glamis, Cox's Orange Pippin, Mannington Pearmain, and Yorkshire Greening. Pears were wonderfully floriferous, but failed to set or swell off crops in all exposed positions, pyramids failing completely. On west walls every sort is producing good crops, some of the best in this respect being Williams' Bon Chrétien, Louise Bonne of Jersey, Passe Colmar, Glou Morceau, Beurré Diel, Van Mons Léon Leclerc, Brown Beurré, Winter Nelis, Doyenné du Comice, and Bergamote d'Esperen. Cherries, including May Duke, Elton, Governor Wood, Black Tartarian, and Morellos, are plentiful and good. Plums are very scarce, only such vigorous fruitful sorts as Victoria and Pond's Seedling carrying good crops. Small fruits generally are remarkably fruitful, but want a soaking rain badly. Walnuts are above the average, and Filberts and Cobs are unusually plentiful.

POTATOES are late and quite free from disease, but unless heavy rains fall soon the tubers will be small.—W. IGGULDEN.

**Moreton, Dorchester.**—Fruit crops in this district are disappointing; early in the season they promised to be good, but continued cold east winds and frosty nights in the end of April and all through May had a damaging effect upon them. Apples flowered abundantly and appeared to set well, but they have since fallen off, and the result will be not more than half a crop. Pears are pretty good on walls, but very few on trees in open quarters; Plums and Cherries very thin indeed; Figs good; Peaches and Nectarines good under glass coverings, very few on open walls; Strawberries about half a crop, very small, and suffering from drought; Raspberries good average crop; Currants fair crop, but small; Goose-

berries much injured by birds in winter; where not so damaged, fairly good. All crops want rain.

POTATOES show no disease, but growth is severely checked, and the tubers will be small.—D. UPHILL.

**Trelissick, Truro.**—Fruit generally will not be so plentiful as was anticipated early in spring, large numbers of Apples, Pears, and Plums having fallen off after setting. Apples will be little more than half a crop; of Pears we have a good sprinkling, though many have dropped during the past few weeks; Peach and Nectarine trees are all heavily laden, and look in first-class condition. My practice is to thin very early, and though I never protect in spring, I have never failed to secure a crop for twenty-seven consecutive years. We have an enormous Fig tree here of the Black Ischia variety heavily laden with fruit; it is no uncommon thing for us to be able to gather a peck of luscious fruit from it at one time. Apricots are rarely grown in West Cornwall; a few trees may be found in good gardens, but through some unaccountable cause, we seldom succeed in getting fruit from them. Why is this? Plums, of which there are many extensive orchards in this neighbourhood, chiefly of the common black variety, are not a good crop. Many of the trees have suffered severely from blight and aphides, and fruit on wall trees will also be thin. Bush fruits here are good, though many of my neighbours complain of spring frosts having entirely destroyed their Gooseberry crops. Strawberries showed an abundance of blossom, but the fruit is inferior both in size and flavour—perhaps the result of cold bleak weather in May and early in June. The season with us is fully three weeks later than usual. We have not a Gooseberry ripe yet (July 15), not even the Golden Drop, which I have often gathered for dessert in the middle of June.—W. SANGWIN.

**Castle Hill, South Molton.**—Apples are very scarce with us, not only in the garden, but also in orchards, although blossom was strong and plentiful. All other fruits are very good indeed. Apricots are an average; Plums a good average; Cherries average; Peaches and Nectarines average, and very good; Pears a good average; small fruits over average, and very good; Strawberries and Walnuts average.—R. NICHOLAS.

#### EASTERN DIVISION.

**Sandringham.**—Apples here are a fair crop, but by no means what was expected from the quantity and quality of flowers which the trees bore in spring. Gooseberries are good; Currants injured on May 17 when in full bloom. Pears on walls are a grand crop, and fairly good in the open. Peaches and Nectarines have suffered very much from cold winds and frost. Cherries are a fair crop. All other crops promising, but very much in want of gentle showers.—C. PENNY.

**Wilburton, Ely.**—Fruit crops in this neighbourhood are this season quite up to the average of, say, the last seven years. Gooseberries and Currants are generally very abundant. Plums of most sorts are above the average. Pears are more plentiful than for many years past, and Apples, I should say, are a good half crop. Our favourite Gooseberries are Crown Bob and Whitesmith, both of which do remarkably well here. Of Black Currants, Lee's Prolific, Bang Up, and Naples are very good. Compared with these, the Old Black is worthless. Amongst Red Currants, The Grape does well, but still the Old Red holds its own, and is this year bearing a very heavy crop. The leading Plums are Violets (Blues), Damsons, and Wheatens; these three do well most seasons. Victorias do well if the summer is hot, as does also Rivers' Early Prolific, but in a cold or wet season this last-named cracks and is worthless. Many of the hardy Pears do well in good seasons, but Williams' Bon Chrétien does not do well here. The most reliable Apples are Keswick, Lord Suffield (very good), French Codlin, White Juneating, Blenheim, Normanton, Histon Favourite (like Blenheim), Golden Noble (a very sure bearer), and Court Pendu Plat; all these do well almost every year, but many sorts suffered very much this spring from heavy rain when in bloom. Ribstons are useless here; they go cankerly and die in a few years.—JOHN J. T. NORFOLK.

**Gog Magog Hills, Cambridge.**—Apricots here are very good; Peaches under the average; Apples and Pears very good; Plums under the average; small fruits very good, especially Strawberries, which are a heavy crop. Fruit in this neighbourhood generally is good.—G. ROWBOTTOM.

**Melton Constable, East Dereham.**—All fruit trees this spring without exception were covered with beautiful and healthy bloom, but sudden fluctuations in temperature during these last six weeks with persistent drought have caused much blight. Apricots, Apples, Pears, Morello Cherries, small fruits and Nuts, however, still promise to yield very fair crops. Strawberries and Plums are much under the average.—W. SHINGLER.

**Stethworth Park, Newmarket.**—In this part of Cambridgeshire Apricots are very thin. Plums are under the average, except Victorias; these and Damsons are both good. Cherries, too, are good, Black Eagle and May Duke being best cropped. Pears are very good. Apples only average, having suffered from severe blight. Strawberries abundant; I find Sir Joseph Paxton to be the best sort here. Raspberries abundant; Fastolf is, I find, superior to Fillbasket or Prince of Wales. Gooseberries and Currants are also abundant. Filberts and Cobnuts good; Walnuts average. As a rule, the soil suits all classes of fruits here, seasons permitting.—JOS. BURGESS.

**Henham, Wangford.**—Peaches and Nectarines here are good crops, and though some were very much attacked with aphides earlier in the season, with attention as regards picking over and good drenchings with the garden engine during warm growing nights, we have mastered them, and have now plenty of good clean growths. Apricots, most of which were transplanted in the autumn, are carrying good crops. I doubt if the fruit will be quite so fine as usual, but, as with Peaches, we have kept them supplied with plenty of moisture at the roots during the long spell of dry weather which we have had, and all they require now is a good season in which to ripen well both fruit and wood. Apples are a good crop, and such fine kinds as Keswick Codlin, Lord Suffield, Alfriston, and King of the Pippins are laden. Of Pears we have a good sprinkling. The most plentiful are Jargonelle, Williams' Bon Chrétien, Louise Bonne, and Duchesse d'Angoulême. Plums are scarce, standards being quite a failure, but we have a few on walls. Of Gooseberries we have only a moderate crop. Currants of all kinds are plentiful; also Figs, Cobnuts, Filberts, Walnuts, and Strawberries, the latter not very large owing to drought, which soon tells on our light soils.

EARLY POTATOES, such as Veitch's Ashleaf, American Rose, and Early Vernon, have been all that could be desired; later kinds want rain.—G. W. EDEN.

**Rendlesham Hall, Woodbridge.**—Fruit crops here are very good indeed, except Apricots, which are not abundant. Apples and Pears are excellent and apparently good in quality. Peaches and Nectarines are plentiful and the trees are looking well. Plums, too, are an average crop; Strawberries are most abundant and very good, and all kinds of small fruits are most satisfactory. Taken altogether, the prospect is very encouraging. These remarks apply to the gardens here, but from what I can learn the Apple crop is anything but good in this neighbourhood. The frosts and bitter east winds which we experienced just as the trees were in full bloom have almost destroyed the entire crop, and Apples are only to be found in anything like a crop in well sheltered places. Pears are on the whole better, and will, I think, be a good average crop. The kinds of Apples that succeed in this neighbourhood, grown mostly as pyramids, are dessert Apples: Astrachan, Cox's Orange Pippin, Court Pendu Plat, Claygate Pearmain, Cockle Pippin, Dutch Mignonne, Early Harvest, Golden Reinette, Gravenstein, Irish Peach, King of the Pippins, Kerry Pippin, Margil, Pitmaston, Pine-apple Russet, Scarlet Nonpareil, and Sturmer Pippin. The Ribston does not grow well here now-a-days. Of culinary Apples, the best are Bess Pool, Cobbett's Fall Pippin, Cox's Pomona, Cellini, Dr. Harvey, Gloria Mundi, Dumelow's Seedling, Keswick



Codlin, Lane's Prince Albert, Lord Suffield, New Hawthornden, Tower of Glamis, Pott's Seedling, and Warner's King. Of dessert Pears our best are Alexandre Lambre, Doyenné du Comice, Beurré Bachelier, B. Superfin, B. Hardy, and B. d'Amanlis, Glou Morceau, Josephine de Malines, Marie Louise, Ne Plus Meuris, Thompson's, Williams' Bon Chrétien, Winter Nelis (only against walls). Culinary Pears consist of Black Pear of Worcester, Catillac, Uvedale's St. Germain, and a local sort called Orange Pear. —J. MILL.

**Flixton Hall, Bungay.**—Fruit crops in this district fall far short of our expectations. Apples promise to be a fairly good crop, but I observe some trees have an unhealthy look, not only in our own garden, but in the orchards around us. Since coming into leaf, quantities of the young shoots have died off. Standard Morello Cherries, which have annually carried good crops, are nearly dead, being affected in the same manner as the Apple trees. Apricots are thin. Peaches and Nectarines good. Pyramid Pears, with few exceptions, are a failure, but on walls we have an average crop, and the same may be said of all kinds of Plums. Of Damsons and Green Gages we have none. Cherries, too, are thin. Strawberries are a poor crop, especially on light land. All the first flowers were destroyed by the frost on the morning of May 15, and now the plants are suffering from want of rain. Though our own were mulched in good time and have had copious waterings, the result will barely recompense us for the labour. Gooseberries are thin. Currants a good crop, but both Red and White are badly infested with fly. Walnuts, Filberts, and other Nuts will be plentiful. The Apples that give us the best crops every year are Keswick Codlin, Lord Suffield, Hawthornden, Dr. Harvey, Golden Knob, Tower of Glamis, Yorkshire Greening, Cox's Pomona, Norfolk Beaufin, Adam's Pearmain, Kerry Pippin, and Syke House Russet. The following bear well every other year, viz., Blenheim Orange, Sturmer Pippin, Cox's Orange Pippin, Golden Winter Pearmain, Alexander, and Mère de Ménage. As pyramids on the Paradise stock we have Ribston Pippin (which cankers badly), Cockle Pippin, Margil, Old Nonpareil, Lord Burghley, Claygate Pearmain, and Pearson's Plate—all shy bearers. Amongst Pears, Easter Beurré, Beurré Rance, Glou Morceau, Bishop's Thumb, Winter Nelis, Van Mons Léon Leclerc, and Gansel's Bergamot rarely give us a fruit fit for table. Knight's Monarch, as a pyramid, drops its fruit, but does well on walls. Beurré de Capiaumont makes a good pyramid and generally carries a good crop. Our soil is a strong loam on a clay subsoil. —H. FISHER.

**Easton Park, Wickham Market.**—Peaches and Nectarines with us are good crops, but they have required constant attention to keep them clean, black fly this season being over-abundant. Apricots are a fair crop. Apples are not so plentiful as I thought they would have been; late frosts destroyed a good many of the first and best flowers, and after the remaining flowers were just set a sort of blight seemed to attack the trees, and the fruit and leaves looked as if scorched and fell off; therefore, the Apple crop will be a small one. Plums are a fair crop, Green Gage on a west wall being a heavy crop. Pears are carrying good crops, especially Green Chisel, Louise Bonne of Jersey, Beurré de Capiaumont, Glou Morceau, and Josephine de Malines. Sweet Cherries are a failure, Morellos a fair crop. Strawberries, though a few of the earliest flowers got frosted, have been a good crop; our leading sorts are Vicomtesse Héricart de Thury, President, Sir Joseph Paxton, and Sir Charles Napier. Nuts are good, and Gooseberries and Currants large crops. —JAMES BEST.

**Sudbourn Hall, Wickham Market.**—Some fruits in this eastern part of Suffolk are very good, others inferior. Apples are not an average. Pears very fair, especially on walls. Of Peaches and Nectarines we have a first-rate crop. Plums are scarce and badly blighted. Apricots are far below the average, and Cherries are scarce. Currants very good, and Gooseberries excellent. Of Raspberries we have very fair crops, and Strawberries are abundant. Nuts are good. We had here on May 15 6° of frost, and a good deal of dry, north-easterly winds since then. —W. COLLETT.

**Drinkstone Park, Bury St. Edmunds.**—Apples, Pears, and Plums in this district are so irregular, even under the same circumstances of soil and aspect—in fact, standing side by side—that it is difficult to apply the general terms, good or bad, to any of them. Where one has a full crop of this or that fruit, his neighbour, close by, may have none, or an equivalent in other varieties. Perhaps the one fruit that is most satisfactory is the Apricot. Good crops abound, but with the usual complaint of paralysed branches, be the tree young or old. Peaches and Nectarines out-of-doors are thin, but very satisfactory under glass. Apples, allowing for those yet to fall from maggots and those spoilt by fungus on the skin, may prove on the whole about half a crop. Pears, considering that many trees have no fruit on them at all, will nevertheless average. Plums are very scarce; a full cropped tree may be met with here and there. Cherries are a fair crop, but late and uneven in size, a statement which also applies to Morellos. Figs, lost two-thirds of the young fruit in May. Bush fruits are generally plentiful; Gooseberries in some cases are thin, but here fine size will make up for want of numbers. Red and White Currants are plentiful and fine. Black Currants are smaller in the bunch than usual; otherwise they are good. Raspberries are a good crop, but many of the earliest fruits are imperfectly formed. Strawberries are good and plentiful, though suffering somewhat from drought. Altogether, it is evident that an enormous show of blossom is no criterion that a heavy crop of fruit will be the result. A second crop of blossom is here abundant on Apples and Pears, a result due, it is thought, to want of ripeness in the wood. It is questionable if the wood was so well ripened last season as many seem to infer; or that the fruit buds were well formed and finished. Undoubtedly we have had an immense amount of imperfect bloom, and this, coupled with the exhaustion of the trees after flowering so freely and the extraordinary temperatures at the blooming period, might be allowed to account in a great degree for the erratic fruit crops of the year, and in many instances bad condition of the foliage. —GEORGE PALMER.

**Shrubland Park, Ipswich.**—Fruit crops this year hardly fulfil our expectations. In the gardens here we have plenty of Pears, such as Williams' Bon Chrétien, both on walls and standards; Pitmaston Duchess, on a wall; Marie Louise, walls and standards; Doyenné du Comice and Josephine de Malines; Prince of Wales is very uncertain, and Urbaniste generally fails. Apples with us are not half a crop; many of the trees are nearly blanks. King of the Pippins is the most certain bearer with us; the Ribston is often a shy bearer. In some places Apples are abundant, and in others not far distant the crop is a poor one. Several Apples in Suffolk have local names and are not much known out of the county. Plums and Cherries are plentiful, and among small fruits Gooseberries are most abundant; Strawberries, Raspberries, and Currants are hardly average crops. —T. BLAIR.

**Orwell Park.**—Apples here are somewhat irregular as regards crop, and a large proportion small and deformed; the trees, too, are badly infested with insects. Among our best cropping sorts are King of the Pippins, Scarlet Nonpareil, Cockle Pippin, and Sturmer Pippin, and of kitchen sorts Keswick Codlin, Lord Suffield, Stirling Castle, Blenheim Orange, and Alfriston. Pears are, on the whole, a thin crop in the open as well as on walls. Amongst good bearers may be mentioned Beurré Superfin, Comte de Lamy, Conseiller de la Cour, Marie Louise, Knight's Monarch, Zephirin Grégoire, and Winter Nelis; the last two on walls are good and constant bearers. With the exception of Damsons, which in some places are good, Plums are a very short crop. Among the best bearing are Victoria and large black Imperial. The Green Gage, Jefferson, Kirke's, Royal Hâtive, and Reine Claude de Bavay, though amongst the best dessert sorts, seldom, in this neighbourhood, carry good crops. Cherries are fairly plentiful both on standards and on walls, but the trees are much infested with aphides, as are also Plums. Among the most prolific sorts of Cherry may be mentioned Black Eagle, Black Heart, May Duke, and White Heart; all these do well as standards, of which there are

large trees in a good many cottage gardens in this neighbourhood. Apricots are a full crop, the Moorpark being principally grown. Peaches are under an average crop, and the later sorts are thinnest, *i.e.*, such as Barrington, Walburton Admirable, and Lord Palmerston; the earlier sorts Dr. Hogg, Dymond, and Royal George carry better crops. Nectarines are more plentiful than Peaches; the sorts bearing best are Pine-apple, Pitmaston Orange, and Violette Hâtive; the last named is a free and constant bearer. With few exceptions Peaches and Nectarines have grown freely and are clean and healthy. Strawberries are a deficient crop; a large proportion of the fruit is small, and refuses to swell or ripen properly even where the beds have been freely watered. Among the best croppers this season are James Veitch, Sir J. Paxton, and Hélène Gloede. Bush fruits are plentiful, but the fruit is small, rain being much needed to swell it off; Filberts and Walnuts are good crops. —JOHN WALLIS.

**Gunton Park, Norwich.**—Fruit prospects are good in this county, more especially now that the severe drought is succeeded by drenching rains, that have freed the trees from aphides and stopped Apples from falling off. The latter are not so plentiful as we were led to expect they would be, except late flowering kinds, which are heavily cropped, and must be thinned with the secateur, or knife, if large saleable or useful Apples are desired. Apricots are a good crop, but the trees have suffered much loss in the way of withered branches. Cherries—Morello and dessert kinds—are abundant, but the trees have suffered much from aphides, both green and black, and had to be frequently well watered to prevent the crop from falling during continuous drought. Black Currants are good, other kinds plentiful. Figs promise to be a heavy crop; Brown Turkey, Brunswick, and Black Ischia are our favourites; Black Ischia here, as grown near the sea in sheltered spots, is very fine, its blue-black skin making it a tempting morsel. Filberts are showing well. Gooseberries are not an average crop; they were much hurt by the frost of May 8, when we registered 4°, and the lake in the park was covered with ice. Peaches and Nectarines are good crops and the trees healthy. Plums are not generally good; some kinds are well laden, such as Victorias, Pond's, and Coe's, but Green Gages are thin, and the trees have been smothered with aphides. Pears have set an abundant crop, both on walls and standards, of very clean fruit free from spot; all choice kinds have been thinned, mulched, and well watered, as a check at this season leads to cracked and useless fruit in the autumn. Strawberries, where they escaped frost, have been on the whole good, although here nearly all the sorts lost their first blooms after they were set and the flower-stems were considerably blackened; Dr. Hogg and Auguste Nicaise suffered the most; Sir John Paxton, Amateur, President, British Queen, Crimson Queen, Countess, and Unser Fritz are our favourites, and do the best. Raspberries are abundant, but the fruit is rather small, owing to the dry weather. —W. ALLAN.

#### NORTH MIDLAND DIVISION.

**Neasham Hall, Darlington.**—The fruit crop in this locality, with a few exceptions, is below the average. Two nights of sharp frost in May spoiled it. Gooseberries are not half what we had the three preceding years. Black and Red Currants are very thin, especially the former, just ripening. Raspberries are very good, as are also Strawberries. Jargonelle Pears are thin. Hesses are a good crop; all other good Pears are entire failures. Apples, with the exception of Keswick Codlin, are fair crops. Standard Plums have all dropped off; on trees against walls we have a few left. Victorias in good situations are pretty well cropped; it is the only Plum that gives satisfaction here. Jefferson, when planted against a wall, does fairly well in some seasons, but not this year. Apricots are a good crop, but the trees lose large branches every year, sometimes when in full leaf. Early Cherries have nearly all dropped off; late sorts look better. We have had hot weather until to-day, when there is a change, the wind blowing cold from the east. Forest as well as fruit trees have been very much infested with insects and honeydew, but we had twenty-eight hours' rain



last week, which has washed them and made them look better. JOHN CLEUGH.

**Stricklandgate, Kendal.**—Apples are a very heavy crop hereabouts. Amongst the sorts most cultivated and which succeed best here are Lord Suffield, Hawthornden, Scotch Bridget, Keswick Codlin, Prussian Pippin (a sort peculiar to this locality), Bedfordshire Foundling, Warner's King, Northern Greening, and Norfolk Beaufin. Worcester Pearmain is also succeeding well where planted. Of Pears, the following sorts are bearing a good average crop, viz.: Jargonelle, Hessele, Knight's Monarch, Josephine de Malines, Williams' Bon Chrétien, Beurré Hardy, Beurré Rance, and Marie Louise. Plums are much under the average; they were destroyed by frost early in May, which was very severe, as much as 8° and 10° being registered on two successive nights. Damsons, which are largely grown here, in some parts are a complete failure. Peaches, Nectarines, and Apricots are but little grown; in favoured positions they are a medium crop. Strawberries are most abundant and good in quality. The favourite sorts grown are John Powell and President. Black Currants are average crops, but the fruit is very small. Red and White Currants are good average crops, and the same may be said of Raspberries. Gooseberries are under the average, having been destroyed by frost. Nuts, average. On the whole, fruit crops are over the average, and if the fine summer weather continues they will be harvested in good condition.—ROBERT CRAIG.

**Netherby, Cumberland.**—Gooseberries here are a very thin crop. Our best are Warrington, Sulphur, Langley Green, Whitesmith, and Whinham's Industry, the last named coming to a good size early for kitchen use. Currants, White and Red, are an average crop; Black Currants under the average, being much spoiled by the thunder and hail storm of May 16. Raspberries are good, as are also Strawberries, of which our best are Macmahon, Garibaldi, and Duke of Edinburgh. Cherries are very thin; Plums, too, are a light crop; our best are Kirke's, Green Gage, Victoria, Jefferson, and Orleans. Apples are good, the best being Lord Suffield, Keswick Codlin, and Stirling Castle. Pears are under the average; our best are Beurré Diel, Marie Louise, Louise Bonne of Jersey, and Bon Chrétien.—JOHN DAVIDSON.

**Holker Hall, Lancashire.**—Apples here are a fair crop. King of the Pippins, Bess Pool, and Duchess of Oldenburg on standards are the best. A local variety known as Prussia Pippin is also bearing most abundantly. Bush trees on the Paradise stock of the following kinds fruit well and continue healthy, viz.: Warner's King, King of the Pippins, Cox's Orange Pippin, Golden Noble, Echlinville Seedling, and Devonshire Quarrenden. Pears are a failure. The frosts and north-east winds destroyed the bloom of both these and Plums. Apricots are an average crop, and they generally ripen well. The Turkey variety does best. Peaches and Nectarines are below the average, the Noblesse and Alexandra Noblesse being exceptions. These are bearing fairly good crops. Grosse Mignonne, Galande, and Viollette Hâtive have scarcely any, although the wood was well ripened. The low temperature with north-east winds blistered the leaves badly and the blossoms failed to set. Gooseberries are an abundant crop, as are also most of the small fruits, Black Currants excepted, these having been badly blighted. Cherries on walls are good, the best being Florence and May Duke. Morellos are not quite as good as usual. Strawberries are very good, President being our main crop. Brown Turkey Fig is bearing a good crop on a wall with a south-east aspect, and should the autumn prove sunny and fine the fruit will ripen well.

EARLY ASHLEAF POTATOES are very good, both in yield and flavour. No disease as yet. Late crops look remarkably well, the late rains having benefited them much. W. FOX.

**Worsley Hall, near Manchester.**—No season in my experience opened with greater promise of a general fruit crop than this one. Pears which had not fruited for years were covered with a profusion of fine bloom. Apples, with hardly any exception, were

loaded with blossom, while Currants and other small fruits gave excellent promise of good crops, but the long protracted cold, completely stopping all growth, with slight frost frequently, soon shivered our high hopes. In the orchard Pears suffered worse. Amongst bush fruits Black Currants sustained most injury. Plums have ceased to succeed about here, the soil was never suitable, and now the atmosphere is so bad that we have not seen a crop of Plums in this parish for many years. We have given up all attempts to grow Apricots or Peaches out-of-doors, so that I can say nothing respecting them. The Jargonelle is the only Pear that is carrying a good crop; Hacon's Incomparable, the old Hessele, and Aston Town have also very fair crops on them; and on walls Easter Beurré, Beurré Boussock, some kinds of Bergamot, Beurré Clairgeau, and Beurré Diel have all a good sprinkling of fruit on them; Marie Louise and Beurré de Capiaumont were most injured by frost; the latter seldom fails. Apple trees were attacked by blight, while cold paralysed all growth, and the result is a thin crop; early sorts, such as Peach and Kerry, are best amongst dessert sorts; and Lord Suffield, Pott's Seedling, and Hawthornden amongst culinary kinds. None do better here than the three last named and Blenheim Orange, Scarlet Nonpareil, and Normanton Wonder. Strawberries are a fair crop, but small. No Strawberry is more useful than Vicomtesse Héricart de Thury; it is good for dessert and highly approved of for preserving. Of Nuts there is a nice sprinkling of fruit, though they never reach great perfection here. Raspberries promise to be most abundant and good, and the same may be said of Red Currants and Gooseberries; of the latter nothing is so useful as Warrington. Aphides have attacked Cherries in a most determined manner; none are grown, except on walls, but Morellos; these succeed very well as bushes, and though not large in size are constant fruiters.

POTATOES are very promising.—W. B. UPJOHN.

**Waterdale, St. Helens.**—In sheltered situations all crops are good, but where exposed the heavy hailstorm on the 10th and severe frost on the 12th of May caused a large quantity of bloom to fall, leaving many a promising tree very thin of fruit. Cherries and Plums are good average crops. Morellos very heavy. Pears in sheltered situations are carrying a full crop all round. The better varieties of Apples only are thin; the Suffields, Keswicks, Dumelows, and similar free bearers are all that could be desired. Gooseberries are well loaded; Black and Red Currants the same where sheltered, but the reverse where exposed. Strawberries and Raspberries are excellent; fine, sunny weather following the heavy rain at the right time caused the fruit to swell quickly and well. The sorts to be relied upon on our deep clay subsoil are Black Prince first, followed by President, Vicomtesse Héricart de Thury, and Sir Joseph Paxton.

EARLY POTATOES are good, both in quantity and quality. Myatt's Prolific is the best. We have Champions and Magnums for the main crop, and both are looking uncommonly well.—JAMES SMITH.

**Broughton Hall, Skipton.**—Fruit crops in this district are fairly good, with the exception of Pears and Plums, which are almost failures. Apples are an average crop. Of Cherries we have a very good crop, especially of Morellos. Peaches that were protected are an average crop. Black and Red Currants are very fair crops. Strawberries are very good, also Raspberries.

THE POTATO CROP in this part looks very promising.—P. GRIFFIN.

**Raby Castle, Darlington.**—Apples here are superabundant, and of Pears we have a fair crop of most kinds, the Jargonelle being very good. Apricots good. Of Plums we have very few, except Victoria. Of Cherries of all kinds we had plenty set, but they are fast falling from drought. Red Currants abundant; Black Currants good, but thin. Of Raspberries, a very heavy crop set, but they are swelling very slowly owing to want of rain. Strawberries are abundant, but small. Of Nuts we have very few. Fruit-trees and bushes of all kinds are severely attacked by aphides, and the fruit is much stunted, owing to the drought which we have so long experienced.—RICHARD WESTCOTT.

**Eden Hall, Penrith.**—Pears here are under the average. Apples are an average crop, but they will be very small unless we get rain soon. Of Plums we have scarcely any. Gooseberries are very partial; in some places none, in others good crops. Currants the same; Black sorts are suffering severely from drought. Apricots are a failure. Strawberries a good crop, though small. Cherries fair.

POTATOES are looking well and promise to be a good crop.—T. R. CUCKNEY.

**Huntroyde, Burnley.**—Our outdoor fruit crops are but poor; frost and hailstorms at blooming time destroyed them for this year. Of Black and Red Currants we have a few. Gooseberries very scarce; some trees fruitless. Of Plums and Pears we have only partial crops. Cherries are a fair crop. Strawberries are good, and Apples an average crop; both, owing to being later in bloom, missed the frost. The season altogether is a fortnight later this year than last in this district.

POTATOES look well and healthy, and no indication of disease.—HENRY LINDSEY.

**Otterspool, Liverpool.**—The fruit crop in this district is above the average, especially Apples, which may be accounted for through the trees carrying a very light crop last year. Ours are principally Suffields and Keswicks, both of which are heavy crops; so, too, are Cellini, Wellington, Warner's King, Pott's Seedling, and some very old trees of Yorkshire Greening. Pears are also a full crop, especially Jargonelles. Marie Louise is hardly an average crop; Winter Nelis, Glou Morceau, Beurré Diel, Beurré Rance, and Ne Plus Meuris are full crops; so also is there on standards of Louise Bonne of Jersey. Apricots and Peaches we do not grow outside; nor Plums, with the exception of Damsons, which are light crops. Currants, Black and Red, are heavy crops, but Black kinds have been badly infested with fly. Raspberries also show a full crop, and should rain come soon they will be the best we have had for several years. Fastolf does best with us. Gooseberries are more than an average crop, especially Crown Bob, Dan's Mistake, Warrington, Ironmonger, Whitesmith, and Early Sulphur. We have seen no Gooseberry caterpillar, although I notice plenty in the neighbourhood. Our exemption I attribute to whitewashing the bushes with hot lime as soon as pruned in early winter. This we do to keep off sparrows, but it also seems to exterminate the caterpillar. Strawberries are fully an average crop, but want rain to prolong their season. Duc de Malakoff is our main crop kind, but it is badly infested with fly this year. Paxton, President, and Sir C. Napier follow it in the order named, and promise to be full crops. Many others are grown, but these do best here.—D. LINDSAY.

**Knowsley, Prescot.**—This year Apple trees blossomed late, and when in bloom were a glorious sight, the old Pomeroy Apple being especially striking and beautiful. Some of our most reliable sorts for dessert are Early Marguerite, Lady Derby, Court Pendu Plat, King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Sturmer Pippin, Margil, Lewis' Incomparable, Blenheim Orange, Scarlet Nonpareil, and Boston Russet. For kitchen use the following dozen are as good as any with us; they combine large size with good cooking qualities, and the list covers the season from August to May, viz., Keswick Codlin, Lord Suffield, Winter Hawthornden, Betty Geeson, Rhode Island Greening, Dumelow's Seedling, Echlinville Seedling, Warner's King, Pomeroy, Northern Greening, Scotch Bridget, and Beauty of Kent. As to Pears, the first to be of any use is the Jargonelle, followed by Williams' Bon Chrétien, Souvenir du Congrès, Beurré d'Amanlis, Fondante d'Automne, Comte de Lamy, Louise Bonne of Jersey, Beurré d'Aremberg, Beurré Diel, Marie Louise, Pitnastoun Duchess, Glou Morceau, Winter Nelis, and Bergamote d'Esperen. The latter half of these do best on walls; most of the others are more piquant in flavour if smaller in size from bushes and espaliers. Outdoor Plums are bad with us this year, but Cherries are satisfactory, and the same may be said of Peaches and Apricots. Small fruits are abundant, but Strawberries have suffered from want of rain, and Gooseberry and Currant bushes are dreadfully infested with insects, Black Currants look especially miserable through the



combined attacks of mite and fly. Black Currant trees affected with the mite should be sent to the fireheap without delay, and if healthy young trees were planted on new ground, we might hope in a few years to stamp it out.—F. HARRISON.

**Haigh Hall, Wigan.**—Apples are, on the whole, considerably over the average. Lord Suffield, Cellini, Keswick Codlin, Small's Admirable, Pott's Seedling, and Sturmer Pippin are our best sorts. Pears on south walls are a good crop; on standards and espaliers thin. Beurré Diel, Easter Beurré, Louise Bonne, Marie Louise, and Jargonelle are the best. Plums are very scarce except Victorias, which are very good. Cherries are a fair crop in some places; in others only Morellos are good. Small fruits are very good throughout. Strawberries abundant; Garibaldi, Sir Harry, Black Prince, and Keen's Seedling are the best. Red, White and Black Currants, Gooseberries and Raspberries are abundant, but about two weeks later than usual. The Peach, Nectarine, Apricot, and Fig are not cultivated in the open in this neighbourhood.

POTATOES look promising, but very late.—ANDREW JAMIESON.

**Underley, Kirkby Lonsdale.**—On the 8th of May 8° of frost were registered, which destroyed the greater part of the Pear and Plum bloom. Currants and Gooseberries were just formed. Apple blossom was not open, but a great many varieties showed the effects of the frost when the bloom expanded, being weak and deformed. Plums and Currants are now difficult to keep clean of aphides and honeydew. Apples are a light crop. It is seldom we have a heavy one. In our orchards, consisting of a mixed collection of pyramids in thin gravelly soil, very few sorts ever bear a crop, King of the Pippins and Northern Greening being exceptions. Lord Suffield soon goes off with canker. In our enclosed kitchen garden Court Pendu Plat, Fearn's Pippin, Cellini, Reinette du Canada, Keswick Codlin, Annie Elizabeth, and King of the Pippins are our best croppers. Cox's Orange and Ribston Pippins, Bedfordshire Foundling, and Margil do not bear. These are all trained as espaliers. Apricots do not thrive in this district except in very sheltered positions, a remark which also applies to Cherries, except Morellos, which always bear grand crops on north walls. Peaches are a precarious crop, even under a glass case; the leaves blister and swell to a great size. Early Beatrice, Early York, and Princess Dagmar are the best to rely on. Pears are under the average; standards and espaliers do not succeed with us. On walls Fondante d'Automne, Marie Louise, Glou Moreceau, and Easter Beurré do best. Plums are a failure. Victoria is the best cropper in this district when a favourable season occurs. A crop of Damsons is seldom seen here. Strawberries are a good crop. A good sign that Sir Harry is a good bearer is that runners are often asked for by gardeners while visiting here. Small fruits, except Raspberries, are a very light crop. Gooseberries are quite a failure, owing to late severe frosts, both cottagers' and pruning-loving gardeners' bushes sharing the same fate. Warrington is our most useful sort. Birds of the finch tribe, sparrows, &c., were very troublesome this spring. Bullfinches require a price put on their heads.—WILLIAM A. MILLER.

**Norris Green, West Derby.**—Small fruits, such as Raspberries, Strawberries, Gooseberries, and Currants, are here and in this neighbourhood generally an abundant crop. Cherries are not largely grown, but from what I have seen the trees are fairly well laden with fruit. The same may be said of Morellos, which are more extensively cultivated than sweet kinds, but a great many have fallen here in stoning, owing to the long spell of dry weather which we have had and from which trees suffer very much on our light soil on red sandstone. Apricots are hereabouts only grown in one garden known to me, and in this there is a very fair sprinkling of fruit. Peaches are grown outside in three, and in two there is a fair average crop; the other I have not seen. Plums are not very generally grown, Victoria being the only variety here that is bearing anything like a crop. Damsons are largely grown, and these may be said to be a failure; from fifteen large trees here I shall not be able to gather two quarts of fruit. During the past

nine years we have only had two good crops of this fruit, which is generally injured by late frosts. Apples coming late into bloom this year are an abundant crop, nearly every tree being well loaded with fruit. Blenheim Orange is an exception, and here always a failure; the trees of it have, therefore, been rooted up all but two, and they will be removed this autumn. The varieties that have never failed to bear more or less of a crop for these past nine years are Keswick Codlin, Lord Suffield, Echlinville Seedling, Cellini Pippin, Cox's Pomona, Cox's Orange Pippin, King of the Pippins, Warner's King, Royal Russet, Irish Peach, and Alfriston. The following are young trees and promise to do well in this locality, viz.: Betty Geeson, Devonshire Quarrenden, Red Astrachan, Dumelow's Seedling, Stirling Castle, Mère de Ménage, Bedfordshire Foundling, Hawthornden, and Northern Greening. Ribston Pippin does well some seasons, and is worth a place. This year the crop is rather light. The sorts that have failed in addition to the one named are Golden Pippin, Emperor Alexander, Adam's Pearmain, Kerry Pippin, and Mannington Pearmain. The first and the last fruit fairly well some seasons, but shrivel badly and are never fit for table. The majority of the varieties named are upon the Paradise stock, but the first five, seventh, eighth, and tenth do well with me also on the Crab stock. Pears here are not a good crop this year, although there is a fair sprinkling of fruit on some of the trees. Many of the varieties when in full bloom were caught by 8° and 10° of frost. In other gardens some are bearing good crops, but, from what I have seen, I think the Pear crop in this neighbourhood is only an average one. Early kinds, such as Jargonelle and Citron des Carmes, were just set, and therefore safe from the frost when it came, and are carrying good crops. The same may be said of Louise Bonne of Jersey, which very rarely fails. Marie Louise generally bears a fair quantity of fruit annually, but this year we have scarcely any. The blooms of this variety are very tender, and are often injured by the very slightest frost. Beurré d'Amanlis, Williams' Bon Chrétien, Winter Nelis, Pitmaston Duchess, Beurré Diel (the two last being only second-rate in flavour) seldom fail to carry a crop. Glou Moreceau and Hacon's Incomparable ripen only on a warm wall. The first fruits freely, while the latter carries a crop occasionally. Doyenné du Comice generally does well, but is very thin this season. Bergamote d'Espereen fruits freely here, but is good only after seasons like those of last year. The varieties that failed with us, and which have been removed, are Beurré Clairgeau, Josephine de Malines, Easter Beurré, Napoleon, Ne Plus Meuris, and Beurré Rance. Some of these fruited freely enough, but were never fit for table.—WM. BARNEY.

**Appleby Castle, Appleby.**—Fruit prospects here are good. Peaches on open walls this year are a fair crop, and if the summer be at all favourable they will ripen well; the sorts which do best with us are the Royal George and Late Admirable. Nectarines will not ripen at all in the open here. Apricots are a heavy crop, and ripen well on walls. Plums are a fair crop; all do well on walls; but Victoria is by far the best as a standard. Pears are above the average. Apples very heavy crops, far too many; the only variety which fails here is the Ribston. Those which do best are Lord Suffield, Reinette du Canada, King of the Pippins, Waltham Abbey Seedling, and Alfriston. From the last we have had fruit 1 lb. each. These are a few of the most useful Apples we have—all large and abundant bearers. Small fruits are heavy crops, although I see in some cottage gardens that green fly has almost destroyed both Black and Red Currants. Strawberries could hardly be more abundant, and they are of good size.—DAVID LESLIE.

**Lowther Castle.**—Apricots are here a good crop—in fact, the best we have had for several years; Moorpark is the best kind. Peaches are not grown here outside. Of Plums on south walls, such varieties as Jefferson's, Golden Gage, Victoria, Golden Drop, and Orleans are very good; same sorts on a west wall are very thin; standards and bushes of Victoria, Washington, Orleans, Green Gage, Kirke's, and Impératrice are very good. Pears are very thin indeed, both on walls, pyramids, and standards; the sorts

that do best here are Jargonelle, Marie Louise, Louise Bonne of Jersey, Williams' Bon Chrétien, and Citron des Carmes. Cherries are an average crop; May Duke, White Heart, and Morello are the three best kinds here. Our best Apples are Stirling Castle, Warner's King, Echlinville Pippin, Tower of Glamis, Cellini Pippin, Worcester Pearmain, and Paradise Pippin. Figs are not grown here outside. Strawberries are an average crop; fruit fine and flavour good. Gooseberries an average crop. Red and White Currants are above the average; Black Currants below the average. Raspberries promise to be very good indeed. The fruit crop this season promises to be good, but later than last year.—FRED. CLARKE.

**Lambton Castle, Durham.**—Apricots here are a small crop. Plums considerably under the average. Cherries an average crop on walls, also Morellos on pyramids. Peaches and Nectarines are not successful outside in this district. Of Apples every tree almost is bearing a full average crop, and with a good season I anticipate one of the best crops we have had for some time. Pears are very thin, being greatly injured by late frosts. Small fruits are good. Strawberries plentiful, but suffering from want of rain. Gooseberries are a good half crop, and principally on the bottom of the bushes, having also suffered from late frosts. The same may be said of Red and Black Currants.—J. HUNTER.

**Castle, Alnwick.**—Fruit crops here with a few exceptions are above the average. Of Apples we have a crop equal to that of 1883. Some trees are very heavily laden, but they require rain. Over thirty varieties are bearing a crop. Apples bloomed ten days later than usual; consequently the spring frosts had passed. Pears are grown on walls only and several varieties are bearing good crops. Our soil being light on gravel and with a light rainfall, we use a quantity of manure water and mulch; by this means only can the trees be kept in healthy condition. Apricots are a grand crop; the trees are very healthy, and branches do not die off so frequently here as in the south of England. Several varieties of Peaches and Nectarines are bearing full crops outside, and the trees are healthy. Plums are the most uncertain crop that we have. Of Cherries, May Duke and Morello are the best bearers here. Small fruit is an average crop. Strawberries abundant; the first fruit was gathered on July 6; other places in the neighbourhood were a few days earlier. Wall trees were all covered with double fishing-net to protect the bloom, with the exception of Peaches, some of which were covered with frigi domo—an excellent protector.—GEORGE HARRIS.

**Shawdon, Alnwick.**—Owing to cold in spring and the early summer months, the fruit crop in this county is not abundant. Apples in some places are above the average, but owing to the backward season many will drop. After giving many of the newer varieties a fair trial, we find that the older sorts are in every way better suited to this district. The old Cockpit is indispensable both for baking and dessert. It seldom fails to bear an abundant crop. Amongst other sorts well suited for this district are the following: Mr. Gladstone, a first-class early dessert Apple; Devonshire Quarrenden, also an abundant bearer; Kerry Pippin, Thorle Pippin, and Juneating. Some of the best late-keeping dessert Apples are not suited to this locality; the same is the case to some extent with late keeping baking Apples. The following are varieties that come to full perfection in this quarter, viz., Hawthornden, Keswick Codlin, Lord Suffield, Stirling Castle, Warner's King, Bedfordshire Foundling, Dumelow's Seedling, Tower of Glamis, and Alfriston. These seldom or never fail to bear well. The Pear is grown mainly on walls in this county, and the crop this year is a little above the average. The trees are healthy, and if the next two months are favourable, more Pears will be gathered than have been secured for several years past. The sorts that come to full perfection in the north of England are limited. Here we find the following to do well—viz., Beurré Superfin, Bon Chrétien, Gansel's Bergamot, Louise Bonne of Jersey, Josephine de Malines; and for baking—Beurré Capiaumont and the Vicar of Winkfield. The Apricot crop is the best that we have had for several



years; the trees are healthy and freer from canker than they have been for some time; Moorpark is our standard sort. Cherries are a light crop; the trees in many places are infested with black fly. Of Plums we have but few. The same is the case with Gooseberries, but this can easily be accounted for. On April 3 the thermometer here registered 12° of frost. Had it not been that fruit bushes were well clothed with foliage, the entire crop would have been destroyed. Red and Black Currants are heavy crops in many places. Strawberries are fair crops, but the dry cold weather is all against them in this quarter. Raspberries promise well. Where the Peach is grown out of doors the crop is fairly good, but very late; if the weather is fine during the next two months they may ripen, but at best outdoor-grown Peaches in Northumberland seldom come to perfection. JAMES THOMSON.

**Seaham Hall, Sunderland.**—Of Apples we have only half a crop, and of some sorts none at all. This I attribute to the cold May which we had. Lord Suffield, Keswick Codlin, Early Julian, Joanneting, Flower of Kent, and Hawthornden seem to be the only sorts that are bearing crops this season. The following kinds have little fruit worth naming, viz., Golden Pippin, Early Nonpareil, Ribston Pippin, Nonsuch, Beauty of Kent, Yorkshire Greening, and Blenheim Pippin. Of Pears, all varieties are scarce. Jargonelle and the old Chisel have a few fruits on them. Cherries do not succeed on this east coast, neither do Plums. Peaches and Nectarines are not grown on open walls. Gooseberries, Currants, Strawberries, and Raspberries in sheltered places are abundant.—R. DRAPER.

#### YORKSHIRE.

**Grimston Park, Tadcaster.**—Apricots are a good crop, and required a good deal of thinning; the only protection we use is doubled one-inch mesh herring net, and we find this to be the best, having, in previous years, tried both hexagon netting and scrim canvas. St. Ambrose, Kaisha, Hemskirk, and Moor Park are our best varieties. The trees have suffered somewhat from branches dying off suddenly, otherwise they are clean and healthy. We find that good soakings of sewage poured on the first yard of the border from the wall are beneficial, as the border never got soaked through during the past dry winter. Apples are a very partial and disappointing crop, although the blossom was more abundant and fine than I ever remember seeing it before. We had cold east winds and slight frosts during the time it was open, but I do not think that these alone are the cause of its not setting satisfactorily. Hawthornden, Cockpit, Yorkshire Greening, Lane's Prince Albert, Lewis's Incomparable, and Blenheim Orange are bearing the best crops. The trees of the latter variety were partially root-lifted early in the winter of 1883; this doubtless has helped them, as with us this variety is usually not a free-fruiter. Peaches are a good crop; also Nectarines—Red Nectarine, Bellegarde, and Prince of Wales; Peaches—Hunt's Tawny, Lord Napier, and Pine-apple; Nectarines bear the best. We use the same protection for them that we do for Apricots. Plums are almost an entire failure, Jefferson and Victoria being the only kinds that have any fruit on them worth mentioning. Pears, too, are a thin crop, although, as with Apples, the promise during the blooming period was a most abundant one. Williams' Bon Chrétien, Passe Colmar, Autumn Bergamot, Beurré d'Amanlis, Doyenné d'Été, Citron des Carnes, Louise Bonne of Jersey, and Marie Louise have the most fruit on them. With the exception of Marie Louise, which is on a wall, the rest are espalier-trained trees—a mode of growing Pears which, when not on walls, is, I think, by far the best and most profitable, one great advantage being that the fruit is not so liable to damage from high winds in the autumn. Cherries are a good crop; as usual our large bush trees of Morellos are the best. We invariably get better crops and finer fruits from them than from other trees trained against a north wall not 50 yards from them. They are more healthy and longer lived too. We find that we can protect them from birds very well by inserting half a dozen Larch or Spruce poles a few inches in the ground just outside the outer

branches and closing them at top and tying them together, then throwing a net round the lot. The poles which we use for keeping the nets from the walls in spring come in again for this purpose, being some 10 feet or 12 feet long. Small fruits are, on the whole, a good crop. Gooseberries suffered somewhat from spring frosts damaging the embryo fruits on the uppermost branches. Still there is a fair crop, and the trees are clear of caterpillar, which for several years has not done much damage. We find that giving the trees for some 18 inches or so round the base of the stems a good dressing in the winter of wood ashes or charred garden refuse has the effect of keeping off caterpillars. It is necessary to first scrape the soil away a few inches in depth before applying the dressing, and digging the soil a good depth between the rows. Crown Bob, Whitesmith, and Aston Red, or Warrington are our best coppers. Strawberries are a fairly good crop, Keen's Seedling, Vicomtesse Héricart de Thury, Sir C. Napier, President, and Newton Seedling are our best kinds. Among newer varieties Unser Fritz is a good kind to have. Raspberries are very promising, Carter's Prolific and Fillbasket are the best. Currants are good, though the fruit is not so fine in size as during the late moist summer. Walnuts are fairly good, but not so abundant as last year. Our soil is moderately heavy, resting on magnesian limestone.—H. J. CLAYTON.

**Ribston Hall, Wetherby.**—Fruit crops here are as follows: Peaches, Nectarines, and Apricots very good; Plums, very thin indeed; Cherries, a good crop; Pears and Apples, below the average; Gooseberries are a very light crop; Currants, Raspberries, and Medlars, heavy crops; Walnuts are an average; Strawberries, very good. The fruits that do well with us here are Noblesse, Royal George, Barrington, and Grosse Mignonne Peaches; the early Newington and Violette Hâtive Nectarines; the Moorpark and Hemskirk Apricots; the Green Gage, July Gage, Kirke's, Jefferson's, Damsons, and Victoria Plums; May Duke, Governor Wood, and Morello Cherries; the Jargonelle, Eyewood, Passe Colmar, Jersey Gratioli, and Beurré d'Aremberg Pears; and amongst Apples, Ribston Pippin, Cox's Orange Pippin, Early Julien, Irish Peach, Kerry Pippin, and Court Pendu Plat for dessert; and Keswick Codlin, Lord Suffield, Gloria Mundi, King, Blenheim Pippin, and Galloway Pippin for kitchen. The last is a beautiful and first-rate keeping Apple, and should be in every collection.—THOMAS JONES.

**Patrick Brompton, Bedale.**—Of Apples the crop is one of the best I ever saw. Trees in cottage gardens and orchards alike are covered with fruit; no matter how unfavourable the situation is, the Apple for once is master of it. Our best varieties are Keswick Codlin, Lord Suffield, Hawthornden, Burr Knot (or Mother Apple), Cockpit (two or three varieties), Manks Codlin, Beauty of Kent, Wellington, Hawthornden (new), Tower of Glamis, Pippins, Cox's Orange, Ribston (partial), King of the Pippins (extra), Cockle Pippin, Rymer's, Eve's, Golden Reinette, Balsam, Scarlet Nonpareil, Blenheim Orange, Irish Peach, and Warner's King. Of Plums we have quite an average crop on Victorias, Kirke's, Orleans, Jefferson, Golden Gage, Green Gage, and a good many on old standards of Winesour and Damson varieties. Pears are a very partial crop, varying more than usual with situation and below the average standard, such as Hessel, Ashton Town, and such like are fair; Jargonelle (very light), Marie Louise, Bon Chrétien, Brockworth Park, and Beurré Bosc, B. Brown, B. Hardy, B. d'Amanlis, B. d'Aremberg, B. Diel, and B. Rance do well in this district, and so far as I have been able to prove, some of the new ones will do well, such as Huyshe's Victoria, Beurré Clairgeau, General Tolleben, &c.; the above varieties are a fair average crop. Apricots are thin; Moor Park does best with us. Cherries are not much grown about here. Gooseberries are quite up to the average. Currants, Red and Black, are moderate, having suffered from blight. Strawberries are a very heavy crop, rather suffering for want of rain.—THOMAS SMITH.

**Brantingham Thorpe, Brough.**—Fruit crops in this the Yorkshire Wold district, 200 feet above the sea level, suffered severely from cold north winds and sharp frosts during May. Plums, Cherries,

Gooseberries, and Currants are very partial crops. Peaches, Nectarines, Apricots, Pears, Apples, Raspberries, and Strawberries are generally average crops. The trees too are clean from insect pests and are generally healthy. Apples that succeed well and that are generally grown here are Keswick Codlin, Lord Suffield, New Hawthornden, Warner's King, Cockpit, Dutch Mignonne, Cellini Pippin, Dume-low's Seedling, Alfriston, Bedfordshire Foundling, Irish Peach, Cox's Orange Pippin, Ribston Pippin, Blenheim Orange, Court Pendu Plat, and Sturmer Pippin. Our best Pears are Jargonelle, Citron des Carnes, Hessel, Louise Bonne of Jersey, Marie Louise, Williams' Bon Chrétien, Beurré Superfin, Passe Colmar, Winter Nelis, Beurré d'Aremberg, and Josephine de Malines. Of Plums our best are Jefferson's, Kirke's, Early Rivers, Victoria, Yellow Magnum Bonum, Green Gage, Winesour, and Damson.—R. C. KINGSTON.

#### LATE NOTES.

**Malformed Roses (W. J. R. and E. L. M.).**—The dry weather has caused your Roses to come deformed. They will outgrow the malformation when rain comes.

**Double Oleanders.**—We are desirous of illustrating these (Nerium) in colour, and we shall be obliged if any of our friends can send us good specimens for that purpose.

**Double Abutilon (J. A., Bagshot).**—For single and double flowers to be growing on the same plant is certainly unusual; we cannot assign any cause for the occurrence.

**English Irises (W. W. S.).**—Their failure probably arises from the bulbs being planted very late in conjunction with the long continued drought which bulbous Irises dislike while growing. We cannot name the variety you send, but it appears to be one of the ordinary purple forms.

**Diseased Araucaria (G. F. T.).**—Judging by the specimens sent, your tree seems to have died from a similar disease to that which attacks the Larch, and commonly called Larch blight. The wounds and the resinous matter that exudes therefrom seem to be exactly identical with Larch disease. When once this disease has taken firm hold of a tree there is no hope for it and no remedy.

**Gardenias (J. Williams).**—Your Gardenias are badly attacked by an insect (one of the aphides) very similar to the common green fly. Syringe or dip the plants in the following mixture: 2 oz. of soft soap, 2 oz. of flowers of sulphur, boiled in 1 gallon of water; or fumigate the plants well three times, with an interval of three days between each smoking.—G. S. S.

**Peach leaves (W. H. Cozens-Hardy).**—I cannot tell you what is affecting your Peach leaves. I have had similar ones sent me from others, and am investigating the matter; as soon as I come to any conclusion I will report. In the meantime you cannot do any harm by picking off the injured leaves and burning them. By this means you may exterminate the foe if, as I think is very possible, it be a mite. Can the injuries be caused by the sun burning the leaves through drops of water?—G. S. S.

**Potato haulm insects (Cynips).**—The insects on your Potato haulm are the pupæ or chrysalides of the common two-spotted ladybird (*Coccinella bipunctata*). They have not in any way injured your Potatoes, which have, no doubt, been attacked by aphides, which have caused the injuries to the plants; on these aphides the grubs of the ladybirds have fed and have now become chrysalides, from which the ladybirds will soon emerge; in fact, one has already done so. The grubs are active, six-legged little creatures, somewhat resembling minute lizards in shape, and are of a leaden colour ornamented with various spots. They feed entirely on insects, and are most useful in gardens.—G. S. S.

**Names of plants and shrubs.**—*W. W.*—Aloe variegata (small); Aloe socotrina; Geranium Endress; Sedum glaucum.—*M. P. F.*—Ceanothus Gloire de Versailles, only one specimen sent.—*Mr. Stone.*—1, Abutilon vexillarium variegatum; 2, some kind of Vetch (specimen insufficient); 3, Campanula glomerata speciosa; 4, Abutilon Boule de Neige.—*J. G. T.*—1, Scolopendrium vulgare cristatum; 2, S. vulgare crispum; 3, Aspidium Lonchitis; 4, Asplenium Trichomanes.—*S. W. C.*—Epidendrum dichromum, Rosa polyantha; Lychnis Haageana requires a warm, loamy soil. We have not seen it do well in a bog bed.—*J. S. Stirling.*—1, Sedum kamtschaticum; 2, S. oppositifolium.—*C. Scott.*—1, Campanula persicifolia; 2, C. latifolia pallida; 3, C. persicifolia coronata alba; 4, C. Trachelium.—*C. Stratton.*—1, Vaccinium corymbosum; 2, Clethra acuminata; Diospyros virginiana.—*J. W. K.*—Please send another specimen of the yellow flower.—*H. M. C.*—1, Lupinus polyphyllus albus; 2, Hemerocallis flava; 3, Hesperis matronalis (Rocket); 4, Papaver orientale.—*D. C.*—1, Eugenia Ugni; 3, Campanula garganica; 4, Teucrium frutescens.—*Anon.*—1, Enchanter's Nightshade (*Circæa lutetiana*); 2, Valeriana officinalis; 3, specimen insufficient.—*T. Corbet.*—Pancratium speciosum.—*A. B.*—Lady's Mantle (*Alchemilla vulgaris*).—*C. Stratton.*—1, Potentilla fruticosa; 3, please send in flower; 4, Dictamnus Fraxinella.—*G. F. G.*—1, Lysimachia thyrsiflora; 2, Ekebergia argentea; 3, Lathyrus grandiflorus; 4, Carduus heterophyllus.—*Field.*—1, Sedum dasyphyllum; 2, S. reflexum; 3, S. album; 4, S. oppositifolium.—*F. L. P.*—The wild Orchis is Gymnadenia Conopsea.—*A. Grant.*—Dyers' Greenweed (*Genista tinctoria*).—*West Highlands.*—Next week.—*D. M.*—Lonicera Caprifolium.

**Names of fruits.**—*J. L. Penton.*—If you will send fruits of the Apples in October, we will endeavour to name them for you.



## WOODS & FORESTS.

### THE RESULTS OF TIMBER SALES.

FROM the very nature of the subject the figures that are published from time to time professing to give the prices obtained for home-grown wood in various districts can be of little or no benefit, if, indeed, they do not cause actual harm. It is naturally a source of dissatisfaction to an owner of timber that whilst he is only obtaining a certain figure for a particular kind of wood, perhaps in the same district another is getting from 10 to 30 per cent. more. In the absence of any basis upon which a uniformity can be established, this anomaly must continue. Besides the qualification of values caused by diversity of situation for removal, even when the distances from any given centre are the same, almost everyone has his own idea as to the method of measuring and classification, and gives his price accordingly. If a farmer with an inferior sample of Wheat goes to market and says, "What I have to offer you is not of very good quality, but I am willing to give you five bushels to the sack instead of four," then we should not be surprised at his obtaining 20s. where his neighbour only gets 16s. This is very often the case with a sale of timber. We will suppose a lot of Oak to be worth £15. One man goes and estimates the contents, but as a portion of it is of inferior quality, instead of taking the entire measurement he reckons it perhaps to contain say 150 feet and to be worth as a standard figure 2s. per foot. Another goes and ascertains the actual number of feet, which will be say 200 feet, but in consequence of the inferiority of a portion puts the whole at 1s. 6d.

The upshot of this is that one report gets published at 2s. and is taken to be very satisfactory, while the other goes in at 1s. 6d., and the owner is made to believe he has not obtained the value of his produce. It may be assumed that a company of buyers will soon settle the real value of a lot whichever method of arriving at it is pursued, but notwithstanding this the way in which the result is put before the public differs greatly. This is one explanation of the figures differing, but only one. We will suppose that the sale of some lots of Elm by private treaty is reported from different estates. On one perhaps Elm is sold at 10d. per foot for all dimensions down to 12 inches quarter girth, whilst under this all will go at half price.

This is by no means an unfair method of graduating the values, but the chances are when the report goes to the press the larger prices only are mentioned as timber and the smaller prices forgotten. On the other estate all goes at 8d., irrespective of size, and the owner labours under the impression that he has realised 2d. less than his neighbour.

These are not the only ways in which figures may be made to differ, but they are enough to show that to publish figures in the loose way they are generally given is really

effecting more harm than good. In the sale of foreign wood which of course comes to us in a manufactured state, there is something like a uniform method of classification, and to anyone who cares to study it, with some brands at any rate, a very fair notion of the value of any consignment may be made without even seeing the goods.

If it were worth while to reduce home-grown timber in the rough to anything like order in this way, the difficulties would be too great. If an oracle existed who could pronounce any given number of trees, a single tree, or parts of a third as first, second, or third class, and establish a universal system of measurement, there may be some hope of published figures being intelligible, but standing as it does with so many ideas about qualities and methods of measurement as there are lots to be measured and sold, it is about as reasonable to expect harmony in a musical performance where every individual is playing a different tune as it is to look for a uniformity of figures in the results of sales when everyone concerned works his own way and frames his report accordingly.

To obtain the slightest approach to reliability each report must contain particulars as to whether each kind of wood is classified at various prices according to quality, or whether all qualities are reckoned at one price; again, whether defects are made good in price or in measurement, and in fact such an intricacy of detail, that although to give the result of a sale is apparently one of the simplest of things, it is in reality one that is most difficult to give clearly and satisfactorily.

**Close & snag pruning.**—What has been said about doctors disagreeing is applicable here, and who is to decide "once and for all," as your correspondent puts it? I think, however, that if "might is right," the close pruners have the strongest side. Personally, I am firmly convinced that leaving snags in pruning trees is a great mistake, and who is there who has carefully observed the effects of the different methods can honestly gainsay it?—Y.

**Spruce Fir timber.**—I find that the Norway Spruce will thrive and produce useful timber on boggy ground, where few other trees will succeed. In Scotland and in Ireland the thinnings of Spruce sell as readily as those of Larch for fencing purposes and for pit props. For roofing farm buildings Spruce has long been used in Scotland. I need hardly speak of the value of imported Spruce timber for scaffold poles, spars, masts, white deal, Baltic deal, &c.—C. M. D.

**Forest fires.**—The following mode of protection against forest fires is now generally practised in Continental forests. Plantations are now made in 10, 20, 40, or 100 acres, separated by spaces 200 feet or 300 feet wide. This mode is practised especially in coniferous woods. The spaces are cleared out and kept bare. They are laid out so as to get the sweep of prevailing winds. Existing forests are prepared with this mode of controlling fires by cutting these spaces at regular intervals through them.

**Timber of seedling and transplanted trees.**—I was much interested in reading Mr. J. B. Webster's paper on this subject, but I admit I was also a little sceptical. The fact of my never having observed the difference in the hardness of the woods certainly does not disprove the statement, but nevertheless I am inclined to think that we must look to some other cause than merely that of whether the tree has been transplanted or not. If there really is anything in

this matter of relative hardness, it is possible that an analogy between this and some other matters that have recently been discussed may be established. I await with interest what others have to say respecting it.—Y.

**Cutting Oak coppice.**—Your paragraph (p. 75) says that the saplings and trees when intended to form stools for fresh growth should be cut off close to the ground. If this is spoken of relatively, then I make no demur; but if literally, I cannot quite agree with it. There would be a great difficulty in cutting perfectly close to the ground; but if we qualify the remarks by substituting as close to the ground as conveniently can be, we are nearer the mark, as this would merely mean some 3 inches or 4 inches from the surface of the ground. When the stools are not intended to remain and every inch of timber is of importance, other means have to be adopted, such as removal of earth, to get all the timber out.—D. J.

### NOTES ON TREE RAISING.

In a batch of young Spruce Fir, the progeny of one tree, it is curious to notice the difference in appearance and outline of some of the trees, some being of a dark green colour and stiff robust habit of growth, while others are a shade lighter in colour, and the foliage softer and more pliant in texture and slightly pendent. Other species of trees often produce similar varieties in their progeny, and so unlike the parent tree, that one would sometimes be misled and take some of them for a different species, so that we have yet to learn a good deal as to how this strange transformation of shape and colour was brought about.

It would also be interesting to know the exact time that tree seeds lie in a dormant state, waiting as it were for a favourable opportunity to start into life. I have repeatedly been surprised, on clearing tracts of ground that had been over-run with brushwood and rubbish, to find a number of trees and plants make their appearance that were never suspected to be in the place at all; at the same time tree seeds are often carried a considerable distance by wind and other agencies, and by a little attention many a tract of barren ground in the vicinity of established plantations might be converted into woodland at small expense by this means alone. When hardy native trees once get a start, the persistence and tenacity with which they will struggle for life, notwithstanding the tramping of cattle, shepherds and their colleys, is remarkable. In order, then, to extend plantations by natural reproduction, the first preliminary step to be taken is to plant a shelter belt along the most exposed side of the ground; preference, however, should be given to the west side, as I have noticed in the natural forest that the wind exerts its greatest force from that quarter, and wafts the seed to the greatest distance in an easterly direction. When a commencement has been made in this way and the trees thoroughly established, wet, boggy ground in the vicinity should be gradually drained, and the stuff excavated spread over the surface, by which means it will soon become pulverised by frost, and form a dry fertile bed for the seeds and young plants. Dry, gravelly ground and rocky places may be depastured by sheep and cattle, as the



tramping of their feet assists in fixing the seeds in the surface soil, and is thus so far favourable at the commencement, but as soon as the plants appear in sufficient quantity the sheep should be withdrawn.

J. B. WEBSTER.

**The Pine beetle.**—When it is desired to plant immediately after a crop of Scotch Fir is cut down and cleared away, it should be proved whether the ground is in a good state of soil. This can be done by keeping a quantity of the branches when burning up all the brush, and have them spread over the ground in spring, when it will soon be seen if Pine beetles are there, and if they are, gather and destroy them during spring and autumn. —J.

**American yellow deal.**—The yellow Pine (*Pinus Strobus* or Weymouth Pine), when sawn into planks, deals, and battens, is known in our markets as American or Canadian yellow deal, and is largely used for joiners' work on account of its being exceedingly straight in the grain and free from knots, besides being easy to work and obtainable in planks of very great width, frequently running as wide as 30 inches. When wrought with the plane it is readily recognised, from the surface being covered with short, fine, darkish marks, like scratches made with the pen, in the direction of the grain. —A.

**Value of Spruce timber.**—Your correspondent "J. N. Blunt" suggests that home-grown timber should be used for building purposes on the estate. My carpenter, however, assures me that there is not sufficient durability in my home-grown deals—Spruce and Scotch. When I ask him why he so much prefers foreign stuff, he replies that it has a much better grain, is more free from knots, and is full of resin, and he particularly points to the latter as forming its great superiority in durability. I cannot dispute this, and therefore let him have his way; nevertheless, I cannot understand why the same trees growing, for all I know, on soil of the same character and in a climate not differing so very greatly from our own, should be so entirely different in quality. —J. K. B.

**Spruce Fir timber.**—I have been talking to-day with a wood agent who has had considerable experience in dealing with the different kinds of home-grown Fir, and his opinion quite bears out what has been said about the usefulness of the Spruce. Indeed, to have spoken of the wood in the way he did it almost leads one to the conclusion that "Yorkshireman" can never have seen a really good Spruce Fir; or if he has, the Scotch Fir in his neighbourhood must be so extraordinarily good that he cannot appreciate it. At any rate, to condemn the tree as "absolutely worthless" is quite at variance with our experience in the south. I do not advocate the planting of extensive areas with Spruce, as the purposes for which it is most useful would not consume unlimited quantities, unless in some districts there may be a steady local demand for special purposes, such as colliery props. Judiciously planted, however, Spruce is not a tree to be despised on estates which suit its growth. —Y.

**Disadvantages of mixed planting.**—My opinion is contrary to the prevailing fashion on this subject. We are constantly told that there are certain kinds of trees, such as Larch, Spruce, and Scotch Pine, which are good nurse plants, and are accordingly recommended to be mingled with the hard wood intended to be grown as a protection to it. They are good nurse plants, it is said, because they grow fast. Now this is a very excellent property in any kind of tree, and if with this property they unite strength and durability, which the trees mentioned do to a very considerable extent, then these of all others are those which a view to profit would recommend us to grow. That, however, is not the mode generally adopted, and the Larch, the Spruce, and the Scotch Fir are cut down to make way for the more tender and less profitable growth of a hard wood plantation. We do not here advocate the growth of these trees to the exclusion of the Oak, the Beech, and other hard wood trees: all that we here mean is that it is un-

profitable to attempt the growth of hard wood in situations where these nurse trees are required, and it is highly so to use these nurse plants in situations where the hard woods flourish without them. —J. M.

**Cottonwood** (the name of the timber of some of the American Poplars) makes a handsomer, lighter, and stronger box than can be made of Pine. The nailing machine does not split it, and where the sides and ends are printed there are no hard knots to contend with. The contrast between the white wood and black letters is very pleasing. Cottonwood is also used in some sections for siding and finishing.

## TIME AND METHOD OF FELLING TIMBER TREES.

SOME writers have advocated felling timber in the middle of summer when the sap has traversed the trunk of the tree, and the timber is consequently comparatively free from it, but even if this is correct in theory and the timber in practice found as durable, there are greater reasons why the winter season should be chosen, for nearly all our English timber trees, the Oak not excepted when it is not wished to save the bark any time from the fall of the leaf until the end of February, may be considered as in every sense the best time of the year for the employment of the woodman's axe and saw. If for no other reasons than the demand for labour in the hay and corn harvests, and the damage to the crops by the trees falling and lying in them where the trees grow in the hedge-rows, and in disturbing the game when they are in the plantation or coppice, tree felling cannot be advantageously followed in the summer time. Indeed, the only drawback against the winter felling is the difficulty sometimes experienced in removing the trees when the ground is sodden with the rains, but this is a small matter, as with labour abundant, the crops cleared, and the timber at its best, the winter is the time for plying the axe. Speaking of this reminds us of the tree-feller recently illustrated in *THE GARDEN*. One of these tools may now be seen at the Inventions Exhibition arranged as a tree feller, and another as a cross-cut saw. With regard to the former, although a very ingenious contrivance, we do not think it likely to supersede the use of sinew, as although as light in construction as the nature of its work will admit, it is necessarily a cumbersome affair and cannot without difficulty be made to cut nearly so low into the butt of the tree as is the case with the ordinary saw. In practice this is most important, as we know men to whom we would rather pay a good price for their work in cutting than allow some others we could mention to do the work free of charge. This may seem a strong statement, but it is, nevertheless, true, as a loss of several inches of timber where the tree is largest and best is of greater moment than a few pence in the matter of labour to fell it. Mr. Gladstone is known to be a great lover of the axe, and so are we up to a certain point, but beyond this point we deprecate its use on the ground of wastefulness. In felling small poles, and in preparing ordinary trees for the saw, the axe may be considered indispensable, but to

follow chopping good timber into chips because the method is picturesque will not do for those who have to look to woodland as a source of profit.

There is one thing, however, that must be insisted upon even at the expense of a few chips, and that is to give each tree what is technically known as a good "fall," *i.e.*, to chop away enough of the wood on the side towards which it is intended to fall to prevent the timber tearing or splitting as the fibres begin to give way as the tree inclines preparatory to its reaching the ground and the well-known crash of the branches. If this is neglected, great damage to the tree itself and danger to the men will be the result.

## COST OF RAISING FOREST TREES.

AMONG the various arguments that have been advanced in favour of tree planting, there is a rather important one I have not yet seen touched upon, and that is the reasonable prices at which forest trees can in these times be obtained from public nurseries. Nursery stock, at least the forest tree department, increases in value until it is four or five years old, and if not disposed of then, it must be pulled up and burned. In dull times, such as those we have passed through during the last few years, a large proportion of the nurseryman's profit has been swallowed up in this way. It is not easy for those that have no experience of the cost attending the rearing of forest trees for the first four or five years to realise the expense and risk incidental to it. Take, for example, a crop of Larch. I shall suppose the seed to have been sown in May, 1883, and to have produced a good crop of healthy one-year seedlings which would last autumn be worth from 2s. to 3s. per 1000. Instead, however, of clearing them off during last winter or spring, suppose it was determined to leave them another year in the beds when they might be expected to be worth 5s. per 1000 in the trade, or from 6s. 6d. to 7s. 6d. retail. But the temperature falls a few degrees below the freezing point in the end of April or in May, as it did last spring, nips the tender tops of the seedlings, and the nurseryman's hopes are blasted, so far as these are concerned. It is, however, a very much more serious matter when seedlings that have been planted out and grown in nursery lines for three or four years have to be burned on account of there being no demand for them. The expense incurred in the rearing of them is very considerable. In the first place there is, as we have seen, the cost of the seedlings; then there is the rent of the land, which in different parts of the country varies from £5 to £12 per acre, the manure which will cost £5 or £6 per acre, the cost of planting, say 9d. to 1s. per 1000, the weeding, which will cost £5 per acre, at least during each of the first two years after transplanting. If, then, after all this expense has been incurred the trees cannot be disposed of, but have to be burned, as many hundreds of thousands have



had to be during the last two or three years, there still remains to be added the cost of the burning. This may be thought to be an insignificant item, but when I mention that I know one nurseryman who last winter paid £40 in wages for the mere pulling up and burning of unsaleable stock, it will be admitted that it is an item not to be altogether ignored. I know also the nurseryman I allude to had to purchase a portion of that stock as seedlings some four years ago at 4s. per thousand, from which fact the inference may fairly be drawn that the farmers have not a monopoly of the hard times. The natural consequence of this is that nurserymen are, as a rule, curtailing their stock of forest trees, and I do not think I am exaggerating when I state that there are at least 200 acres less of land under nursery crop in Scotland alone than there was five years ago. On the not extravagant computation that an acre should produce 100,000, this represents 20 millions, which at  $3\frac{1}{2}$  feet apart would plant 5264 acres. The quantity of nursery stock that has been in recent years sold by auction is also a pretty clear indication that the supply has been considerably in excess of the demand. The moral to be drawn from all this seems to be that the nurseryman's necessity is the planter's opportunity. N.

**The wood of the Dogwood** of North America is hard, close-grained, takes a fine polish, and is principally used in the manufacture of mallet handles, toys, hames, shuttles, harrow teeth, and shoes for sleds. The bark is bitter, and on account of bearing considerable resemblance to Peruvian bark, and having some of its properties, is often substituted for it.

**The Austrian Pine.**—The value of this Pine for bleak, exposed, or maritime situations cannot be overrated. Around the margins of most of our seaside plantations here it has been extensively planted, as it not only withstands the rough sea breeze better than any other, but renders a great amount of shelter to other less hardy kinds. It is a capital mountain tree, and braves without the shadow of harm the bitter and penetrating blasts of our exposed hill-sides. As an ornamental tree it is one of our best, and when planted singly or in clumps along the margins of plantations, the dark glossy foliage presents a striking effect when viewed from a distance. The timber is of good quality, being tough, resinous, and well fitted for resisting the evil effects attending the change from moisture to dryness. Amongst the Pines this tree, for general utility, ranks next to the *Pinus Laricio*.—A. D. W.

**Value of Norway Spruce.**—The Norway Spruce is not, I think, quite so worthless as some would lead us to believe. The uses to which this tree can be applied are varied and numerous. The trees in their younger stages, if properly distributed, form a good covert for game; they also produce a pleasing effect in many positions when judiciously placed in masses among other trees. The wood of the Spruce is also valuable for a variety of purposes, although in many districts, as a marketable commodity, it does not hold a high position. That, however, is owing, in a great measure, to the knotty character of the timber and the difficulty of working it in consequence. When clean grown, it is well adapted for pit props, fencing rails, &c., and when of sufficient size it can be used for roofing materials, rough flooring, and joists; it is also well adapted for making packing boxes, or, indeed, for any other purpose where a fine finish is not required. Its durability may be depended upon for inside work, its lasting qualities being equal to some of the imported timber so much used in

building construction. On many estates there is little other timber used for buildings and repairs, and I have known roofs formed of Spruce wood perfectly sound after a period of thirty years. For fencing rails it will last quite as long, if not longer, than Scotch Pine, but like all other timber it should be well seasoned before using it.—S. A.

### FORMING NEW PLANTATIONS.

MANY practical foresters are now of opinion that in forming new plantations the old system of planting a mixture of several kinds of trees on the same ground, in the hope that if one fails another will succeed, ought to be abandoned, and that each variety of soil, aspect, and exposure should be planted with the kind of tree it is most likely to produce to the greatest perfection. Much can be said in support of this opinion, and no doubt it is a safe one to follow, provided we can with any certainty predict which tree will grow best on each kind of soil, but such predictions are sometimes most disappointing and disastrous in their results, and too often prove the necessity of entrusting the formation of plantations only to those who have a thorough practical knowledge of the subject, and who will carefully investigate every circumstance likely to affect their calculations. But even were we satisfied which kind of tree is most likely to flourish on the ground, the system of planting with that tree alone may be carried too far.

For instance, in districts where little or no demand exists for the early thinnings of an Oak plantation, but where a market is likely at all times to be found for good-sized Oak, it would certainly be unwise to plant the ground most suitable for growing Oak with Oak alone. Oak is slow in its growth, and some other kinds of wood of faster growth, the early thinnings of which would be more valuable, might be mixed with it. In such a case the Oak trees might be planted 18 feet apart, with an Ash between each two, and the ground filled up with Larch to 3 feet apart, which would make two Larches between each Oak and Ash tree. The Larch would be gradually thinned out at such times and in such a way as would best encourage the proper growth and development of the hard-wood, and more especially of the Oak. That cut at the first thinning would make stakes for sheep nets which, in arable districts where Turnips are eaten off by sheep, are always in demand at about 15s. per 100, or, if in the Hop country, it would make Hop poles. That cut at the second and third thinnings would be suitable for fencing, coal pit, and other purposes, and would be much more valuable than hard-wood of the same age.

After thinning out all the Larch, the hard-wood trees, viz., the Oak and Ash, would be left in equal numbers at 9 feet apart, and before the Oak required to be relieved of the Ash the latter would be of a suitable size for shaft-wood, for which there is generally a good demand in most districts. When all the Ash has been thinned out, the Oak would be of sufficient size to admit of the

plantation being pastured by sheep or cattle without much risk of their doing it damage, and as it is gradually cleared off the ground the pasture would every year become of more value; in fact, the fertility of the land would be improved by the crop of timber taken off it, and the pasture would be a much better one after the removal of the timber than it could have been made before the land was planted. On land suitable for growing good Oak, and situated in England or the Lowlands of Scotland, such a system of making permanent pasture succeed timber would in all probability be more profitable than the French one of natural reproduction.

Where, again, we find ground best adapted for growing Scotch Pine, it would not be advisable to plant that ground with Scotch Pine alone, the early and immature thinnings of which would in some districts not be worth the labour of drawing them out of the plantation. Nearly all ground that will grow Scotch Pine to maturity will grow Larch for a certain period, and wherever Scotch Pine has to be the permanent crop, Larch, the young trees of which are of more value, should be mixed with it to come out in the early thinnings. X. Y.

**Time for timber felling.**—Often the inferiority of timber, such as its tendency to decay and dry-rot, are wholly due to the timber having been felled at improper seasons, and to its subsequent injudicious treatment. To fell trees in March, April, and even in May, as is now often done, is absolute folly. Timber intended for builders, or for the use of coopers and wheelwrights, should never be cut except in December or January, when the circulation of the sap is arrested. November, even, is too early and February too late to ensure its durability. Its subsequent treatment, too, greatly influences the quality of the wood. The tree should be freed from all branches and shoots immediately it is cut down, and sawn into planks as soon as possible, so that these may at once be seasoned by exposure to the air. In this way alone can we obtain wood that will keep well, and every purchaser of timber should insist upon its being prepared in accordance with these directions.—N.

**Timber in Skye.**—Throughout the isles timber is a rare and precious article, and most frequently the gift of the ocean. The man who secures a good log of driftwood has obtained a prize worth having. It may have been a brave old tree, tempest-torn from its home in some distant forest, carried to the sea by rushing torrents, and perchance tossed by the waves and wafted to and fro by many a current ere it drifted to rest on these far isles. Or it may be the masts and spars, or perchance the cargo of some wrecked vessel—whatever its story it is treasure trove, and deeply valued. Though encrusted with barnacles or riddled by pholades, it can all be turned to good account; the smallest piece will make a stool or a settle, or a box, or a part of a door; while large timbers become rafters—precious heirlooms, for a young couple cannot wed till they have accumulated enough rafters to support their thatch, and should they have occasion to “flit,” the only part of their bothy that commands any pecuniary compensation is the roof, not the wood only, but also the heavy thatch saturated with thick greasy peat-reek (in other words with a thick coating of soot). This, when broken up, forms a valuable manure for the unfertile crofts.

**Planting the Red Cedar.**—It is proposed to plant extensively the Red Cedar in Bavaria. The superiority of the wood of this tree (*Juniperus virginiana*) over all other kinds of Cedar is well



known, and the demand for the wood in Bavaria, where immense quantities of lead-pencils are made, has induced some manufacturers to take up the question of the acclimatisation of the tree in that country. Seeds have been sown in the Royal Forest, and about 5000 young plants have been grown on one private estate; the cultivation of the tree is also being attempted in other parts of Germany.

#### WOOD OF THE WHITE WILLOW.

THE wood of the white Willow (*Salix alba*) is worth about 1s. 6d. per foot in the wood, and is always in request for various uses, but is mostly in demand for cricket-bats, for which purpose there is a continuous and ready sale for clean and good quality butts upwards of 9 inches in diameter; and sound, choice, clean, first quality butts of the true white Willow will fetch in the London market from 2s. 6d. to 3s. 6d. per foot. When planted in moist deep soil this Willow grows so rapidly and makes wood so fast, that a profitable return may be had in fifteen to twenty years. It is one of the easiest trees to propagate, as it will grow from the smallest cutting, or take root freely from a stump driven into the ground as large as a fencing stake; but when planted it rarely receives the attention it deserves in the way of pruning and protection from the browsing of cattle. It may often be seen planted in Grass lands by the water's edge, but is usually left to take care of itself, and the consequence is that too often the poor Willow is left to struggle on and fight against numbers of enemies. It is quite a common occurrence to see trees after they have been planted in fields maimed, barked, and even beheaded by cattle, and the consequence is they are either killed outright or linger on as rough pollards instead of growing in a comparatively few years into remunerative timber trees, all through a little outlay and attention being denied them for the first two or three years after planting. Excepting the Larch, I know of no tree that is likely to pay better, and give a quicker return for an outlay of capital, than the Huntingdon Willow, in localities where it has been found to flourish and succeed well; but care should be taken when planting to avoid the crack Willow and other rough-barked, coarse, worthless sorts, which are hardly worth cutting for the sake of their timber; and, moreover, it has the advantage of the Larch when planted in heavy soils, for in damp, low-lying situations it is quite at home and thrives the best; whereas the Larch is altogether unsuited for heavy soil in low level tracts of land. The Willow, however, is a tree that, when grown for profit, should be cut as soon as it is large enough for the market, and then allowed to grow up again from the stool. It is only a short-lived tree, and after thirty years' growth its life is very uncertain unless it be pollarded; then it may live to a good old age.

#### PLANTING ON HILLSIDES.

THIS subject is undoubtedly one of very considerable importance at the present day. Any expenditure in the improvement of land in this country, and especially the uplands, must in a great measure be lost, unless accompanied or preceded by a proper system of planting. Our climate is changing evidently for the worse; the improved breeds of cattle cannot now thrive or even live upon most of our hillsides, excepting only for a few months in summer. Sheep also are becoming unhealthy, from the excessive and untempered blasts to which they are exposed at all seasons. Shelter alone is wanted in order fully to develop the pastures and increase and improve our herds and flocks. One of your correspondents suggests planting only on such soils as are of a thoroughly porous nature, or such as can be made porous by draining. Now, this must be characterised as simply nonsense. On sound land, whether stiff or free, all that is unnecessary, and particularly on slopes, after being enclosed, is to see that the natural outlets are thoroughly cleared out and of sufficient depth to allow the surface water to run off freely. This should be gone about at the outset of all planting operations, and carefully attended to for years afterwards. The collecting and treatment of seeds is not any part of the duties of the forester, and the sowing

of tree seeds upon uncultivated and outlying lands would in most cases prove a failure. I am inclined to think that the correspondent I have referred to is a German, seeing that he suggests the assistance of a seed merchant of that country. All I have to say in noticing this proposal is, that after many years' experience in the cultivation of forest trees, I should not be induced to plant either Larch or Scotch Fir the produce of France or Germany if offered to me gratis; and it may be well that landed proprietors or their agents take note of this, as, after attentive observation for over forty years, I am fully convinced that much if not all the disease which has overtaken the Larch in some localities must be set down to the introduction of imported seed into the nurseries of this country.—J. D., in *Field*.

**Establishing Bracken coverts.**—I have read with interest your article upon forming Bracken coverts. I made one of the same kind some years ago, and it has proved very successful. My way of proceeding was as follows: In places where the common Bracken was found growing thick I cut the turf in patches of from 12 inches to 14 inches square, and about 3 inches or 4 inches thick. I had these carted and planted where desired in autumn. The turves were planted from 3 feet to 6 feet apart. The second year it makes very good covert, increasing year by year in thickness till at last the Bracken exterminates all other growth.—ROBERT COUPAR (Forester), *Ashford, Co. Galway*.

#### HAY FROM WOODLANDS.

THE Grass on rides and drives, and along the margins of plantations, and among young trees has been referred to (page 45) as a whole without any distinction; and what I have said, and still maintain, is simply that a crop of rank Grass fit for hay is worthy of being cut and preserved, and, if properly handled, will not only pay for clearing the young trees and making the hay, but also leave a surplus in favour of the landlord. I have yet to learn how "Y." can cut a crop of such Grass and leave it as a mulching for the roots of his trees and a fertiliser of the soil but by allowing such to lie and rot upon the surface. He further tells us that it is plain that one of the things to be done to make woods pay is to reduce the expense of culture in every way by dispensing with useless practices, and one of these is making hay in young plantations. Now, in order to realise this, I think it is not consistent with true economy to allow a crop of rank Grass among trees to lie and rot for manure when it could be disposed of to advantage for the proprietor. I have sold such Grass to tenants who had to cut it for themselves with a reaping-hook for their cattle at rates ranging from 10s. to 20s. per acre, and I think this was better economy than allowing the Grass to lie and rot. Ground capable of producing a rank crop of Grass must necessarily be in good order to enable it to do so, and consequently is not in want of manure to grow trees, and, as I have already pointed out, might in many cases be injurious. But "Y." tells us that plantation Grass made into hay finds no market, unless it is for bedding purposes or packing materials at potteries; but why did he not tell us that at once? as I consider such stuff unworthy the name of hay. In all cases where I have sold Grass in young plantations to be cut and removed by tenants, I have made it a condition that the Grass was not to be cut with a scythe, as there is a danger of running the edge of the blade into the stem when cutting the Grass around the tree, so that the better plan is, in order to prevent such injury, to bind the party to use nothing but a reaping-hook.

J. B. WEBSTER.

**Boxwood**, which is almost exclusively used for wood engraving, is becoming more and more scarce. The largest wood comes from the countries bordering on the Black Sea. The quantity exported from Poti direct to England is immense; besides this, from 5000 to 7000 tons of the finest quality, brought from Southern Russia, annually pass through Constantinople. An inferior and smaller kind of wood supplied from the neighbourhood of Samson is also

shipped at Constantinople to the extent of about 1500 tons annually. With regard to the Boxwood forests of Turkey, the British Consul at Constantinople reports that they are nearly exhausted, and that very little really good wood can be obtained from them. In Russia, however, where some little Government care has been bestowed upon forestry, a considerable quantity of choice wood still exists; but even there it can only be obtained at an ever-increasing cost, as the forests near the sea have been denuded of their best trees. The trade is now entirely in English hands, although formerly Greek merchants exclusively exported the wood. In the province of Trebizonde the wood is generally of an inferior quality; nevertheless, from 25,000 to 30,000 cwt. are annually shipped, chiefly to the United Kingdom.

#### THE ELDER AS A NURSE TREE.

It is somewhat remarkable that the common Elder is not oftener used as a nurse, as it is about the hardiest tree with which I am acquainted. In places where the strong west wind blows for several months in the year, and where even common Gorse looks as if it were rolled, Elders will grow and thrive, and anybody about to start a plantation in such places would do well, as a preparatory step, to plant the ground in the interior thinly over with Elder bushes, but as thickly as possible along the margin, especially on the windward side. This skeleton plantation of Elder filled in with timber trees will have a massive and telling effect. No plant grows so rapidly as young Elder, or so slow when it is old. Elder will also withstand sea breezes as well, and perhaps better, than any other shrub or tree. On the dreary, sandy wastes at Formby, in Lancashire, where the shore is covered with wrecks and the wind nearly always blows a hurricane, may be seen a large solitary Elder tree, conspicuous for a mile in every direction, growing in the dry sand, defying the tempest, and seeming as much at home as the "tannin," amidst the blocks of "bleak, grey granite," as described by Byron. No other tree or shrub will grow in the shade, or stand the drip of trees better than the Elder. In woods, the darkest and gloomiest spots may be made cheerful and lively by means of the Elder, planted freely. As cover in woods and plantations, where little else would live, keepers used, in winter, to dibble in cuttings of Elder in all bare, naked places, being well aware of its utility as a plant for "thickening up." Lastly, the Elder makes a good plant for filling up gaps in hedges, especially where they pass under trees, and for boundary fences, where nothing else will grow. It will preserve the continuity of a hedge right up to the trunks or stems of even Beech and Horse Chestnut. Moreover, a well-developed, full grown Elder tree, ornamented with about a thousand of its enormous creamy white cymes, seen at a distance, is a noble object. There are now many varieties of it, such as the gold, silver, Parsley-leaved, round-leaved, green-fruited, white-fruited, and other sorts.

EAST LANCASHIRE.

**Measuring heights of trees.**—I have read a great deal upon calculating the height of trees. Now, my method is as follows: "Suppose I want to find the height of a tree which throws a shadow of 20 feet. In the first place I should cut a stick, say 3 feet long, stick it up opposite the required tree, and measure the shadow of it. We will suppose the stick throws a shadow of 2 feet; now all I have to do is just to make a simple proportion sum of it.

Shadow of stick	Shadow of tree	Height of stick
2 feet	: 20 feet	:: 3 feet
		3
		2) 60
		—
		30

The height of the tree throwing a shadow of 20 feet would be 30 feet. Because as 2 feet is to 3 feet, so is 20 feet to 30 feet. By this method you can measure any tree that the sun shines upon, provided there is nothing to hinder measuring its shadow. If you think worth your while to publish this, an old rule, you may do so.—A. P.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## THE CARNATION REVIVAL.

It is funny to see Mr. Douglas claiming that the revived taste for Carnations as garden flowers is to be attributed to the National Carnation and Picotee Society, which has been the means of placing all the types of the flower before the public in their best form. If good comes, it matters little how it arrives; but by claiming too much, Mr. Douglas sets one thinking of how very little the said society has done for the flower in a broad sense. It is pretty generally felt that the society is a very limited one, the prize-givers and gatherers—Messrs. Turner, Douglas, and Dodwell, and a few others—being usually the prize-takers. Doubtless they do their own work well—treating the flower from one interesting point of view; but the improvement in the public taste for this noble flower is not through them, but in spite of them! For many many years these precious florists' Carnations have been shown without having the slightest effect for good in calling the attention of the educated owner or the gardening public to the splendid value of the Carnation as a garden flower. In the darkest days of the bedding mania we saw these florists' Carnations at our shows in all their delicate beauty. In those days one might look in vain through half a county for a bed of Carnations in the open air. What their influence on florists was I have no business with; but surely it need hardly be said that the rules and ways of the florist Carnation grower, his pot culture and limitations, offer no opening whatever to one who wishes to grow such plants wholly in the open air, and for their colour and fragrance. We might go further, and point out a time when the influence of this one set of Carnation growers was such that scarcely a gardener would look at a flower that differed from those approved of by the lawgivers of the society of the day!

It was the change in taste as regards hardy flowers which carried along with it the taste for the Carnation as a border and lawn flower. That change is mainly now seen in the leading gardens and among observing people. We think it will prove very much more important than it even now seems. So with the Carnation as an open-air flower—its value is far from being known as it will be. The fine true colours, the beautiful habit and foliage, the fragrance with all the wholesomeness of sun and air in it, its associations and its hardness, all will yet give it a great place in our gardens. Even from the lower point of duration of bloom there are kinds that bloom as long as many bedding plants. The fine, bright, and pure colours; the natural light and shade

in the mass of each flower (not flattened out, as on the florist's stand); the pretty fringing in many forms; surely these have all come to be enjoyed, notwithstanding the florist's rules! The Carnation is, in fact, freed from good, but not too wise friends, who could only see one side of its beauty, and that not the very best. For many years educated men, artists, and others lovers of Nature felt what is here expressed as regards the wisdom of laying down laws defining in any way, more or less formal, the beauty of a flower. But the fight for Nature was won in THE GARDEN, which, by persistently bringing the true views before the best gardening people, led them to enjoy this flower in the open garden, and to feel they could do so without the fear of the "professional" condemnation of a past day! We have changed all that as regards hardy flowers like these, and people begin to see that their chief merit is their power to make our gardens rich in colour and beauty.

At the same time one taking such views need by no means desire to see the finely edged Picotees and striped Carnations less grown than they now are.

## NATIONAL PEAR CONFERENCE.

THE crop of Pears this season being generally abundant and good, an extremely favourable opportunity is presented for the examination of the numerous varieties cultivated throughout the country. The Council of the Royal Horticultural Society has therefore decided to hold a conference on Pears (of a similar character to that lately adopted in regard to Apples) in the great conservatory at Chiswick, commencing on the 21st October next. This conference will not assume the form of an ordinary exhibition; there will be no competition or prizes, the objects being the dissemination of useful knowledge on the varieties most suitable for cultivation, to compare their merits and to correct their nomenclature, and generally to render the meeting instructive to fruit growers. The collection of Pears grown in the gardens, which contains many typical varieties, will be available for comparison. Growers of fruit will have in this exhibition an opportunity of correcting or verifying the nomenclature of their own fruits by bringing specimens with them and making a personal examination. Every possible assistance will be given by members of the committee to such enquirers. All fruit growers are invited to contribute, and the more widely the collections are procured, the greater will be the interest created. No limit will be placed on the number of varieties anyone may see fit to send, and it is not necessary that they should be the products of his own grounds. The council desires that an effort be made to procure representatives of all the varieties that are grown in the various districts, and that all should be distinctly labelled with the name or names under which they may be grown in their respective localities. It is very desirable that every collection should be accompanied with as much information as can be furnished, with regard to soil, stocks, exposure, and physical conditions of the districts from which they are gathered, to aid the committee, if necessary, in drawing up their report. Cards and forms for this purpose will be supplied by the secretary to all exhibitors on application. The specimens, being strictly for examination, must necessarily be at the disposal of the committee where required. As the earlier varieties of Pears will be over before the time fixed for the conference, it is desirable that specimens of these be sent to any of the meetings of the fruit committee preceding the conference. These should be addressed to the Secretary, Fruit Committee, Royal Horticultural Society, South Kensington. Exhibitors are requested to send not less than two or more than six fruits of a kind for the purposes of comparison. Notice of intention to exhibit must be given to the secretary not

later than Wednesday, October 14, stating the number of varieties to be exhibited and the amount of space that will be required. Consignments of fruit—to be staged by the committee—should be addressed to the secretary, for delivery on or before Monday, October 19. The carriage will be paid by the society. Heavy packages to be sent per goods train. Exhibitors staging their own fruit may do so on Tuesday, the 20th, or on the morning of the 21st, so as to be ready for the inspection of the committee at 1 o'clock p.m., when the exhibition will be opened. All exhibitors will be admitted to the gardens free, and will receive tickets in proportion to the extent of their exhibits for the admission of friends. A committee has been appointed numbering nearly a hundred members, residing in various parts of the country and in the Channel Islands, to carry out the objects of the conference. Those forming the executive are Mr. George Bunyard, Maidstone; Dr. Hogg; Mr. John Lee; Mr. Rivers, Sawbridgeworth; Mr. Roberts, Gunnersbury Park; Mr. Veitch, Chelsea; and Mr. Woodbridge, Syon House. The secretary is Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick, from whom any further information respecting this conference may be had.

## INDOOR GARDEN.

## MACKAYA BELLA.

It would be difficult to name a more distinct or beautiful greenhouse flowering plant than this, and yet it is seldom met with. Its culture is easy enough so far as growth is concerned, but to be able to flower it with certainty is a point not so well understood. Under proper treatment, however, the one is about as easy as the other, and as a knowledge of the plant's requirements and its habit of growth must, of necessity, be known from the outset by the cultivator, if he would obtain successful results, it may be interesting to refer to these characters now, when preparations should be in progress for a display next spring. *Mackaya bella* is a shrubby Acanthaceae plant, introduced into this country from Natal. Its flowers are borne in racemes about April on the points of previously ripened shoots. They are campanulate and of a delicate pale lilac colour with purple veinings; they are, in fact, about the size and shape, but of a somewhat paler colour than those of the beautiful climbing *Bignonia speciosa*.

Cuttings taken from the points of any young shoots root readily in any close frame during summer. It is advisable to propagate now for securing large flowering plants in the spring after next. Young plants raised in summer will form little bushes in 5-inch pots by the following winter, but they must not be expected to flower much, as the wood can rarely be sufficiently ripened for the purpose. These plants should be ripened and kept dry during the winter the same as other older ones intended for flowering. In April or May they should be cut back a little and kept watered. When growth commences they may be transferred to 7-inch pots, and from these again, in due course, to others 9 inches in diameter—a size sufficiently large for the season. Being a free and vigorous-growing plant, it requires a rich open soil and plenty of water, including some liquid manure towards the autumn. A light position either in a house or pit where plenty of air can be admitted is a suitable situation in summer. An occasional pinching early in the season will induce a compact habit, and encourage the production of a larger number of shoots, uniform in strength and suitable for flowering. The essential conditions for securing flowers are the thorough ripening of the wood in autumn and the subjection of the plants to a long rest in winter, keeping them quite dry at the root and in a temperature of about 55°. In February or March the flower racemes will push from the point of nearly every shoot, and watering and syringing should then be very gradually practised as in the preceding year. When the flowers begin to expand in April transfer the plants to a cool greenhouse, and they will retain their beauty for some few weeks.

From the foregoing remarks it will be seen that the cultivation of this beautiful plant is, as has been stated, simple enough. Its non-flowering may generally be attributed to improper ripening or insufficient



rest in winter. If the plants are kept altogether from the close, confined atmosphere of the stove and afforded a light, airy position in summer and autumn, the production of short-jointed growths will be insured, and these will, as a natural consequence, be much more likely to bear good flowers than others made under less favourable conditions.

J. G. K.

#### PROPAGATING NEPENTHES.

I HAVE propagated *Nepenthes* in large numbers, both from seed and also from cuttings, and in either way they can be increased as easily as a *Verbena*, and, under proper conditions, with much more certainty of making satisfactory plants. I have no doubt it would be easy enough to make plants from layers, but it is not worth the trouble when every eye will make a plant in a short time if placed in a brisk, close heat. I found little difference in the time of year or percentage of rooting cuttings, provided the proper conditions were maintained as stated by Mr. Baines, except that I always placed cuttings in 2-inch pots singly, the pots being one-third full of small crocks, one-third very fine peat fibre, and one-third white sand; plunged in a close frame in a bottom heat of 85°, I expected at least 99 per cent. to root. Mr. Baines mentions two joints, and also that cuttings from the wingless leaves should be rejected. I found that, as a rule, when propagated from one eye most of the plants came in the normal condition, but when from more than one eye they always came wingless. But my plants were extra strong. Unless it was a scarce variety, I rejected the wingless leaves. A number of my seedling hybrids are well known in England, as all the seedlings of American origin were my raising. They are all of a very robust, free-rooting and free-pitching constitution, and, like the American fruits, are all more or less of a very fine colour. A sample of these may be seen in one of the coloured plates in *THE GARDEN* some time ago. I could have selected hundreds of perfectly distinct varieties in one lot of seedlings, and all fine and distinct from others in cultivation. Although I grew them (or, at least, a large number in suspended baskets), the plants were in pots plunged in Sphagnum and my specimens exhibited in New York, and which were seen by some of the London growers, are yet in their recollection. Shy growers and poor rooters like *lanata* may do in a basket for a time, but others are better in pots or pans, in which condition I exhibited *Rafflesiana*, short-jointed, with a perfect pitcher on every leaf and the plant 8 feet high.

JAS. TAPLIN.

*Maywood, New Jersey, U.S.A.*

**Treatment of Cactuses.**—"A. C." will be glad to have the following questions answered concerning the Cactuses at Westonbirt. How often does Mr. Chapman repot his specimens, and in which month? Is it desirable to have them in a crowded condition, or should they be divided? Is the creamy, large white-flowered kind sweet scented? "A. C.'s" plants, which flowered well some years ago, now produce but few flowers, and she wishes to know why that is so.

\*\* In answer to the above Mr. Chapman says: "I repot my Cacti every alternate year in the compost already stated, and this work is done the first week in August. At the same time I thin out all weak growth thrown up at the base of the plants. I then place them in a house in which there is a temperature of from 60° to 65° and keep them moistened overhead and around the pots, treatment which encourages them to make sturdy growth. I place them on a vinery shelf in November and remove them to the house just mentioned again the first week in March, when they commence throwing out their blooms."

**Flowerless Stephanotis.**—I have frequently seen *Stephanotis* grown luxuriantly in a stove temperature produce fine crops of foliage and but little flower, while others by no means so liberally treated either as regards heat or soil have produced flowers at every joint. We have at the present time a plant that, during last winter, had only just enough fire-heat to keep frost out, yet it has kept perfectly healthy, and is as full of bloom as it can

possibly be. It is trained near the glass on wire netting, and to its full exposure to light and perfect rest in winter I attribute its freedom of flowering. I know that many maintain there are varieties of *Stephanotis* that nothing will induce to flower, while others flower freely under any conditions. Their opinion may be correct. If, however, I had large plants of the shy-flowering varieties, I would spread the shoots out thinly on strings near the glass, gradually inure them to plenty of air and all the sunlight they would bear without scorching, and during winter I would keep them in a temperature ranging from 40° to 50°. In spring, if required early, I would start them in stove heat, but if not, I would let them come on under solar heat, and if under such circumstances they did not bloom I would discard them as incurable.—J. GROOM, *Gosport*.

#### FRUIT GARDEN.

##### EARLY PEACHES.

By the time this is in print a considerable number of early Peach trees will have been cleared of their fruit, and cultivators will be in a position to comment on the merits of new sorts, tried, perhaps, for the first time, as well as on older and well-tried favourites. I would be the last to condemn well-tried sorts, but at the same time some of them ought to be replaced by newer varieties, several of which have now been well tested. As every inch of available trellis room is of value, the old trees must be gradually replaced by young trees of superior new sorts, the change with a little extra trouble being effected without much loss of space. The greatest difficulty is usually experienced in refurnishing the earliest house, owing to trees, whether old or young, that are brought in from the outside not being sufficiently well ripened to admit of their being safely forced. New trees intended for the early house should first be prepared in the successional house, and even a late unheated house is preferable to open-wall preparation. We devote a corner in the front of the second early house to the trial and preparation of early sorts, and, provided they prove meritorious, they are transplanted to the early house early in September. Being moved when in full leaf and with a good ball of soil about their roots, they, if well shaded from bright sunshine, frequently syringed, and otherwise attended to, recover surprisingly well. They may then be safely forced, and if sufficiently strong will carry a full crop the same season. Good sized holes are necessarily cut for the trees between the old ones, but this does not materially injure the latter, as the new soil worked in naturally suits the roots of old as well as young trees, both taking possession of it before the foliage falls.

VARIETIES OF AMERICAN ORIGIN, notably Alexander and Hale's Early, are undoubtedly the best for affording the earliest supplies of fruit, whether in heated or unheated houses, these being extra early and of good size and quality. True, the flowers are deficient in pollen, but we experience no difficulty in setting heavy crops, which make surprising progress. For instance, Hale's Early was in full bloom fourteen days later than Royal George in the same house, and yet the fruits

were fully ripe one month in advance of that good old variety. Rivers' Early Beatrice is also very early and sets freely, but the fruits are much too small, and size, whether right or wrong, goes a long way now-a-days. At any rate, I was requested to replace it with a larger variety, even if a week later. Amsden or Amsden June, as it is frequently termed, was strongly recommended to me by one well acquainted with its merits as an extra good early sort, and, in spite of Mr. Rivers' objection to it, it will receive a fair trial. It is thought that there will soon be a large demand for it, and in anticipation of this it is being extensively "worked." A Bec, a French variety, is also a good early Peach, following very closely on Hale's Early, and one which deserves to be more generally grown than it is. The best fruits I have yet seen of it were exhibited by Mr. Coleman, and as he has had a longer experience with it than I have, he will perhaps kindly favour us with his opinion of its merits. The tree which I bought of it—a small maiden—did not grow freely at first, but it is doing remarkably well now, and this season perfected a good crop of very handsome fruit. I am afraid it is not a good traveller, the skin being extra tender, but that would appear to be its only fault. Crimson Galande, raised by the late Mr. Rivers, I am inclined to consider the handsomest Peach in cultivation, but I cannot honestly strongly recommend it for superior quality. It is really a second early sort, grows strongly, sets freely, and finishes off a heavy crop. The fruit even where not much exposed to full light becomes highly coloured—a very deep blood-red, in fact, but unfortunately this colour also prevails round the stone, and this class of Peaches finds no favour with me. They must be caught at the right time or before they are over-ripe, or they are "turnipy."

Chancellor, Lord Palmerston, Princess of Wales, and Pavie de Pomponne were all grown here at one time, but they are all very red about the stone and rarely of good quality. Nor do I like Crawford's Early and Exquisite, two yellow-skinned varieties with the flesh red about the stones, sufficiently well to give them house room. The only new, or comparatively new, early Nectarine we have grown is Lord Napier, which we find very superior in every respect, and this with the early Peaches much simplifies the work of forcing. Advance, another of Mr. Rivers' seedlings, I am informed, is several days earlier than Lord Napier, and is considered a decided acquisition. As we would like to have Nectarines ripe as early as the Peaches, Advance will be given a trial.

W. I. M.

**Nectarine Goldoni.**—Very fine fruits of this new Nectarine were shown by Messrs. Rivers at Saffron Walden a few days ago. It appears to partake of the character of the Pine-apple Nectarine, and is handsome and striking in appearance. Some maiden plants growing in pots and laden with fruit were also shown; treated in this way it makes an excellent variety for cultivating in orchard houses.—R. D.

**Waterloo Peach.**—This American variety proves to be here of better flavour than Alexander, Hale's Early, Beatrice, or Amsden June, and must take rank as the best early kind yet introduced.—GEORGE BUNYARD, *Maidstone*.



### DISEASED PEACH LEAVES.

I AM afraid there are a good many Peach leaves affected similarly to those described in *THE GARDEN* (p. 89), and which appear to baffle both fungologists and entomologists. About July 23 I first noticed a change in the appearance of several leaves on a fine tree in a successional Peach house of Walburton Admirable, now swelling off a heavy crop of fruit, and on July 25 many more leaves were affected. First, they are thinly dotted with yellow spots about two-eighths of an inch in diameter, the edges also being affected; then followed the decay and crumbling away exactly as described by "H. W." The leaves so affected are also very easily detached from the wood, and that, too, directly after they are first damaged. If this was the work of an insect, I think this early falling of the leaves would not have happened, nor do I think it is a fungus that does the mischief. In my opinion, "G. S. S." is near the correct solution of the difficulty when he asks (p. 102), "Can the injuries be caused by the sun burning the leaves through drops of water?" That has happened here before, especially where faulty glass has been put in, though in this case there was no mistaking the symptoms, the burning being only too evident; but in the present instance the burning is not so palpable. During the last few days the sky has been unclouded, the fierce sunshine being almost unbearable, and our Peach house is situated in the hottest part of the garden, though, strange to say, the Walburton Admirable is the only tree at present much affected. Directly I saw what was going on morning syringing was discontinued and air was given much earlier (at about 6 a.m.), and should this not stop the burning or whatever it is, I shall see what a light sprinkling of lime water over the glass will do. I have frequently observed somewhat similar appearances in a Melon house, all the hairs on a leaf in places being completely destroyed, and the whole leaf eventually killed. This has not happened this season, but nothing but a light shading prevents burning of Grape foliage.

W. I. M.

### FRUITING STRAWBERRIES IN FRAMES.

FEW private growers are able or willing to devote frame or pit room to the cultivation of early Strawberries, and not many market gardeners have as yet adopted this plan of securing profitable early crops—a matter somewhat surprising, as there is no doubt about the certainty of remunerative prices being thus realised, and that, too, at a minimum cost, more especially in the shape of labour. The plan of utilising the front or side walls of vineries and other houses for affixing the framework of shallow pits is undoubtedly a good one, as these may either be cheaply heated with a single flow and return pipe, or, if narrow and abutting on to forcing houses, no piping is needed to forward early crops. Any other kinds of pit or portable frames are also available for Strawberry culture, and if only the latest of the supplies, or those intermediate between the forced and open-air crops, are secured in frames, the gain in house room and economy in labour is considerable. Those who have good room in their frame ground and plenty of frames and lights at their disposal might, without much trouble, convert some of their old hot-beds into suitable positions for a few beds of Strawberries, and would not regret having done so. The beds, which may be made very shallow, should have a good slope to the south and west, and should be made as solid as possible. After the frames are put on, if these are deep, some manure should be thrown in and trodden down, so as to bring the surface to a uniform height from the glass, and on this about 6 inches of good loamy soil may be placed. This when completed allows head-room to the plants of not less than 10 inches. If pits are employed these may also be similarly prepared, a layer of half-rotten manure well trodden down and about 6 inches in depth being ample. In every case we should prefer to destroy the old plants and replant every summer, as we find young plants produce the earliest and finest fruit, and besides the old plants are apt to become too crowded to be profitable. For this method of culture we also prefer to lift the plants intended for the frames either from beds where they were allowed to root naturally and remain untouched all the winter and spring, or

else from beds into which the young plants were pricked out during the previous summer. In either case we thus procure strong, early, and well-rooted plants, which lift readily and quickly become established in their fruiting quarters. During this week we have lifted, from a narrow border, and sent away sufficient well-rooted plants from last year's runners to plant a pit about 150 feet long and 6 feet wide, and yet have abundance left.

Those who have not a stock of plants thus prepared I would advise to at once layer the requisite number in 3-inch or 4-inch pots, severing them, and finally planting out before they become much root-bound. A distance of about 15 inches apart each way is ample for any sort, especially seeing that the clusters of fruit must of necessity be supported with wire hoops or stakes and matting well above the foliage, to enable them to ripen properly and quickly. The planting should also be done as firmly as possible, otherwise a superabundance of foliage and not much fruit will be the result. They also require to be kept well supplied with water—should never be allowed to become dry, in fact; while during severe weather they may either be protected with lights or a mulching of straw litter. In the spring they may be kept somewhat close, forced, if necessary, where there are pipes round the pits, or be allowed to fruit naturally, so as to have them a few days or weeks before those on warm borders are available.

Vicomtesse Héricart de Thury, President, and British Queen all succeed admirably under frame culture and afford a good succession, but if only a few are grown, and these principally to afford a few late pickings, either President or British Queen should be preferred. I have also seen Sir Charles Napier remarkably good in frames, and this brisk-flavoured variety is much liked by connoisseurs.

W. I. M.

**Gooseberries on trellises.**—In all gardens of any size I think there should be two plantations of Gooseberries—one in the usual hardy fruit ground, where pickings can be made for tarts, preserves, &c., the other (consisting entirely of dessert varieties) in some prominent part of the garden. There is a growing tendency amongst owners of gardens to pick a little fruit occasionally, and the best flavoured varieties of Gooseberry seem to be particular favourites with most people. A good method of growing dessert Gooseberries is to train them on wires. Some of the advantages belonging to this system of culture are that a greater number of varieties can be planted in comparatively little space; the fruits are kept free from dust and dirt, and they can be netted with ease where protection from birds is indispensable. The trellis may be about 4 feet 6 inches high; it should consist of two standards at either end, slight iron uprights 8 feet apart to steady the wires, and four rows of galvanised wire. This last is not essential, but it will be found in the end to be a saving of labour, as with only three wires the tying is not so easily effected. The bushes may be planted 3 feet apart, and they should at the outset receive liberal treatment. A trench, as for Celery, should be dug along the length of the trellis, and some thoroughly good rotten manure should be worked into the bottom of the trench; a little manure over the roots is also advisable before the soil is filled in. In planting keep the different varieties together as much as possible; it saves running about when a dish is wanted in a hurry. Each plant may consist of five or six shoots, and when these have reached the top of the trellis all the attention that is required is the removal of superfluous growth in summer, a little spurring in winter, and the occasional laying in of young shoots to replace weakly limbs. In hot, dry seasons like the present, when the crop is heavy, a good summer mulching is indispensable; this should be put on early both for the benefit of the fruit and the general well-being of the trees.—E. B.

**The Queen Apple.**—The Apple to which M. Burvenich refers is quite distinct from The Queen as sent out by Saltmarsh in 1882. Leroy's "Dictionnaire Pomologie" (p. 150) gives a figure of Borsdorffer which at once settles the matter, and the figure on the Hereford "Pomona" confirms it. Saltmarsh's Queen is a flat Apple, very prolific, and of large size. If many trees have been imported into France, M. Bur-

venich will soon be able to compare fruits, as the tree bears when quite young. Visitors to the Apple Congress will remember the fine dish of it from Chelmsford. The Queen is also admirably figured in *THE GARDEN*. It was raised twenty-two years ago.—GEORGE BUNYARD, *Maidstone*.

**The Waterloo Peach.**—This early American variety has just ripened with me (July 14) in an unheated house. It is rather paler in colour than the Alexander, but far before it in flavour. It is very juicy and delicious, and also appears to be a much freer setter.—E. A. L., *Thornham Cottage, King's Lynn*.

**Pear Dr. Jules Guyot.**—As this fruit is noticed in *THE GARDEN* (p. 19), allow me to say that it is adopted here as a market variety. It resembles Williams' Bon Chrétien in shape, but is more pyriform. It often has a scarlet flush on the sunny side, and is a very handsome fruit, and, unlike Williams', it will keep for a few days. Its quality is second-rate, being watery and wanting richness, but as it bears freely and often when all others are destroyed by frost, it is considered that it will make a desirable market fruit. The tree is a good, strong, and free grower. It would be prized in any collection of early Pears for its beauty alone, and it is passable for dessert.—GEORGE BUNYARD, *Maidstone*.

**Bush fruits.**—These are this year plentiful and of good quality; in fact in this locality growers say that there are too many of them, or rather that prices are too low to leave so good a profit as when they are less abundant. Such reliable fruits should get the best of treatment that gardens can afford, but in nine cases out of ten they are thrust under fruit trees or in any out-of-the-way corner, when, deprived of light above and robbed by stronger roots below, under-sized fruit is the result. There are, it is true, large and small varieties, and each has its special merit, but under liberal treatment I have been often surprised at the rapid improvement in size that follows a good dressing of manure. Old and apparently worn-out bushes, if thinned out, the old soil removed down to the roots, and a good dressing of rotten manure applied and covered over with a few inches of fresh loam, will produce grand fruit the following year. The weight of crop in the case of bush fruits is simply a question of feeding. Try the experiment and note the result.—J. G., *Hants*.

**Diseased Peach leaves.**—Those who are puzzled to account for the mutilated condition of their Peach leaves will, I think, find that it is not the work of a fungus or mite, but simply the result of an overdose of tobacco. My first and last personal acquaintance with the complaint was two years ago, when I fumigated a Peach house rather heavily for black fly; the house, being a modern built one, is very close, and being a still, rainy night, the smoke stopped much longer in it than usual. The oil of the tobacco settled on the leaves, and after a few days—from five to seven—portions of them turned yellow and brown, shrivelled, and fell out. I have since seen the same thing happen in two or three different places, in each of which the conditions were the same, viz., a good, close Peach house, healthy, sappy foliage, a heavy fumigation, and a still, damp night. To prevent injury, fumigate lightly, and if the smoke stays in after two hours, open the ventilators and let it escape.—THOMAS WOODFIELD, *Hampton, Hurst-side*.

**The Ostheim Weichsel Cherry.**—Of this Cherry, Professor Budd writes as follows in the *Rural New Yorker*: "Over a large portion of Europe, where the Heart and Duke varieties of Cherries fail to do well, and even in many parts where the latter succeed perfectly, the Ostheim is a general favourite. It is harder, firmer in leaf, and the fruit is much higher in quality than that of any of the Montmorency varieties, yet we have as yet done little with it. Possibly the small size and bushy habit of the tree may account for this." At several points in Minnesota it has lived and fruited where the Richmond has utterly failed. My experience and observation fully sustain Downing's estimate of the fruit, viz.: Fruit large, roundish-oblate; skin red, dark liver colour at maturity; stalk long; flesh liver



coloured, tender, juicy, almost sweet sub-acid. It may be well to say that a number of varieties of the Griotte race have the name of Ostheim in various parts of Europe. We have Ostheimer, Cerise d'Ostheim, Ostheim Weichsel, and Griotte d'Ostheim imported from Europe. These all seem identical, as does also the variety introduced by settlers from the old country into Kansas and Missouri under the name of Ostheim. The variety introduced into Minnesota from Württemberg, Germany, seems to be one of the variations found among the peasants of the Swabian Alp. While closely resembling the Ostheim in tree and leaf, its fruit is earlier in season and smaller and lighter coloured than that of the true kind."

**Cherry Early Rivers.**—It is to be hoped that this fine early Cherry is finding its way into general cultivation, a distinction which it richly deserves. The colour of the fruit is a shining deep black, and the flesh is very tender, luscious, and sweet. It is ripe in the end of June. It is said to have been raised by the late Mr. Rivers from the Early Purple Gean. Some dishes of it, grown at Sawbridgeworth, were shown at the recent exhibition of the Saffron Walden Horticultural Society, and were highly commended.—R. D.

## WORK DONE IN WEEK ENDING JULY 28.

JULY 22 AND 23.

THE bulk of our work still consists in watering. Wall fruits, Pears, Tomatoes, Celery, Peas, and French Beans we keep as well supplied with water as restricted labour admits of, and mulching is done so long as stable litter will hold out to whatever is likely to be kept in good growth by such surface coverings. Notwithstanding surface mulchings, Roses are suffering badly from drought, but it is simply impossible to spare either water or labour to apply it to them, and our next best move has been to pick off all the flowers, and so give the plants a partial rest by way of preparation for a second display of flowers as soon as we are favoured with abundant rains. Work indoors is much of the same description—water and syringe, syringe and water, from morn to night. Early and second house of Peaches being cleared of fruit and the wood thinned out, the trees have had a thorough washing and the borders remulched with horse droppings. Began tying out Chrysanthemums that are being grown in bush form, and the tall plants have been securely fastened to trellis.

JULY 24 AND 25.

On both these dates our thermometer has registered 91° in the shade. As to work, we have only done such as of necessity must be done, and as a matter of course that has mainly been watering, work of which we are heartily sick, for with it all the plants only just manage to exist, progress or growth being out of the question. Cleared off old Strawberry plot; we never allow the plants to stand after the third fruiting. The plants are shaved off with spades, and the whole plot weeded, and soon as rain comes late Broccoli will be planted between the rows that were lately occupied with Strawberries—a plan of Broccoli culture that for many years has never failed to produce the most perfect heads of flower that anyone could desire; also cleared off Pea haulm; this ground is needed for planting out Cottagers' Kale and Sprouting Broccoli, and no other preparation is needed except freeing the ground from weeds and drawing the drills in which to put out the plants. Trimmed up foliage bedders, each variety of plant being kept within its rightful limits in the design or pattern, and tall-growing or standard plants in the same we keep securely tied. We have had all the flowers picked off Calceolarias and most of them off Violas and expect that this will keep the plants in a vigorous state till this Indian heat has departed. Work in the houses has been watering Pines, Figs, and late vinery borders, pinched points out of lateral growths of young Vines and thinned out part of the laterals on Lady Downes Vines. The Grapes are now colouring fast, and therefore abundance of air is given night and day. (Cleaning up generally.)

JULY 27 AND 28.

Ninety-three degrees in the shade on the former date, and 89° on the latter, and no signs of rain, are sufficient indications of what our labours have again been. Recently moved shrubs are dying wholesale. Apples are dropping and Pears, too, that have not

been regularly watered. Morello Cherries and the best varieties of Pears, being of great value to us, are watered as often as is practicable; but flower garden—bedding-out—and the best kinds of vegetables are more highly prized than these, and, therefore, we water little or much according to merit, or rather value of crop; would that the rain would come to our relief and water everything. Our Melon house being fully occupied, we to-day planted a batch in manure frames; it is rather late, but by keeping up heat with renewed linings, there is ample time for the fruit to ripen off perfectly. We have again sown for a late supply to be planted in the house soon as one of the divisions becomes vacant, and have put in cuttings of Tomatoes for growing in another division, from which we hope to gather fruit in November. The plants growing in the open air, having been well supplied with water, are fruiting splendidly and the growths shading the fruit have been thinned out; but other young shoots have been left intact, as it is just possible that these will now show flower and give us a crop of ripe fruit late in autumn. Made another sowing of Cabbage, and of Brompton and East Lothian Stocks. Prepared trenches for sowing Peas, and made a last sowing of Canadian Wonder French Bean on a south border that has just been cleared of Lettuce. HANTS.

## FRUITS UNDER GLASS.

### PEACHES.

A MONTH has now passed since we had any rain, and the weather during the whole of that time having been intensely hot, trees of every kind, not only by the appearance of their foliage, but by the way in which they still cast their fruit, unmistakably show that they are suffering to an extent that will seriously affect the crop. In well-watered districts much may be done by keeping the hose constantly at work, but where water is scarce the best and most profitable mode of meeting and counteracting these long periods of drought is bound up in timely mulching, not when the shoe begins to pinch, but early in the season while internal and external borders are moist and cool and the trees are fresh and free from mildew and spider. To no kind of fruit tree do these remarks so closely apply as to the Peach when grown and trained under glass with every leaf fully exposed to light and sunshine, and a foot or more of porous drainage dividing the border from the subsoil. Trees so situated and now carrying full crops of fruit cannot easily be over-watered, no matter how well they may have been mulched or how heavily they are syringed from the time the fruit is set until it begins to ripen; indeed, it remains an undisputed fact that more failures can be traced to insufficient supplies of water than to any other cause in the routine of ordinary management. To a properly drained border, be it inside or out, a mere surface watering in dry weather is of very little use, as it never reaches the lower roots, resting on or perhaps working in the drainage, and when a large spread of foliage as well as a heavy crop of fruit are constantly drawing on the roots, homeopathic applications are completely useless. Water should, therefore, be allowed to flow over every part of the surface and through the compost until it reaches the drainage and runs freely into the drains. The quality as a matter of course being regulated by the strength or weakness of the trees and the weight of the crop. When trees are over-cropped and under-watered, the fruit is small and vapid and ripens prematurely when it ought to be commencing the last swelling. The mischief does not, however end here, as the trees are enervated by the strain placed upon them; the flower-buds are weak and imperfect, and many of them fall in the spring when they ought to be bursting into a sheet of inflorescence.

**Thinning the fruit.**—It has been said, and not without reason, that every man should invite a neighbour to thin his fruit for him; but this, to the cultivator of first-class Peaches, would prove a most unthankful office, as quantity with some invariably takes precedence of quality. When well grown the leading kinds of Peaches should average from 9 ounces to 12 ounces each, and these can be obtained from well managed healthy trees when the crop is thinned down to as many Peaches as there are square feet of trellis covered with foliage at the time the fruit begins to

ripen. Some Peach growers have objected to this teaching, and have asserted that trees are capable of maturing twice that number, but to enable them to finish them properly, feeding must be excessive. High feeding leads to gumming, and gumming means frequent resort to the nursery or reserve wall for a fresh relay of trees. Nectarines do not grow so large as Peaches; consequently they may be left a little closer together, but in order to enable such kinds as Lord Napier, Stanwick Elruge, Albert Victor, and all the good old standard varieties to place a maximum of pulp on a minimum of stones, each fruit should have at least 90 square inches of foliage. The first, second, and third, grown in tubs and trained over a trellis, have frequently produced fruit 9 ounces in weight, as may be gathered from illustrations and notes in the "Florist and Pomologist." So much for thinning with a determined hand, not for a year or two, but for more than twenty years, and although the trees have always been grown in pots or tubs, they are still vigorous, and have this year required more thinning than ever.

**Pruning Peaches.**—This operation should be performed as soon as the trees become clear of fruit and there remains time for the young growths to develop and ripen up their buds before the leaves fall. If properly disbudded and no more wood has been laid in than will be wanted for another year, the removal of the shoots that have recently borne fruit will pretty well complete the operations, at least for the present, as shortening back, where the old system of cutting away two-thirds of the current year's growth still prevails, is invariably performed at the winter dressing. But why the best part of the wood should be cut away annually is a question which sticklers for the knife have not yet found it convenient to answer, as the fruit from the wood so shortened is not finer, while certainly it is not so plentiful as that from trees that are trained on the extension principle, where roots and branches keep pace with each other, and judicious summer pinching reduces gross shoots to a well-ripened, fruitful condition by the time the leaves fall in the autumn. Assuming, then, that the trees have plenty of trellis room, and every shoot, so long as the balance is retained, is allowed to grow on to its full extent, all that is really required of the pruner is the cutting away of every growth, leaders excepted, quite back to the base of the shoots that have been laid in to take their places. When this has been performed, the wood left will require a little regulating and tying in to secure an even spread of foliage over every part of the tree, particularly where old branches some 16 inches or 18 inches below the glass are exposed to the fierce influence of the sun. Six inches apart is quite near enough for good growths of ordinary strength, as every leaf will then have full exposure to light, sun, and air; the wood will assume a rich reddish brown hue, a plump silvery flower-bud, ripe and perfect, will be formed at the base of every leaf, and wood-buds will be present in abundance. Compare a tree so managed with another that has been imperfectly disbudded and allowed to remain crowded, with half choked pale green shoots, and the future prospect is ten to one in favour of the well-thinned extension-trained example of good culture.

FIGS.

If well mulched, fed, and syringed, and judiciously thinned, trees in pots and trained over trellises, from which ripe fruit was gathered in May and June, will now be ripening up their second crops. Second-crop fruit does not, as a rule, attain large size, but ripened under a blazing sun, with an abundance of solar heat and atmospheric moisture, its superior quality and flavour make up for that deficiency. Trees in pots require mulching at short intervals and supplies of warm diluted liquid at every watering, and on no account should they ever be allowed to be dry, as dryness at the root is a sure stepping-stone to fruit dropping and a supply of brown scale and red spider. If pinching has not been carried to excess, these trees should now be plentifully furnished with short-jointed spur-like growths, which will set fruit at the base of every leaf, and as these will be the first to ripen in the spring, care must be taken that they do not get too forward before the trees go to rest in the autumn. To secure a satisfactory condition the house or pit should be freely ventilated during the time the second



crop is ripening, and as soon as the flush of fruit is over, full exposure in fine dry weather and a diminishing supply of moisture will complete the ripening process, when an occasional dash with the syringe will prevent the leaves from falling prematurely. When the second crop begins to ripen up all intermediate fruits should be rubbed off, as it will not be wise to keep the trees in heat until they are fit for use, while their timely removal will most likely cause embryo Figs to form which will stand through the winter. Trained trees having their roots confined to internal borders require precisely similar treatment, but the points of the shoots being stronger and more inclined to grow, they require more dry heat to ripen them up; hence the importance of allowing late growths to find their way up to the glass, which need not be removed, and keeping up a constant circulation of dry, warm air by opening all the side ventilators and turning on a gentle circulation from the boiler on dull days and cold nights.

Trees in cold houses and cases, although they started late, are, thanks to the brilliant weather, now forward and unusually promising. To keep trees in unheated houses hard and fruitful the root space should be limited, the compost light and fertile, but not over-rich. The roots should be pruned annually, well mulched, and copiously watered throughout the season of growth. If trained against high walls the long-rod system of laying in fruitful growths over every part of the trees is preferable to constant pinching, as old branches which have reached the extreme limit can always be cut away at the spring pruning to make room for them to extend, when they in like manner can be removed. The Fig being subject to attacks of red spider when grown against old brick walls, copious syringing on fine afternoons until the fruit begins to ripen is imperative, but when this stage is reached a drier atmosphere is essential to colour and flavour. Early fruitful kinds, like Brown Turkey, Osborn's Prolific, White Marseilles, and Brown Ischia, are best adapted for cold house culture, as they ripen one crop of fruit in ordinary seasons and generally mature their wood well. Brunswick, the hardest of all, is not so prolific as the above, and being a strong grower, it is a suitable kind for training against lofty buildings fully exposed to the south or west, while in the southern counties, open to the influence of the sea, it produces fine crops of fruit when trained as a standard. It is not so rich as some, but when grown to an immense size, as it is met with at Goodwood, Arundel, and other places in Sussex, its noble appearance and rich black colour render it worthy of extensive cultivation in every garden where hardy Figs succeed well out of doors.

#### ORCHARD HOUSES.

Many of the Peaches and Nectarines in early forced houses will now be fit for removal to cooler quarters or a warm sheltered situation in the open air. If the latter, they should be plunged in the warm dry soil, with a brick or tile beneath the pots to keep out worms, and a good layer of half-rotten manure spread over the surface to economise watering and feed the roots during the time they are maturing their growth. If any of them have been infested by spider, they should be laid on their sides and vigorously syringed or hosed before they are plunged, and this operation may be repeated at short intervals until the foliage is ripe and we have a change to moister and cooler weather. When this batch has been removed later kinds still carrying fruit can be treated to more room, or a few early and midseason varieties may be drawn from succession houses to keep up the supply, and so prevent a glut. Make frequent additions to the top-dressing and feed with diluted liquid at every watering all trees that are now swelling up fruit. Syringe well twice a day and remove all laterals and superfluous growths to let in light and air, and, if not rooted into the borders, turn the trees round occasionally to insure the perfect colouring of the fruit.

*Pears*.—When choice kinds are grown in pots or tubs, all laterals and sub-laterals should be constantly pinched out to favour the formation and filling of the buds, and at the same time to let in light and air to the fruit. Mulch, feed, and syringe well to secure size, and set all the ventilators open to reduce the temperature and conditions of the house as nearly as

possible to those of the external air. Some people set their Pears out of doors altogether as soon as the fruit is set and safe from frost, and there allow them to swell and ripen; but, unless the climate is very good and the situation south or west of the midlands, it is best to keep all choice kinds under glass and give them an abundance of air. Pears it has often been proved will hang on the trees for an indefinite length of time when grown under glass, and when so left some kinds positively refuse to melt or ripen. Some judgment, to prevent waste of time and labour, must therefore be brought to bear on the gathering of the fruit, as Pears, clean, bright, and of the largest size, can be grown in pots, but these points are of little value if the fruit lacks melting properties. To secure this, and at the same time to ensure flavour, early kinds should be gathered as soon as they begin to change colour and midseason and late sorts when, on turning them upwards, they part freely at the footstalk.

*Plums*.—The early kinds will now be ripe, if not over, and the trees fit for removal to the open air, where treatment recommended for Peaches will apply. Midseason and late kinds, under the intense heat we have for some time experienced, will be getting well advanced, but unless the trees are crowded or it is thought necessary to retard, none of them need be removed to the open air. Many of them will now require watering twice a day, frequent top-dressing with good rotten manure, and the paths, floors, and walls well dashed with the hose. Water from the hose will not, however, now be suitable for overhead baths, as it may be too cold if it does not contain lime, which will spot and disfigure the fruit. The best water for every purpose, it is hardly necessary to say, is that which falls from the clouds, but this in the majority of places is now a scarce article, and for this reason should be carefully husbanded for overhead syringing. Coe's Golden Drop may be syringed for some time to come, but midseason kinds must be kept dry overhead when the fruit begins to colour.

W. COLEMAN.

## KITCHEN GARDEN.

### KIDNEY BEAN OR FRENCH BEAN.

(Concluded from p. 84.)

#### Edible-podded Kidney Beans.

*French*, Haricots sans parchemin. *German*, Zucker-, oder Brech-, Bohnen. *Danish*, Snitte bonnen. *Italian*, Fagiolo mangia tutto.

**DWARF ALGERIAN BLACK-SEEDED BUTTER BEAN** (Haricot d'Alger Noir Nain).—An established dwarf variety of the Algerian Wax or Butter Bean, with rather large yellowish-stalked leaves, the colour of which varies, on the same plant, from dark to light green. Flowers lilac; pods very fleshy and of a butter-yellow colour; seeds black, egg-shaped, a little smaller than those of the tall-growing variety. A litre of them weighs 730 grammes, and 100 grammes contain about 250 seeds. This is an early kind, very productive, and of excellent quality, and is one of the most extensively grown varieties of Kidney Beans.

**LONG-PODDED DWARF ALGERIAN BUTTER BEAN** (Haricot d'Alger Noir Nain à Longue Cosse).—This appears to be a sub-variety of the preceding kind, but it is very clearly distinguished from it by its longer pods, and also by the shape of its seeds, which, instead of being egg-shaped, are almost cylindrical, and are nearly three-quarters of an inch long and over a quarter of an inch broad and thick. The pods are very free from membrane, and are more slender and less fleshy than those of the preceding kind. A litre of the seeds weighs 800 grammes, and 100 grammes contain about 240 seeds. This variety has come into very general cultivation about Paris, where it is grown in the fields for the city markets.

**DWARF WHITE ALGERIAN BUTTER BEAN** (Haricot Beurré Blanc Nain).—A very good, but somewhat tender variety, forming low, broadish clumps which sometimes sprawl on the ground. The leaves become smaller and paler in colour as they approach the top of the stems. Flowers white; pods almost transparent, of a waxy-white colour, and about 4 inches long, each containing five or six short, egg-

shaped, creamy-white seeds, which are sometimes slightly wrinkled. The dried seeds are of excellent quality for the table. A litre of them weighs 740 grammes, and 100 grammes contain about 250 seeds.

**MONT D'OR DWARF BUTTER BEAN** (Haricot Beurré Nain du Mont d'Or).—A very productive and very early variety of Dwarf Butter Bean. Stems 1 foot to 16 inches high, branching; leaves large, rough, but not crimped, of a deep green colour, and remarkable for the very variable shape of the terminal



Mont d'Or Dwarf Butter Bean ( $\frac{1}{2}$  natural size)

leaflet, which is sometimes long and pointed, and sometimes nearly round and quite blunt at the end; pods very numerous, 4 inches or 5 inches long, well filled, and of a pale yellow colour; seeds small and round, of a very dark red, deepening into black. A litre of them weighs 700 grammes, and 100 grammes contain about 210 seeds.

**FLAGEOLET BUTTER BEAN** (Haricot Flageolet Beurré).—A vigorous-growing, yet persistently dwarf variety, 16 inches to 18 inches high. Leaves very large, uncrimped, and of a light or yellowish green colour; flowers lilac; pods long, broad, straight or slightly curved, quite yellow (like those of the Algerian Kidney Beans), but rather flattened and pointed (like those of the Tough-podded Kidney Beans); seeds almost exactly like those of the Canadian Wonder in shape and colour. A litre of them weighs 750 grammes, and 100 grammes contain about 150 seeds.

This is a very fine and distinct kind, but, unfortunately, its pods are not entirely free from membrane, at least when they come near ripening; but if gathered before the seeds are too much grown, they are a very tender, fleshy, and excellent variety of edible-podded Kidney Beans.



Flageolet Butter Bean ( $\frac{1}{2}$  natural size).

**EMILE DWARF KIDNEY BEAN** (Haricot Emile).—An exceedingly dwarf and remarkably early variety, seldom more than 8 inches or 10 inches high. Leaves medium sized, of a rather dark green and slightly crimped; flowers white or very pale lilac; pods somewhat curved, 4 inches or 5 inches long, very fleshy, green before ripening and never turning white



or yellow, each containing from five to seven oblong seeds of a violet colour marbled with light grey, about half an inch long, and one-third of an inch broad and thick. A litre of them weighs 790 grammes, and 100 grammes contain about 235 seeds. This variety, which was recently raised by M. Perrier de la Bathie, seems to us to be both the dwarfest and the earliest of all the edible-podded Kidney Beans, and is especially suitable for forcing.

**EARLY DWARF WHITE EDIBLE-PODDED KIDNEY BEAN** (Haricot Nain Blanc Hâtif sans Parchemin).—Stem tallish and branching, attaining a height of 20 inches; leaves medium sized, numerous, rather crimped; flowers white; pods 6 inches long, flat, very thick and fleshy, almost always curved or twisted, each containing five or six white, flattened, moderately kidney-shaped seeds, which are sometimes slightly squared at the ends, varying from half an inch to three-quarters of an inch in length, about a quarter of an inch broad, and about one-sixth of an inch thick. A litre of them weighs 810 grammes, and 100 grammes contain about 165 seeds. This variety is a tolerably good one for field culture. It is a good bearer and pretty early, but the seeds are easily spoiled by cold or damp autumn weather.

**UNIQUE DWARF WHITE KIDNEY BEAN** (Haricot Nain Blanc Unique).—Stem tallish, vigorous growing, and tolerably branching; leaves rather deep green, large, rounded, and crimped; flowers large, white; pods numerous, straight, 5 inches or 6 inches long, each containing five or six seeds, which are white, long, very bulging, straight or curved, and almost as thick as they are broad. A litre of them weighs 820 grammes, and 100 grammes contain about 200 seeds. This is one of the best dwarf edible-podded Kidney Beans. Its dried seeds also are of excellent quality and perfectly white—a great recommendation, as Kidney Beans of this colour are generally preferred for table use.

**QUARANTAIN DWARF WHITE KIDNEY BEAN** (Haricot Nain Blanc Quarantain).—A plant of medium height, with branching stems, forming a rather compact clump. Leaves of average size, stiff, almost triangular, elongated and pointed, of a dark lustrous green colour; flowers white; pods flat and broad, and from 4 inches to 6 inches long. A litre of the seeds weighs 830 grammes, and 100 grammes contain about 270 seeds. A hardy, early, and tolerably productive variety, with this drawback—that it cannot be relied upon for always maintaining a strictly dwarf habit of growth.

Besides those already described, there are many other varieties of dwarf edible-podded Kidney Beans in cultivation, of which we shall only mention the following:—

**VARIEGATED WHITE-PODDED BUTTER BEAN** (H. Beurré Panaché à Cosse Blanche).—It is the seed of this variety that is variegated; it is straight and almost cylindrical in shape, of a creamy white colour, with spots and marblings of a wine-lees red or reddish violet colour. The variety is dwarf and rather tender. The American variety Early Valentine may be considered identical with it.

**TWO-COLOURED CHINA KIDNEY BEAN** (H. de China Bicolore).—This variety does not seem to be very extensively grown, and yet it is known almost everywhere. It is a rather tall and very branching kind with white flowers. Pods of medium size, pretty free from membrane, turning white when ripe, and each containing five or six straight, cylindrical seeds, which are often square at the ends, and are deeply striped with red around the hilum to the extent of half the surface of the seed, while the other half is entirely white. A rather productive and very early kind.

**DWARF WHITE MALMAISON KIDNEY BEAN** (H. Nain Blanc de la Malmaison).—A productive and moderately early variety, with fine fleshy, bulging pods, which are usually straight. Seed rather long, oval, and white.

**DWARF AIX KIDNEY BEAN** (H. Nain d'Aix).—A variety with small round seeds, of a rosy white colour. Pods yellow and rather short, but very free from membrane.

The new English varieties, Long Sword and Ne

Plus Ultra, are described as being remarkably productive, the former bearing from thirty to forty pods on a plant. The last-named is a very dwarf kind (about 1 ft. high), early and compact in growth.

The three following kinds are of American origin:—  
**CRYSTAL WAX WHITE BEAN**.—Dwarf, but usually running at the top. Pods short and white, almost transparent; seeds white and oblong.

**IRON-POD WAX BEAN**.—Not a reliably dwarf kind nor very productive. Pods free from membrane, white, tinged or slightly striped with violet; seeds white.

**NEW GOLDEN WAX BEAN**.—A fine, productive, and early kind. Pods free from membrane and of a pale yellow colour; seeds white, partly marbled with deep red, almost like those of the Two-coloured China Kidney Bean. This is a good variety.

### Scarlet Runner Beans.

(Phaseolus multiflorus, Willd.)

*French*, Haricots d'Espagne. *German*, Arabische Bohne. *Dutch*, Tursche boon. *Italian*, Fagiuolo di Spagna.

Native of South America. Naturally a perennial, but cultivated as an annual. These plants, while extremely valuable as vegetables, are esteemed as ornamental climbers, on account of their rapid growth and the abundance of their flowers.

The Scarlet Runner, which our French friends do not appreciate as we do, is the most valuable, and frequently the most beautiful, plant in English cottage gardens. It is grown in thousands of gardens, even in London and our large cities and towns, hiding with its quick-running and vigorous shoots many ugly surfaces in summer, and affording a quantity of wholesome food. The pods are often, like those of other vegetables, allowed to get too old and hard before being gathered.

There are several varieties, differing in the colour of their flowers and seeds; the principal are:—

1. **THE SCARLET RUNNER** (H. d'Espagne Rouge).—The seeds of this variety are of a light wine colour, blotched with black.

2. **THE BLACK-SEEDED RUNNER** (H. d'Espagne à Grain Noir).—The flowers of both this and the preceding variety are of a uniform scarlet colour.

3. **PAINTED LADY, BICOLOUR, OR YORK AND LANCASTER RUNNER** (H. d'Espagne Bicolore).—The seed of this variety hardly differs from that of the Scarlet Runner, but the flowers are half red and half white, the keel and wings being white and the standard scarlet-red.

4. **HYBRID SCARLET RUNNER** (H. d'Espagne Hybride).—The seeds of this kind are very distinct, being of a greyish yellow blotched with brown; the flowers are variegated like those of the Painted Lady.

5. **THE WHITE RUNNER** (H. d'Espagne Blanc).—This is the only kind that is sometimes grown in France as a vegetable.

The two following new English varieties are highly recommended:—

**CHAMPION SCARLET RUNNER**.—A variety with very long, thick, fleshy pods.

**GIRTFORD GIANT SCARLET RUNNER**.—The pods of this variety are borne in clusters, and surpass all others in length, breadth, thickness, and fine flavour, and may be cooked either in the usual way, or stringed and served up whole like the Butter Beans.

**WHITE RUNNER BEAN** (Haricot d'Espagne Blanc).—Stems very vigorous-growing, climbing, attaining a height of nearly 10 feet in a few weeks; flowers white, in numerous long-stalked clusters; pods broad, very flat, seldom containing more than three or four seeds each; seeds white, full, very large, kidney-shaped, sometimes 1 inch long, three-fifths of an inch broad, and two-fifths of an inch thick. A litre of them weighs 735 grammes; 100 grammes contain about 75 seeds. The seeds of Runner Kidney Beans do not usually ripen well in the climate of Paris. In the south of France, however, this species, which is very hardy and very productive, is grown, to a moderate extent, as a vegetable, and in some other countries it is very highly esteemed. In the north of France the seeds are found to have the skin too

thick, and to be deficient in delicacy of flavour. They certainly contain a great deal of farina, but are inferior, especially in the dried state, to any of the good French varieties of Kidney Beans. In England the pods are most generally used in the young green state, many preferring the flavour of these when quite young to that of the Kidney Beans in a similar stage.

### Large Lima Kidney Bean.

(Phaseolus lunatus, L.)

*French*, Haricots de Lima. *German*, Breitschöttige Lima Bohne. *Italian*, Fagiuolo di Lima. *Spanish*, Judia de Lima.

Native of South America; annual; stem climbing to the height of nearly 10 feet; leaves composed of three triangular leaflets, longer and narrower than those of ordinary Kidney Beans; flowers small, greenish white, in numerous stiff elongated clusters; pods short, very flat and very broad, rough on the outside, like those of the Runner Kidney Beans; seeds flat and short, slightly kidney-shaped, with one half nearly always larger than the other, and usually marked with wrinkles or flutings from the hilum outwards. The varieties of this Kidney Bean are grown in the same manner as the ordinary tall-growing Kidney Beans, but they are later, and seldom ripen seed in the climate of Paris. The seeds are sent to table either fresh or in the dried state. They contain a great deal of farina, and are highly esteemed in the United States and in some warm countries. The Bean is distinct and very good in quality.

**COMMON LIMA KIDNEY BEAN** (Haricot de Lima).—Rather late-growing, never ripening more than a portion of its pods in the climate of Paris, and never ripening there at all in cold damp seasons. Stems thickish and of a pale green colour; leaves medium-sized, smooth, and of a greyish green; seed broad and flat, white, slightly tinged with yellow, over three-quarters of an inch long, about three-fifths of an inch broad, and nearly a quarter of an inch thick. A litre of them weighs 725 grammes, and 100 grammes contain about 90 seeds. There is a green-seeded variety, and another which has white seed, like that of the type, but marked with a small brown or blackish blotch close to the hilum.

**MOTTLED LIMA, OR MARBLED CAPE, KIDNEY BEAN** (Haricot du Cap Marbré).—This is distinguished from the preceding kind only by the very peculiar variegation of the seed, in which a large patch of red, more or less deep, surrounds the hilum, from which it extends to one end of the seed, which it entirely covers for about a third of its length, the remainder of the surface being finely dotted with the same red colour on a white ground. A litre of the seed weighs 675 grammes, and 100 grammes contain about 100 seeds. This variety is almost as late as the preceding one.

**SMALL LIMA, OR SIEVA, KIDNEY BEAN** (Haricot de Sieva).—Stems slender and green; leaves smaller and darker in colour than those of the common Lima Kidney Bean. This variety of Phaseolus lunatus is distinguished from the preceding ones by the much smaller size of its seeds, which in other respects resemble those of the common Lima Kidney Bean, but are seldom over three-fifths of an inch in length, about a third of an inch broad, and one-sixth of an inch thick. A litre of them weighs 780 grammes, and 100 grammes contain about 220 seeds. The small Lima Kidney Bean is also earlier than the other varieties of Phaseolus lunatus, and its first pods ripen regularly in the climate of Paris; but it is very far from being as productive there as it is in warm climates, where it often continues bearing for three months. In the United States a variety is grown which has the seed streaked with red.

**Potatoes**.—The long drought which we have had has seriously affected the prospects of the Potato crop in this district, and it is feared that rain, however refreshing it may prove to other plants, will be too late to improve the early Potatoes, which seem checked quite beyond recovery. Generally they are yielding small tubers and will finally turn out but a small crop. Even such unusually large growing kinds as Early Rose and Beauty of Hebron yield very small tubers, and Ashleaf Kidneys are still worse. Altogether it is doubtful whether such sorts are turning out more than a bushel per rod, and that is deficient enough.



Even such kinds as Snowflake, Snowdrop, Harvester, and London Hero are flagging badly in dry rubbly soils, and rain can hardly revive these, as indeed many other midseason kinds for their good. All the late strong-growing kinds are holding on fairly well, but still terribly need a soaking, for anything less than a real ground rain penetrating 10 inches or 12 inches into the soil will do more harm than good, as surface rooting will be induced and then hot sunshine will burn up the roots and make last stage worse than the first. On the whole, after so long a spell of drought, I fear Potato prospects are not promising.—A. D., *Bedfont*.

## SOCIETIES.

### ROYAL HORTICULTURAL.

JULY 29.

THE annual show of the Carnation Society, combined with an excellent display of Begonias, Gloxinias, hardy and other plants, together with the exhibits placed before the committees, made on the whole on Tuesday last an instructive and interesting gathering. There were competitive classes set apart for collections of miscellaneous stove and greenhouse plants and pitcher plants, but the display made by the competitors was quite unworthy of the society's exhibitions. There were a few noteworthy plants placed before the committee, who bestowed first-class certificates upon the following:—

**BEGONIA PRINCE HENRY.**—A new hybrid variety, extremely pretty and likewise interesting on account of its being a cross between a seedling of the tuberous B. Davisi and one of the Rex section. The plant is of dwarf and compact growth, similar in habit to B. Davisi. The foliage is rather small and of a bronzy green tint, while the flowers are cherry-red—a charming harmony of colour. The plant is remarkably floriferous, even small plants of it being covered with bloom. It will no doubt prove a popular variety. Some well-grown plants of it were exhibited by the raisers, Messrs. Sutton, of Reading.

**HELENIUM AUTUMNALE PUMILUM.**—A first-rate hardy perennial, one of if not the finest dwarf yellow-flowered Composites in flower at this season. It is a dwarf form of the common autumn Helenium, which grows some 5 feet or 6 feet high; whereas the pumilum variety rarely exceeds 3 feet. The flower-heads, about 2 inches across, are of a bright rich orange, freely produced even on small plants, and continuing a long time in beauty. Plants and flowers of it were shown by Mr. Ware, Hale Farm Nursery, Tottenham.

**BEGONIA THWAITESI.**—Many to whom this fine-leaved Begonia has been familiar for years will be surprised to see that so late in the day it has been honoured with a certificate. Messrs. Veitch showed some fresh-looking plants of it which captivated the committee. It is one of the numberless forms of the Rex group, with smaller leaves than ordinary, of a bronzy hue mottled with green. There are about a score of finer varieties than this, which if someone will show them they will presumably be certificated.

**CAMPANULA HENDERSONI.**—One of the finest of the dwarf hardy Campanulas. It is an old and tolerably well-known sort, raised by crossing C. carpatia and C. turbinata. The growth is intermediate, being about a foot high and exceedingly floriferous. The flowers are about 1 inch across, open, cup-shaped, and of a deep bluish-purple. A fine specimen of it was shown by Mr. Ware.

**BEGONIA MARCHIONESS OF LOTHIAN.**—A double tuberous variety with large and very double flowers of a brilliant scarlet. It is floriferous and of excellent habit. Shown by Messrs. Cannell.

**PELARGONIUM PAUL CHARBONNIER.**—A double-flowered zonal variety, one of the best of its class. The truss is large, the flowers very double, and of a bright cerise flushed with scarlet. Shown by Mr. Bealby.

**BEGONIA PICOTEE.**—A double tuberous variety aptly named, inasmuch as the cherry-red petals have a well-defined edging of white, giving the flowers a distinct appearance. The flowers are very large and double and the habit of growth and floriferousness

are all that could be desired in a double Begonia. Messrs. Cannell, of Swanley, showed it together with numbers of other sorts.

**RHODODENDRON INCARNATUM FLORIBUNDUM.**—A cumbrous name given to a variety of the Javanese race, remarkable for its free-flowering tendency which, if it be permanent, will render the variety invaluable. The small plant shown by Messrs. Veitch, the raisers, bore numerous clusters of delicate rose-pink flowers and had a pretty appearance.

**BEGONIA MARQUIS OF STAFFORD.**—An extremely fine double-flowered sort, having large rosetted flowers of a deep carmine-crimson, which hang gracefully on slender stalks on all sides of the plant. Shown by the raisers, Messrs. Laing, of Forest Hill.

**CARNATION THE GOVERNOR.**—A variety remarkable for its large full flowers of a delicate bluish white colour. It is unquestionably one of the finest of its class that has yet been raised, and Messrs. Cannell, to whom the certificate was awarded, showed a first-rate bloom of it.

**DRACOCEPHALUM VIRGINICUM ALBUM.**—A pure white-flowered variety of a North American perennial. Compared with the original, which is a weedy, lilac-flowered plant, it is beautiful, as it bears dense spikes of pure white flowers which, being nearly all open at one time on a spike, have a pretty effect. The plant is dwarf and bushy, rarely exceeding 2 feet high, and it flowers profusely even at a less height. It was shown in fine condition by Mr. Ware.

**PELARGONIUM JOSEPHINE VON HOHENZOLLERN.**—A double Ivy-leaved variety with large, dense trusses of very double flowers of a bright cherry-crimson colour, one of the richest tints yet obtained in this section. A plant of it was shown by Mr. Bealby, of Roehampton.

**MARIGOLD MINIATURE ORANGE AFRICAN.**—A variety remarkable for its dwarf dense growth and floriferousness. The flowers are large, very double, and symmetrical in form, and of a bright orange-yellow. Shown by Messrs. Carter, High Holborn.

Among the other plants put before the committee the following were the most noteworthy: From Mr. B. S. Williams came a plant of the new Cienkowskia Kirki, a handsome plant from Tropical Africa. It has broad green leaves and large roundish flowers of a delicate rose-pink, blotched with orange in the centre. Messrs. Veitch exhibited among others Piper ornatum, a prettily mottled-leaved stove climber; Tillandsia rhodocina, very similar to, if not identical with, Æchmea fasciata; Cyrtopodium Morganæ, the superb hybrid between C. Stonei and C. Veitchi, and very similar to the rare C. Stonei platytanum; C. Sedeni candidatum, a pale pink form of the original, very pleasing in tint; Rhododendron Curtisi, a new species with small bell-like flowers of a deep crimson; Masdevallia Gairiana, a hybrid between M. Davisi and M. Veitchi; Gladiolus Lafayette and Marie Lemoine, both beautiful hybrids of the purpureo-auratus section; and two new seedling greenhouse Rhododendrons, one Indian yellow with large and funnel-shaped blooms of a rich yolk-of-egg yellow; and R. Nemesis, of a pleasing salmon-red, truss and flowers being equally as fine as the preceding. Mr. Pollett, of Farnside, Bickley, showed the beautiful Cattleya calumata referred to in another column and a superb variety of Odontoglossum crispum of the guttatum group, having white sepals heavily spotted with coffee-brown. Mr. Boscawen, of Lamorran, sent a finely grown specimen of Lælia purpurata carrying six spikes and about two dozen blooms, representing a large-lipped and richly coloured variety. Mr. Ware, of Tottenham, exhibited several extremely fine varieties of Gaillardia pulchella, all with large and brightly coloured blooms, the sorts named Oberon, Orion, Ossian, Ophir, Omega, and Ouida being the finest. These sorts, no doubt, are the forerunners of an important race of garden plants. The committee commended the strain shown by Mr. Ware. The beautiful mule Pink Napoleon III. was shown finely by Mr. Robson, and Mr. Stevens, of Putney, showed good blooms of the lovely bluish tinted variety of the Clove Carnation called Maiden's Blush. Messrs. Sutton showed a new bedding Begonia named Princess Beatrice, the result of crossing B. Schmidt and B. semperflorens rosea. It is a floriferous and free-growing variety, and seems

admirably adapted for open-air culture. The New Plant and Bulb Company, Colchester, made a large and beautiful display with Lilium auratum, which is now in perfection in their nursery. The specimens shown represented a considerable variation in size, form, and spotting of the flowers, but the majority were of that broad-petalled type so much admired. The selection of specimens shown comprised the pick of about 5000 plants now in bloom in the Company's grounds at Colchester. The new white Pelargonium Volonte Nationale alba was shown by Mr. Perkins, of Leamington, and the group of well-flowered plants was much admired. Some flowers representing a perfect strain of French and African Marigolds were shown by Messrs. Carter, besides the miniature dwarf variety certificated.

### Fruit and Vegetables.

The most noteworthy among these were eighteen noble Pine-apples of the Smooth Cayenne variety from Lord Fortescue's garden at Castle Hill, South Molton, where Pine culture is carried out to perfection. Every fruit shown was a credit to the gardener, Mr. Nicholas, who was deservedly awarded a silver-gilt medal. The aggregate weight of these eighteen Pines amounted to 126½ lbs., or an average of 7 lbs. for each fruit. A new Grape called Mrs. Eyre, was shown by Mr. Ross, of Welford Park, Newbury. It is a white variety, with large oblong berries having a firm, juicy flesh of excellent flavour. It is an early variety, and will probably prove valuable. It is a seedling from Black Monukka, the shape of the berries partaking of that variety in a remarkable degree. Several seedling Melons were shown; a small round green-fleshed sort named Princess Beatrice was shown by Mr. Ross, but was scarcely ripe enough to judge of its merits. Mr. Worsley, Leighton Buzzard, sent a large oval-fruited sort. Mr. Bolton, of Coombe Bank, Sevenoaks, showed a fruiting branch of his new Gooseberry, Bolton's Prolific, a greenish yellow sort, of medium size and extremely productive. A new Raspberry, named Superlative, was shown, but the committee considered it to be too much like one in cultivation named The Hornet. The fruits are large and conical, but of inferior flavour. Messrs. Hurst sent samples of a new Pea named Eureka, which was referred to Chiswick for trial, as was also a seedling Potato from Messrs. Yarde. A fine dish of the new Red Currant, Faye's Prolific, was shown. It is a large clustered sort, large berries, very juicy, and of good flavour.

### FLOWER SHOW.

**BEGONIAS.**—These popular summer-blooming plants form the chief feature of the plant classes of the schedule, but the competition was exceedingly limited. Messrs. J. Laing & Co., Forest Hill, had the only group of fifty plants, a very fine lot, chiefly of single kinds, few of which were named, but included many fine showy varieties, especially brilliant scarlets, pinks, whites, &c., also several good doubles, duplicates of those found in special classes. Begonias seem to group badly alone; they need the aid of some other decorative plants to give good effect. The same firm took first place in the class for nine kinds, with fine plants of Madame Stella and Marchioness of Bute, rosy pink; Ernest H. Gough and a seedling, scarlet; Purity, white; Golden Queen, yellow; Mr. Brissenden and Mr. Bealby, double scarlets. Mr. W. Bealby was second with small plants, chiefly doubles, good kinds, but rather over-potted. Felix Crousse, orange-scarlet, and Virginal, white, were very fine. The amateurs' class for six kinds brought very good plants from Mr. Monk, North Dulwich, the only competitor in the Begonia classes beyond those named. His plants were fairly good, though all shown were far below what may be seen in some country shows. Messrs. Laing & Co. had the best six double kinds in Lady Hulse, white; Mrs. Howe, carmine; Goliath, The Czar, and Mr. Brissenden, scarlet; and Mrs. Brissenden, bright flesh. Mr. Bealby had his best plants in this class.

**GLOXINIAS,** which are usually shown profusely at provincial shows, were very poor, the best nine being staged by Mr. Waite, Esher. These plants were carrying from three to six blooms each, and were of middling



quality. The only other lot would not have come in third at any ordinary flower show, and should not have received the valuable second prize awarded. Mr. A. Luff, Streatham, had the only six pairs of Achimenes, very poor samples, and only received a second prize. It was quite remarkable that things usually so well shown elsewhere should here have been so miserably represented.

**CARNIVOROUS PLANTS** were represented by two lots, neither very meritorious, and consisting chiefly of *Sarracenias*, *Nepenthes*, and *Fly-traps*—things all very curious and interesting, but hardly beautiful. Messrs. James, of Norwood, and A. Luff were the exhibitors. Mr. T. S. Ware, Tottenham Nurseries, put up the only collection of six *Lilies* in pots, rather small of their kinds, the auratum especially being one of the poorest we have seen. The rest were *pardalinum Michauxi* and *Humboldtii ocellatum*, both orange mottled maroon; *chaledonicum maculatum*, deep scarlet; *Browni*, white, flushed purple; and *philippinense*, pure white.

**MISCELLANEOUS PLANTS**, for which a class was provided, the number not to exceed twenty-five and in 6-inch pots, brought only one lot from Mr. H. James, who had some fair *Orchids* and other things not very meritorious.

**CUT FLOWERS.**—Prizes for collections of cut blooms of herbaceous plants brought only one competitor, Mr. Ware, whose ordinary and always beautiful group of these hardy garden flowers was entered and fitly awarded the first prize. That the collection was full of interest and beauty may be assured, and included amongst other things large bunches of *Lilium auratum*, a big spike of *Yucca gloriosa*, *Irises*, and *Phloxes* in great and charming variety, a big clump of the elegant white-flowered *Gypsophila paniculata*, bunches of the pretty *Lythrum variegatum* and *roseum superbum*, also a big lot of the yellow-flowered *Helenium pumilum*, and many other interesting things. Mr. Ware was also the only exhibitor of *Pentstemons* in cut spikes, but these were sadly withered and lacking their ordinary beauty.

**MISCELLANEOUS EXHIBITS** comprised a truly beautiful growth of yearling *Gloxinias*, chiefly in large 3-inch pots, to show precocity from seed under good culture, sent by the Messrs. Sutton & Sons, Reading. All these were from seed sown in February, carried from three to six blooms each, with more to follow, were dwarf, had vigorous clean foliage, and had blooms generally of great size, varied in colour, and markings, and of very fine quality. There were some 150 plants in the group. The same firm also showed plants of summer *Stocks* in various forms and colours; the finest were the compact branching *Ten-week*, very fine for bedding, about 12 inches in height, and comprising crimson, carmine, purple, cream, white, and also some handsome pyramidal forms. A box of seedling *Hollyhocks* showed how good double flowers are thus produced, and seem to resist the fungus, which is so destructive to propagated plants. Messrs. Hooper & Co. sent from their Twickenham Nursery a very elegant lot of the French or speckled forms of *Gloxinias*, also in very small pots. Many of these had fine-formed flowers and were beautifully marked, although the strain seems to lack that robust habit found in the Messrs. Sutton's strain. Messrs. T. Smith & Co., West Dulwich, staged a lot of *Balsams* in small pots, showing their grand double *Camellia*-flowered strain to full advantage; finer double flowers could not be found in any strain. They also showed some very fair double *Hollyhock* blooms. Mr. Cannell, Swanley, put up a group of *Madame Thibaut's* Ivy-leaf *Pelargonium*, the very best of all the double pink forms, and a great beauty; also a very handsome lot of *Begonias*, as good as can be desired, including many huge doubles, but these are more curious than pleasing. In the group specially charming were the free-flowering and somewhat pendulous kinds, *Esther*, *Louis Bouchet*, *Madame Renard*, *Gloire de Nancy*, and *Mrs. Streetfield*, all very free and admirable for hanging baskets. Messrs. Laing & Co. staged also a wondrous show of cut blooms of double and single *Begonias*, showing form of flower and variety almost bewildering.

#### Vegetables.

**SPECIAL PRIZES.**—A class for eight kinds of vegetables, the prizes being offered by Messrs. Sutton

& Sons, brought eight competitors, and, curiously enough, Mr. Richards, of Somerley House Gardens, Ringwood, who was first with a similar class at the previous show, again held the best place with an admirable lot, but his *Intermediate Carrots* were not quite so fresh as desirable. He had a fine sample of *Hurst's Duke of Albany Peas*, *Canadian Wonder Beans*, *London Cauliflowers*, *International Potatoes*, *White Elephant Onions*, *Perfection Tomatoes*, and *Globe Artichokes*. Mr. Waite ran this collection very hard indeed, for he had very fine *Autumn Giant Cauliflowers*, singularly handsome *Intermediate Carrots*, huge *Leviathan Beans*, handsome *Stamfordian Tomatoes*, *John Bull Peas*, &c. Some good *Telegraph Peas*, *Cucumbers*, and *Potatoes* were in other collections. The same firm also offered prizes for four each of their *Earliest of All Savoy* and *All-heart White Cabbages*, the best coming from Mr. Neighbour, Bickley Park Gardens, whose samples were first-rate, both kinds having hard, white clean heads that could not have been excelled. Mr. Osman had some good samples also. These *Cabbages* seem to be exceptionally early and valuable kinds.

#### NATIONAL CARNATION AND PICOTEE.

JULY 28.

THE annual show of the southern section of this society, held as usual in the conservatory at South Kensington, was quite up to the average as regards the numbers of the exhibits and the quality of the blooms, although the hot weather had impaired the quality of the flowers somewhat. The absence of some of the exhibitors who have taken part in previous shows was conspicuous, but notwithstanding this the show was a good one, and several new exhibitors were present. The chief prize-winners were Mr. Turner, of Slough; Mr. Douglas, of Great Gearing, Ilford; and Mr. Lakin, of Temple Cowley, Oxford.

#### Carnations.

In the principal class for twenty-four blooms, Mr. Turner was first with a fine collection, including the following sorts:—

Master Fred, Robert Lord (two blooms), Sarah Payne (two blooms), John Ball, Sir G. Wolsley (two blooms), Rob Roy (two blooms), H. K. Mayor, E. S. Dodwell, Arthur Medhurst, Jas. Douglas, Jessica, John Harland, Wm. Skirving (two blooms), Jas. Taylor, Sybil, Hy. Cannell, Wm. Hewitt, Henry Matthews, and Fred.

Mr. Douglas also had a good collection for the second prize, and the other three collections from Ipswich, Bath, and Bishop's Stortford were creditable to the exhibitors.

The first prize in the class for twelve blooms was gained by Mr. Joseph Lakin, of Temple Cowley, Oxford, whose collection consisted of good blooms of

Jas. Douglas, Robert Lord, Captain Owen, Dolly Varden, Ranger Johnson, Thomas Moore, Admiral Curzon, Sarah Payne, Fred, Thomas Anstiss, and two seedlings.

Mr. Douglas was second, his collection containing some fine blooms, noteworthy among them being

Sybil, Admiral Curzon, Sarah Payne, Mrs. Gorton, Matador, W. Skerry, J. Douglas, Joseph Crossland, Robert Lord, and Florence Nightingale.

This was altogether a good class, five collections being shown in it.

The class for six was represented by ten competitors, among whom Mr. Rowan, of Clapham, was most successful, his first prize collection consisting of fine blooms of

George, Jessica, Florence Nightingale, William Skirving, E. S. Dodwell, and Clipper.

The second collection, from Mr. Anstiss, Brill, Bucks, comprised

Florence Nightingale, George, Harrison Weir, Henry Cannell, Sarah Payne, and Robert Lord.

The other collections came from Hayes, Blackheath, and Bishop's Stortford.

**SINGLE SPECIMENS.**—Mr. Douglas took first and second prizes for specimens of *scarlet bizarres* with two good blooms of *Arthur Medhurst*, Mr. Turner third and fourth with two blooms of *Robert Lord*, and Mr. Lakin was fifth with a bloom of the same.

For the *crimson bizarres*, Mr. Turner was first with John Harland, Mr. Douglas second with a seedling, Mr. Lakin third with Master Fred, Mr. Douglas fourth with the same, and Mr. Lakin fifth with Thomas Anstiss,

Mr. Turner was first in the specimens of *pink bizarres* with Sarah Payne and fourth with James Taylor, Mr. Douglas being second and third with two blooms of *William Skirving*, and Mr. Anstiss fifth with Dr. Symonds.

For specimens of *purple flakes*, Mr. Turner showed two fine blooms of *James Douglas* which were awarded first and second prizes, while Mr. Douglas took third and fourth with blooms of the same plant, Mr. Garratt being fifth with *Sporting Jack*.

Mr. Turner was first for specimens of *scarlet flakes* with a good flower of *Matador*, Mr. Douglas second and third with *Henry Cannell* and *Sportsman*, Mr. Lakin fourth with *Tom Lord*, and Mr. Garratt fifth with *Dan Godfrey*.

For specimens of *rose flakes*, Mr. Turner was first and second with blooms of *Rob Roy*, Mr. Douglas being third and fourth with blooms of the same, and Mr. Lakin fifth with *Sybil Holmes*.

#### Picotees.

In the class for twenty-four blooms, Mr. Douglas was first with a collection including:—

Brunette (two blooms), Mrs. Gorton (two blooms), Constance Heron (two blooms), Jessie (two blooms), Muriel (two blooms), Baroness Burdett Coutts, Favourite (two blooms), Princess of Wales (two blooms), Mrs. Payne (two blooms), Her Majesty (two blooms), Mrs. Chancellor (two blooms), Violet Douglas, Mrs. Bower, Royal Visit. Three other collections were shown.

Mr. Turner was second, Mr. Hines was third, and Mr. Hooper fourth.

In the class for twelve blooms, Mr. Douglas was again first with the following:—

Brunette, Mrs. Gorton, Zerlina, Her Majesty, Constance Heron, Miss Wood, Favourite, Jessie, Mrs. Payne, Mrs. Chancellor, Violet Douglas, and Princess of Wales.

Mr. Lakin was second with

Purple Prince, Mrs. Payne, Clara Penson, Constance Heron, John Smith, Mrs. A. Chancellor, Jessie, Mrs. Rudd, Thomas William, Brunette, Favourite, and Royal Visit. Three other collections were shown.

The best six blooms came from Mr. Anstiss. They consisted of

Clara Penson, Purple Prince, Mary, Favourite, Jessie, and John Smith.

Mr. Rowan was second with

Edith D'Ombrain, Dr. Epps, Clara Penson, Thomas Williams, Nellie, and Muriel.

**SINGLE SPECIMENS.**—For the best specimens of *red heavy-edged* blooms, Mr. Douglas was first with Brunette and second with *Princess of Wales*, Mr. Sanders being third and fourth with Dr. Epps and J. B. Bryant, while Mr. Turner was fifth with Brunette. Mr. Douglas took first and second prizes for *red light-edged* sorts with two fine flowers of *Thomas Williams*, Mr. Turner being third with a bloom of the same and fifth with *Violet Douglas*.

The best specimen of *purple heavy-edged* blooms came from Mr. Douglas, the sort being *Muriel*, which also gained the second and third prizes for Mr. Turner; Mr. Douglas was fourth with Mrs. Chancellor, and Mr. Sanders was fifth with *Zerlina*.

For the best blooms of *purple light-edged* sorts Mr. Douglas showed two fine flowers of *Her Majesty*, which were awarded first and second prizes, Mr. Turner was third and fourth with two blooms of *Juliette*, and Mr. Sanders fifth with *Her Majesty*.

Mr. Hines showed the best bloom of *rose or scarlet heavy-edged*, being awarded first prize for a fine flower of *Edith d'Ombrain*; Mr. Turner was second with a seedling and third with Mrs. Payne; Mr. Douglas was fourth with Mrs. Payne and fifth with *Constance Heron*.

The first and second prizes for the best blooms of *rose or scarlet light-edged varieties* fell to Mr. Turner for fine blooms of *Favourite* and *Lucy* respectively, Mr. Douglas taking third and fourth prizes for two blooms of *Favourite*. Mr. Lakin was fifth with *Empress Eugénie*.

Mr. Douglas took first prize for the best bloom of *yellow ground varieties* with a fine flower of *Agnes Chambers*. Mr. Turner was second and third with *Prince of Orange*, which gained the fourth prize for Mr. Hooper, who was also fifth with *Harry*.

#### Self, fancy, and yellow ground sorts.

In the class for twenty-four blooms Mr. Turner gained first prize with

The Governor (two blooms), Harry Matthews, Edith (two



(blooms), Jupiter, the new Princess Henry of Battenberg (two blooms), Grandiflora, Dr. Skirving, Colonel Wood, Lady Stamford (two blooms), Rosa Bonheur, Cento d'Orion, Guardsman, Robert Lord, Polly Cheetham, Florence, Janira, Mrs. Logan, Edward Adams, Mary Morris, and Chromatella.

Mr. Douglas was second with

Princess of Battenberg (two blooms), Fire King, John Keet, J. Douglas (two blooms), Edith (two blooms), Florence Cannell, Rosy Morn, Fancy, Negro, Julia, two sports and eight seedlings.

Mr. Lakin was first for twelve blooms. He had

Sir Toby Belch, Mrs. A. Medhurst, The Queen, Mrs. Moslyn, Owen, John Soper, Dean Wood, Huson Morris, Ruby May, Mrs. H. Morris, and three seedlings.

Mr. Morris was second with good blooms of

Mrs. A. Medhurst, Boule de Neige, Lord Chelmsford, Florence, G. Duffield, Auguste, Sir G. Wolsely, Euphrosyne, Robert Logan, Huson Morris, Ella Morris, and Othello.

There were four exhibitors in this class also.

The best twelve blooms of yellow-ground Picotees came from Mr. Turner. He had Prince of Orange (two blooms), Dove, Lady Mary Lascelles, Mrs. Colman, Ne Plus Ultra (two blooms), Princess Margaret (two blooms), Princess Beatrice, Bullion, and Mazzini. Mr. Douglas was second with good blooms of Daphne, Janira (two blooms), Lightning, Clio (two blooms), Ne Plus Ultra, Euphrosyne (two blooms), Queen Margaret, and Undine.

In the class for nine pot plants from any or all of the classes, including Tree Carnations in bloom, there were only two competitors, Mr. Turner being first with plants of Guardsman, Miss Lee, Lady Stamford, Jessica, Jupiter, Mrs. F. Ricards, Favourite, Miss Small, and Matador.

In the miscellaneous class, Messrs. Veitch were awarded a silver Banksian medal for a collection containing over 300 blooms of border Carnations and Picotees, representing all the finest sorts, particularly of bright border varieties, in which this firm excels.

From among the self-coloured border varieties, the judges selected one named Brilliant as being worthy of a first-class certificate. This sort has large and full flowers of a rich claret-magenta tint. Some of the other sorts which were referred to in our columns last week were shown and much admired.

The premier Carnation was Rob Roy, from Mr. Turner, and the premier Picotee Mr. Douglas' Liddington's Favourite. First-class certificates were awarded to Carnations Rosamonde, crimson bizarre; Margaret, rose flake; Thalia, rose flake; Grace, pink and purple bizarre; Picotee Dr. Horner, purple light edge; all from Mr. Douglas. To Messrs. Veitch for Carnation Brilliant.

A collection of named Carnations and Picotees in all the sections was exhibited from the Royal Horticultural Society's gardens, and contained one or two very unusual ones, conspicuous among which were those named Queen Victoria (cherry petals, white on under side), Kaiser Wilhelm (cherry-rose), and Anna Benary (feathered rose).

Mr. Ware exhibited a collection of about forty bunches of border Carnations, principally selfs, and a collection of sixty single blooms, the most noteworthy being those here named:—

Bara Roma, Mrs. Fawcett, Montague, Mr. G. Walker, Memnon, Golden Fleece, Prince of Orange, Prince of Orange (sport), Col. Wood, Guiding Star, Pauline, Aeolus Farine, King of Yellows, Mary Morris, Fire-eater, Lady Armstrong, John Barnet, Miss Wheeler, Marion, Corney Grain, Pauline, Gloire de Nancy, Blush Clove, Charles I., Glory, and General Stewart.

Messrs. Cannell exhibited a collection of eighty blooms of Carnations and Picotees. Mr. P. Perry, gardener at Woodlands, Cheshunt, showed twelve blooms of the beautiful rose-pink Carnation, Mary Morris.

A list of awards will be found in our advertising columns.

**Injurious insect competition.**—At the Frome flower show, to be held on the 20th of August next, prizes of £5 and £3 are offered by Miss Eleanor A. Ormerod for the best collection of specimens of food plants injured by insects, accompanied by samples of the insects injuring them, and with a short written account of methods of prevention or remedy. The competition is an open one, and particulars may be obtained from the hon. sec., at Frome. Entries close August 13.

## NOTES OF THE WEEK.

**Loasa lateritia.**—Though neither new nor rare, this plant has a certain garden value. It is easily grown and assorts so well with the numerous blue and lilac coloured flowers of autumn or late summer, that many may be glad to hear of it.—E. M. G.

**Lilium longiflorum M<sup>me</sup>. Von Siebold.**—This variety, now in bloom in the Hale Farm Nursery, Tottenham, differs from the rest of the varieties in having longer and narrower tubes to the flowers, which also do not spread much, and, therefore, are not so showy as such kinds as Wilsoni. It is dwarf and flowers freely.

**Layia glandulosa.**—This is an annual composite sent out by Mr. Thompson, of Ipswich, and one of the best little plants we have seen for a long time. It is nearly allied in foliage to the more common *L. platyglossa*, but it has much larger pure white flowers. It grows about 6 inches high. Seeds of it may be sown in the open ground in spring.

**Carnations at Oxford.**—From a circular received from Mr. Dodwell we learn that a "feast of Carnations" will be held in his garden at The Cottage, Stanley Road, Oxford, on August 4. There will be free admission after 2 p.m. The provisional committee of this Oxford Union Carnation and Picotee Society is composed of some fifty amateurs and others residing in various parts of the country.

**Lisbon Carnations in Ireland.**—I have sent you a gathering of Carnations, raised from seed obtained from Lisbon. They are excellent for filling the flower basket, and they look lovely in bowls arranged with their own foliage, which is produced in abundance. Seedlings are far before plants raised in the usual way. Here we have plants with a single stem large enough to fill a good-sized wheelbarrow.—C. B. H., *Beshorough, Cork.*

\* A beautiful gathering indeed, representing all the colours to be found in Carnations. There is undoubtedly a great future for seedling Carnations and Picotees, and it would be a great point gained if the colours could be kept separate, so that one could be able to produce distinct effects; for instance, if the whites, the pinks, the yellows, and the crimsons could be so separated that a pinch of seed would yield a mass of either of these colours. This we believe may be done. In the gathering sent from Ireland there are several distinct shades of pink.—Ed.

**Variegated Lilium longiflorum.**—The variegated form of this Lily called albo-marginatis, a spike of which has been sent to us by Mr. Shiers, from St. Martin's House, Colchester, is so different from all other Lilies, that it is worthy of a note. The flowers differ in no way from those of the ordinary *L. longiflorum*, but the leaves are prettily variegated with white and green. It is more delicate in constitution than the typical form and succeeds best under glass.

**Campanula Loefflingi.**—This is a little Spanish species that does not seem to be much known in gardens, perhaps from the fact of its not being quite hardy in exposed places. With the aid of a cloche, however, it passed through the winter unharmed, and just now is literally smothered with its little pale blue bells. It has a fine prostrate habit, which much enhances its value for rockwork decoration. Its leaves are oval in outline and variegated.

**Aster Bigelowi**, also known in gardens as *A. Townsendi*, is next to the Himalayan *A. diplostehioides*, the best we have yet seen. Its flowers, which are bluish purple, are about 3 inches across, rays narrow, but numerous, leaves also narrow and undulated at the margins. It is said to be biennial and not at all free in ripening seeds. It gives off plenty of suckers, however, which root readily in a cool frame, where they are easily wintered.

**Coreopsis lanceolata.**—This is flowering unusually well this season, a circumstance attributable, no doubt, to the uncommonly dry season, especially in the neighbourhood of London. While most other plants die of drought, the ill effect of the dry weather on the *Coreopsis* is very slight indeed. The flowers are from 2 inches to 3 inches broad, orange-yellow in colour, star-shaped, and produced in abundance. The foliage is bright green. It grows about 4 feet high, and does well on rockwork.

**Codonopsis ovata.**—This has been called a deceptive plant, and so it may be until one has turned up a flower. The latter is bell-shaped, pale blue, and about an inch long, and inside, and especially at the base, radiant with colour and exquisite markings. It ripens seed abundantly. *C. rotundifolia* is far enough removed from Royle's plant, and we are inclined to believe it to be *C. lurida*, a name under which it also comes from the Himalayas. It has a climbing habit and larger bells than those of *ovata*, and of a dingy, lurid colour.

**Lilium Browni brevifolium.**—Under this name Mr. Ware sends us flowers of a beautiful Lily similar to Browni itself, but different in having shorter and broader leaves of a dull green instead of a shiny bright green. The flowers, moreover, are larger, and open with a pale yellow and gradually turn white, and are also strongly sweet-scented. It is a handsome Lily and a worthy plant to grow. It is apparently the same as that known under the names of japonicum Colchesteri and odorum. We intend to illustrate both Browni and this variety.

**Lavatera Olbia.**—Amongst tall-growing Malvaceae none surpasses the *Lavatera Olbia* for effect, either singly or in company with others. It grows about 6 feet high, is shrubby in habit, and carries an abundance of large fine rose-coloured flowers in the axils of the leaves, and about half-way down the stem, after the fashion of the common Hollyhock; the leaves are halberd-shaped, woolly, or glaucous. A good companion for this plant is the comparatively little-known *Kitabelia vitifolia*, in which the flowers are as large as those of the *Lavatera*, but white instead of rose.

**Alstroemeria Pelegrina.**—This plant is so seldom seen, that it is worthy of note that it was shown admirably at Kensington on Tuesday last by Mr. Ware. Both the original rose-pink-flowered kind and the white variety were shown, but the latter was most admired on account of the purity of its large white flowers. These measure about 3 inches across, and there being several borne on a stem it is pretty. This *Alstroemeria*, like the hybrid kinds, is scarcely hardy enough for border culture, but is decidedly worth pot culture in a greenhouse or frame.

**Campanula Hendersoni.**—This is said to be a hybrid between *carpatica* and *alliarifolia*, and proof of the former parent we see abundantly, but of the latter none. It has the flowers of *carpatica* both in form, colour, and arrangement. The leaves also entirely correspond in shape with those of that species, although a little larger and having longer stalks. Be that as it may, it is just now one of the handsomest *Campanulas* we have in flower. It grows about 2 feet high. It begins to flower almost from the base, and continues a long time in good form. It is difficult, however, to keep; therefore, cuttings of it should be taken off yearly, relying on these instead of on the old plants.

**Campanula Tymonsi.**—This is a very good *Campanula* with flowers like *turbinata*, but forming a bush some 1 foot or 2 feet high. It was stated to be a natural hybrid between *C. turbinata* and *C. pyramidalis*, and to be intermediate between the two. This is quite evident when these varieties are before you, but why call an old plant by a new name? It appears to be the same exactly as *C. Hendersoni*, which we have had now for at least seven years in our garden, bought from Rollison, of Tooting. After a very careful comparison, I find the two identical. As Mr. Tymons found the new *G. F. Wilson* to be an old sort with a new name, he will probably explain this riddle.—W. BROCKBANK.

**Grand national Dahlia show.**—We are requested to announce that at a recent meeting of the subscribers to the prize fund for the show to be held at the Crystal Palace in September next it was decided to offer a prize to be called the Turner Memorial prize, as a memento of the late Mr. Charles Turner, of Slough, who laboured so assiduously towards the establishment of these exhibitions. Several subscriptions, varying in amount from 2s. 6d. to 21s., have been received for this object. Those who desire to contribute either to this or the general fund are requested to send their subscriptions within the next few days to the hon. treasurer, Mr. Thomas Moore, Botanic Gardens, Chelsea, S.W., in order that the



conditions of the prize may be settled at the next meeting of the committee, which will take place shortly.

**Cattleya superba.**—This Orchid was sent over to me by a friend from British Guiana in September, 1883. It had never been in any hothouse, but just collected in the forests. I grew it here in a span-roofed house in a temperature that in the winter nights has gone down to 60°. I received about twenty good plants which are all flourishing, and two have bloomed well. The colour gets much rosier as the flower gets old. Mine have now been in bloom a little more than four weeks and are going off. They are grown in pans and baskets with a great deal of drainage charcoal and a little peat and Sphagnum. M. S., *Ardmore, Torquay*.

**Cattleya calummata.**—This beautiful hybrid Orchid raised by M. Bleu is interesting on account of being one of the few raised in Continental gardens. It is a cross between *C. Aclandiae* and *C. intermedia*, between which the hybrid is exactly intermediate. The growth is dwarf, the bulbs slender and cylindrical. The flowers are larger than those of an ordinary form of *Aclandiae*, but of the same shape. The sepals have a very pale lilac ground, heavily and copiously spotted with plum-purple, while the lip is of a rich deep amethyst. This hybrid seems to vary in the colour of the flower, the present plant exhibited at South Kensington on Tuesday by Mr. Pollett, of Fernside, Bickley, being the richest and deepest coloured form we have yet seen. Some are very pale and comparatively unattractive.

**Varieties of Water Lily.**—Mr. Smith, of Newry, has sent us specimens of three distinct varieties of the white Water Lily (*Nymphaea alba*). One named major is above the ordinary size, while minor is only about half the usual size. The third is candidissima, a variety which Mr. Smith considers to be not far removed in point of size from the major variety; it is, however, superior to it and quite a distinct plant, as many of its leaves grow quite a foot above the water and are quite green compared with the metallic lustre of the native plant. The flowers of candidissima measure 6 inches across the outspread petals. Mr. Smith also sends sprays of *Tropeolum speciosum grandiflorum*, which he says has flowers much larger than the type and very distinct, growing on the same wall contiguous to the common form.

**The Philippine Lily.**—Among all the fine Lilies which Mr. Ware showed at South Kensington on Tuesday none attracted so much attention as *L. philippinense*. Its elegant growth, narrow foliage, and large slender-tubed flowers of snowy whiteness made it different from all others. It differs in other respects in not being hardy, but no more beautiful greenhouse Lily exists than it is, and the fact that it is of tolerably easy culture makes it the more valuable. We are pleased to learn that it has been imported in quantity, so that it is not likely to be so rarely met with as it has been. Among the other Lilies at present in perfection in the Hale Farm Nursery are *L. pardalinum* and its varieties, *L. testaceum* (past its best), *L. Krameri*, Humboldtii and its variety ocellatum, chalcodonicum and its spotted variety (maculatum), canadense (red and yellow forms).

**Hardy Amaryllis.**—I send herewith a bloom of a perfectly hardy Amaryllis, at least as far as the south-east of England is concerned—Adolphe Brogniart, one of the seedlings of *A. vittata*, raised by M. Souchet at Fontainebleau; it has been in my border for six years and has passed through the severe winters of 1880 and 1881. This year the plant had two flower-stems, each with seven blooms on it, and a more showy border plant it is impossible to conceive. Why are these hardy Amaryllises not more grown? I have been to many growers of herbaceous plants, both professional and amateur, and have never met with them anywhere else. The winters at Fontainebleau are much more severe than those in England, and they are left in the ground there with only a covering of dried leaves placed over them.—DELTA.

\* \* The flower sent is a fine large deep crimson striped with white, which in the open border must be extremely showy.—ED.

**Seedling Verbenas.**—A boxful of seedling Verbena blooms from Mr. Yarde, of Culver House,

Chudleigh, shows what may be done in the way of raising seedlings of these beautiful flowers from home-sown seed. Every imaginable tint that the Verbena is capable of producing may be found among those sent by Mr. Yarde, and not only are the trusses fine, but also the flowers individually. It is highly interesting to save one's own seed and raise seedlings annually, and it is to be regretted that the practice is not oftener carried out than it is. We know no class of plants capable of producing such a brilliant effect in a garden as a bed of seedling Verbenas, and the fact that they continue in perfection for a very long time is a great point in their favour. No doubt Mr. Yarde is in one of the most favourable localities for Verbena seed-saving, but much may be done in the same direction in less favourable localities.

**New alpine Chrysanthemum.**—I send you flowers of a very handsome Leucanthemum I have growing here. You will observe that they are exceptionally large, and the whole plant is of much larger stature than the ordinary Chrysanthemum Leucanthemum, of which it appears to be a form. I collected it about ten years ago, I think, in the Western Alps, but I have unfortunately lost the record of its habitat. It is a very handsome herbaceous plant, growing nearly 4 feet high. It flowers later than the ordinary *C. Leucanthemum* and long before *C. maximum*, which does not compare with it as to beauty of habit. It is just now a mass of the large white "Daisy" flowers, some of which are 3½ inches across.—GEO. MAW, *Bentham Hall, Broseley*.

\* \* The flowers sent by Mr. Maw are indeed beautiful and distinct from the ordinary Ox-eye Daisy. It will no doubt prove a valuable acquisition to hardy perennial plants.—ED.

**Notes from Baden-Baden.**—*Littonia modesta* var. Keiti, of which I send some flowers, is a very good variety; the flowers are larger than those of the typical plant and are produced in great numbers. I counted as many as thirty-two on one stem. I treat this exactly as I do *Gladioli*—viz., take it up in October and keep it under a greenhouse stage in dry earth until spring. *Hæmanthus abyssinicus* is a beautiful greenhouse plant; its numerous brick-red flowers are enriched by green bracts, thus giving them a pleasing appearance. For many weeks that lovely *Scabiosa caucasica amœna* has unfolded its showy flowers, which are much finer in shape and larger than those of the type. *Rhaponticum pulchrum* is also a plant of rare beauty; it makes a fine well-shaped bush consisting of large dark green leaves, white underneath, and the numerous buds are clothed with silvery grey scales which are very showy, and after a time are surmounted by beautiful purplish rose-coloured flowers. This is a showy and desirable plant. *Gladiolus Papilio* var. *atratus* is another striking plant; it is very much in the way of *purpureo-auratus*, but the flowers instead of being yellow are of a sombre purple colour. Hybrid Clematises have not given much satisfaction; crosses between *coccinea* and a large-flowered variety of *patens* partook of the habit of both parents, but the flowers are small, bluish purple. *Cimicifuga dahurica* is a fine plant, somewhat like *Astilbe rivularis*; the flower-stem rises some 6 feet, and its white feathery flowers make it very showy for many weeks.—MAX LEICHTLIN, *Baden-Baden*.

\* \* The *Littonia* is an extremely pretty plant with much larger and brighter coloured flowers than those of the commoner *L. modesta*. It is a good addition to greenhouse climbers.—ED.

**Roses at Longworth.**—Roses are grown in the fields here by the acre, and the fine healthy growth which they have made from the bud shows one at once that they are at home on the soil at Longworth, which is of a sandy character, but of such good depth that they have not suffered in the least from the long drought. They are all on the seedling Brier. The stocks are planted in rows from the seed bed, and are budded in July and August. They are gone over the following spring and pruned close to the bud; they stand on the same ground during the summer when they make fine plants and produce grand blooms. Then they are sold off and the land is used for ordinary field crops, as Mr. Prince, to whom Longford belongs, only grows his Roses on the same land once in seven years. Two years previous to planting he well manures, not being an advocate for

planting Roses in freshly manured ground. Amongst the newer sorts one of the most noticeable was a beautiful Tea raised in France and named the Hon. E. Giffard. It is white tinted with salmon-pink, and will make a fine pot Rose, being a robust and continuous bloomer. Other good Teas were Anna Ollivier, Etoile de Lyon, Grace Darling, M<sup>me</sup>. de Watteville, M<sup>me</sup>. Hippolyte Jamain, Marie Van Houtte, and Princess of Wales.—J. H. ROSE, *Lockinge, Wantage*.

## ROSE GARDEN.

### THE WHITE RAMANAS ROSE.

*ROSA RUGOSA*, both pink and white, is now so generally grown in gardens, that any detailed description of it is unnecessary. The white variety is so lovely, that we have thought it worth while to illustrate it in order to impress our readers with its importance as a free-flowering hardy garden bush. Throughout the whole range of single Roses there is not one whose flowers can compare with it in size, form, and purity—not even the Macartney. The Ramanas Rose, too, has other good qualities besides the beauty of its flowers. Its broad, shining, dark green foliage and its dense spreading habit of growth make it a striking shrub, even when not in bloom. From midsummer until autumn it is covered with bright orange hips as large as Walnuts, and nearly as handsome as the flowers. It is not a large growing bush, rarely exceeding 5 feet in height, but as it throws up numbers of suckers, it soon spreads out widely in all directions, so as to make a dense compact mass. Quite recently Mr. G. F. Wilson has suggested the employment of this Rose as a stock for other kinds, and we think with good reason, as it is a strong grower, a free bloomer, even in soils which do not suit Hybrid Perpetuals. In Mr. Wilson's experimental garden at Oakwood, Wisley, he has planted the Ramanas Rose under all conditions; he has used it as a stock, he has planted it as a hedge, and hopes to find it efficient in this respect; he has it on exposed knolls and in shady bottoms, and he raises it from seed in abundance. At the present time it is one of the most beautiful features of his garden, there being groups of it 10 feet across, dense masses of foliage thickly studded with flowers and buds, besides an abundant crop of fruit in various stages of ripening. As this Rose has proved itself to be perfectly hardy, it may be planted without hesitation in all parts of the country.

### STRIKING ROSE CUTTINGS.

THE present is the best time in the whole year for amateurs and others unskilled in garden work to propagate Roses from cuttings. They are more likely to have a spare frame or pit or a few handlights at liberty now than later. Let me, therefore, advise them to lose no time in getting on with this work. The first consideration is the kind of structure in which to place the cuttings. If I had my choice I would select a spent hotbed in which early Cucumbers or Melons had been grown. I would not disturb the soil in which they grew, but simply plunge the pots of Rose cuttings in it. This would insure the cuttings being at a proper distance from the glass—an important consideration. If I had not a cold frame I would use a brick pit, in which I would place a bed of soil, the surface of which should be within a foot



of the glass, but if neither of these structures happened to be available, two or three handlights placed on a bed of sandy soil on a sunny border will do fairly well. Those who cannot command glass of any kind to shelter such cuttings should wait a couple of months before they think of taking them, as without some protection the air during the next few weeks will be too dry for them, and they would probably wither up before they had time to push out roots. In regard to soil, any light sandy compost will do, provided not more than one quarter of sand is used. Too much sand causes the compost to dry more quickly than is desirable, and then the cuttings

having two buds, and the base should be cut through just below a bud. Each cutting should have one leaf, which must be preserved to assist it to form roots. In inserting the cuttings the chief point is to see that the base of each rests on a firm bottom and to make the soil quite firm round them. The pots will, as a matter of course, require to be efficiently drained. As fast as the cuttings are inserted they should be taken to the frame, and the pots should be plunged up to their rims in the bed of soil. When all are plunged, give sufficient water through a fine rose to well moisten the whole of the soil; then shut the lights close and admit no air for a fortnight. What,

in the way of keeping them shaded in a rather close frame, and they ought to remain in the frame all winter, or in some other structure in which severe frosts cannot reach them.  
J. C. C.

## FLOWER GARDEN.

### SEEDING OF DAFFODILS.

MR. BROCKBANK is not very explicit (p. 90) about the seeding of *N. gracilis*. In his first note (Vol. XXVII., p. 586) he asserted he had seed of *N. gracilis*



The White Ramanas Rose (*Rosa rugosa alba*).

collapse from want of moisture if not carefully attended to. With respect to the size of the pots, I find it a decided gain at this season to use 2½-inch pots, and to put one cutting in each; then I can give them a shift when established without disturbing the roots. This plan not only saves losses through changing the pots, but, as the plants receive hardly any check through being potted, I get larger plants in less time than I otherwise could do. Where space is limited for striking the cuttings, 4-inch pots may be used, and three or four cuttings may then be placed in each. There should now be no difficulty in getting plenty of cuttings; the best are obtained from the long strong shoots which most Roses in a healthy state will have now made. The soft tops and the hard bottoms should be rejected; the remaining part may be cut up into cuttings, each

too, is equally important is to keep the cuttings almost in darkness for the same length of time. Place a thick mat on the lights at eight o'clock in the morning and remove it again at six in the evening. During this time the interior of the frame must be kept sufficiently moist to prevent the leaves flagging, but the internal air must not be kept so moist as to cause them to decay. At the end of a fortnight or three weeks give a little air early in the morning for a couple of hours, but continue to shade whenever the sun is shining. This treatment will do until signs of growth show themselves. In about eight or ten weeks from the time when the cuttings are taken they will be ready to be put into larger pots; those put singly may be shifted into pots 4 inches in diameter, the others into 3-inch pots. When potted off they will require a little care for a week or two

This surprised me, and when I question him, he answers that he had "recorded the fact, as he always does, just as he observed it." But this "fact" now seems to be only the presence of seed-capsules on plants of *N. gracilis*; not the actual gathering of seed. So far as my own experience goes, it is a common enough occurrence for *N. biflorus* and *N. gracilis* to show seed-pods, but I can get no evidence of either producing seed. For some years I have tried every spring to fertilise *N. gracilis* with many kinds of pollen, but in vain.

Mr. Brockbank asks me for the exact words of Dean Herbert's statement about the sterility of *N. gracilis*. In my note I gave what I take to be the general purport of Herbert's observations, and Mr. Brockbank's quotations from his works seem to bear me out. I said (p. 62) that Herbert "found this plant to be sterile in his own experience, and could obtain no record of its seeding either here or on the Continent." Mr. Brockbank says that Herbert withdrew the assertion he had made in his "Amaryllidaceæ" that *N. gracilis* produces seed, and advertised for seed without result. I believe Herbert also says he had worked for eight years at Spofforth with certain *Narcissi*, *N. gracilis* being one. As his experiments lay chiefly in the way of hybridisation, in order to discover the parentage of these Daffodils, which he suspected to be mules



and not true species, it is tolerably certain that he tried all he could to get seed of *N. gracilis*. All this appears to be clearly stated in a paper of Herbert's which Mr. P. Barr kindly lent me last spring. I cannot at the moment find the references as to when and where this paper was published, but Mr. Barr will no doubt help Mr. Brockbank to them if he has not the paper among his volumes of Herbert.

With regard to *N. Horsefieldi*, I took exception to Mr. Brockbank's remark that the plant had been considered sterile, for seed has been gathered in several gardens for some seasons past. Generally speaking, the seeding of Daffodils is capricious—i.e., depends upon a variety of conditions which are little understood. Thus *N. bicolor maximus* (grandis) has this year produced seed in my garden for the first time, though I have watched it and tried to cross-fertilise it for three or four years. *N. maximus*, too, seems to be seeding freely in many gardens this season, though Mr. Burbidge (I think) has told me that hitherto he could never get it to seed.

Appleshaw, Andover. G. H. ENGLEHEART.

### DOUBLE AURICULAS.

WHETHER or no the double varieties of the alpine Auricula will in course of time become as popular as those of the single type remains to be seen, but they will always have an interest for lovers of hardy Primulaceæ. For some years past two well-known varieties have been cultivated in this country, viz., the double black and the double yellow; and some who are disposed to look coldly upon the double forms of the Auricula might be disposed to say that these are rarely met with, and this fact can be taken as evidence that very few persons care about them. But these two fail to give an adequate idea of the high quality which distinguishes the newer Continental varieties. The old double dark, which is also known under the name of Othello, is a fully double variety, but it is not a vigorous grower, and it rarely throws what may be designated an imposing truss. Report speaks of another dark superior in every respect to the old double black, but I have not seen it to my knowledge. The old double yellow, also known as Yellow Prince, is a good grower and a very free flowerer; the flowers are of the deepest yellow, but they are by no means fully double. Still, it is a pretty and fragrant variety, and cannot fail to please anyone who carefully cultivates it. I have seeded from this and raised seedlings, but have never succeeded in getting a double form. The florets of this variety are much serrated on the edges.

During the spring I obtained from the north of Ireland a very distinct double yellow, paler in colour than the preceding, different in foliage, and bearing fully double smooth-edged flowers. Next spring I hope to flower it myself, and shall thus be able to compare the two. It may be commoner than I suppose, but I do not remember to have met with it before. My own collection of newer double Auriculas comprises some dozen or fourteen varieties. They are all of Continental origin, and have been picked up one or two at a time as opportunity offered. The varieties vary in habit and vigour of growth, in the size and colour of the flowers, and somewhat in the time of

blooming. First-class certificates of merit have been awarded to me for the following two varieties: *Purpurea*, bright violet-purple, flowers large, full, and handsomely double, a good grower and very effective; and *delicata*, primrose, shaded with yellow, flowers very large and fully double, an excellent grower, a very fine and striking variety. Other fine varieties are *violacea*, clear bright violet, large and fully double, and very handsome, the flowers resembling the blossoms of a large double Violet. The very finest variety is one named *Hercules*, and it is of great size when the flowers are fully developed—more like Balsams than anything else, while they are of several shades of colour—buff, salmon, violet, and purple forming a kind of chameleon-like effect. It is a vigorous grower and flowers well in a young state. A very distinct variety is found



Double Auricula.

in *Cleopatra*; its flowers are maroon, lit up with purple, large, full, and very double; it is a good grower, and produces a fine head of bloom. I have flowers of paler shades of mauve and purple, but I prefer to give them another season's trial before I name and fully describe them. *Pandora*, *Juno*, and *Miranda* are smaller, but fully double flowers, dwarfer in growth and having small and compact spikes of bloom; the blossoms are of varying shades of brown, orange, and gold.

I treat these double Auriculas just as I do the single flowers I cultivate, but I give them rather richer soil. I find it is necessary, in order to produce fine and striking trusses of well-developed flowers. I find they do best with restricted root-space, and the sooner the roots fill the pots in which the plants are growing the more satisfactory is the bloom. The finest varieties are somewhat slow in yielding increase—the inferior ones being prolific in this respect. I have a semi-double white Auricula which I obtained

in Belgium a few years ago, purchasing it as a double variety. I have (provisionally) called it *Bridesmaid*. It is a strong grower, but however generously it is grown, it does not come fully double, and indeed many of the flowers are single. I like it for its colour, and I have heard that it is not scarce; therefore it may be in other collections.

It is only the semi-double varieties that furnish seed. I have raised several batches of seedlings, but have not as yet raised anything of particular merit. I sent some seed to a grower in Scotland, and from it he has raised one very fine black-purple variety of fine quality. I have about 500 seedlings to flower during next season, and hope to reap something from this harvest of seedlings that will repay the attention bestowed on their culture. R. DEAN.

### RENOVATING HARDY PLANT BORDERS.

SHOULD herbaceous plants be occasionally lifted to allow the border to be dressed and dug, or should the roots be undisturbed and merely a little top-dressing applied? I have a border which has not been disturbed for four years, and my gardener is anxious to trench it up next autumn. I feel doubtful as to the desirability of this. Perhaps, therefore, Mr. Wood, of Kirkstall, will favour us with his opinion respecting the matter. —STIRLING.

\* \* Breaking up herbaceous plant borders is an operation which may be said to depend very much on the sorts of plants grown, and even more on the quality of the soil, because we often find that the same plant behaves quite differently in stiff and light land. That borders, from various causes, deteriorate in those properties which go to produce vigorous growth and fine flowers in four or five years may be accepted as a fact, though I know gardens in which the loam is so rich and silky to the touch, that for more than twenty years the flower borders have been left undisturbed. As a question of practice, it seems reasonable that, if the plants have thriven, they will have lowered the quality of the soil in four or five years; and if they have not done well, to stir and dress the land to a moderate depth can scarcely be otherwise than beneficial. One would hesitate to say what should be done in the case of borders four or five years undug without knowing what the soil texture is, and also what the bulk of the plants consists of. The remarks just made apply to borders situated beyond the reach of tree roots. Where these take possession of either borders or beds, there cannot, under any treatment, be much success. All the finer herbaceous plants become starved very shortly after even the best dressings have been applied. In my own garden, if I had the time, nothing else would hinder me from renewing borders thoroughly once in five years, and I have little doubt that the results would be satisfactory. I am aware that the popular idea about the culture of hardy perennial plants is, that they can be set as fixtures for many years, or, as a person at one time said to me, "When once planted, they will go on and live for ever." The question is not so much what treatment they will endure as which will give the best results; and I have no hesitation in saying that these are obtained by biennial transplantation of the bulk of herbaceous plants into newly dressed soil. Of course there are exceptional cases—indeed, many in which the plants are all the better for being left alone—*Gentiana* and *Trillium*, &c., being genera in point.

When borders may safely be cleared of their occupants, especially where bulbous plants are plentiful, is of importance. When Daffodils and other early spring flowering plants may best be lifted in August, many other things will be at their best, and even when most kinds may be safely dug up, Asters and other subjects may be in full bloom. Some would say spring is the best time for such wholesale work, but, except in the case of well cultivated young



material, I consider a year's flowers are lost, and with many kinds a year's healthy growth into the bargain by such late planting, whilst for spring-blooming subjects it is quite out of the question. September or October would be my time, and in the case of short-rooted things I would work in the earlier month, so as to have them established in their places before frosts could lift them. Then such things as were too good to have their bloom wasted might be dropped into big pots with good balls to be planted after they had done flowering.

How to do such work will be a matter of the utmost concern to even a well-experienced man. It will be impossible to catch all at their best periods for lifting; therefore the principle of "give and take" will have to be adopted somewhat largely. Topless bulbs will only need to be dug out and labelled, but such as do not annually make a set of new roots will need protection. Gentians, choice clumps of the finer Aquilegias, Hepaticas, Irises, Lilies, Ferulas, Cypripediums, Orchises, Trilliums, &c., should not be taken up; their main roots should be carefully bared and re-supplied at once with new compost. Of free-growing genera, such as *Sidalcea*, *Gaillardia*, *Vernonia*, *Delphinium*, and some *Irises*, *Pyrethrums*, &c., only a slice of the old stool will need to be reset, and it should always be cut from the outer and sunny side of the clump, where the roots are healthiest and the crowns best developed. Where there is plenty of material from which to pick the best this important point should not be neglected, and it may be needful in some instances to make the division while the stools are *in situ*. Another class of plants, such as have done flowering now (July), may be taken up, divided, and set in nursery quarters. Amongst these may be named *Anthericum*, *Ranunculuses*, *Pinks*, various *Borage*-worts, and *Poppies*. With subjects that ripen their foliage late, such as *Funkias*, *Phloxes*, late *Pæonies*, &c., that process may be accelerated if a cut and lift with the spade are made as soon as they have flowered. To make doubly sure in the case of short-rooted things, such as *Saxifrages*, *Sedums*, the smaller *Campanulas* and *Veronicas*, &c., duplicates should at once be grown on in pots, and the balls with which they may be turned out will enable them to keep their places in the soil. All roots intended for replanting should be placed out of the reach of drought, but should not receive waterings, which, under the circumstances, would probably cause the crowns to decay. Having thus and in other ways cared for all the plants, the work of digging and replenishing the borders should go on with the utmost dispatch in order to get all the roots again early into their places. To dig deeply, if the depth of good soil will allow it, turning in some well-rotted leaves and stable manure, thoroughly breaking up such land as is stiff, will not take long. Care will be needed with such roots as have been left in the borders so as not to chop them up. I would replant the deep-rooters as the digging goes on, so as to get their roots more comfortably down.

In replanting the bulk, acquired knowledge will be of use in deciding the relative positions of the various plants and bulbs in respect to their size and colours, and it will have been well if note has been taken of such bulbs as have been satisfactory or otherwise, and of the depth at which they were formerly set—a few little matters, I am sure, which should have more attention paid them than they often get; whilst it is a bad practice to have many herbaceous roots too near the surface not a few things may be put too deep. *Pæonies* if put too far in will refuse to flower for years sometimes, or until the crowns work their way up to the surface. The next point is to set the roots without doubling them up or twisting them into the holes; better chop the roots off than turn them in unnaturally to rot. If, however, the planting is skilfully done with a spade, such mutilation will not be needful. After I had finished planting borders in this way, I would take good care to provide a liberal quantity of wood ashes, and top-dress with them, so as to prevent slugs from taking up their quarters in the dormant crowns for the winter, where they often do much mischief.

Another method of invigorating borders is also effective—viz., by means of mulchings. These are of the utmost value, especially on light land, but

they do not constitute what a practical cultivator would consider a thorough renovation. Still, in some cases where it is not desirable to interfere with the comparative solidity of sandy soil, the system of top-dressings may be followed with the best results; not only will they keep the soil moist and comparatively cool, but the manure will be very serviceable as plant food on such porous material. Stiff loam, on the contrary, needs stirring, and though on it, too, mulchings may be placed to prevent baking and cracking, as well as to feed the flowers, they cannot take the place of a thorough breaking up.—J. WOOD, *Woodville, Kirkstall*.

## DRAGON'S-HEAD PLANT.

(DRACOCEPHALUM.)

UNDER the popular name of Dragon's-head, over a dozen distinct species of *Dracocephalum* are grown in gardens, and although few of them earn the title of being strikingly beautiful, they have nevertheless a quiet beauty peculiar to themselves sufficient to recommend them to the notice of cultivators; bees, too, are very partial to them, even more so, indeed, than to the Mints and Thymes. Besides being flowers liked by bees, a few of the species are invaluable for the decoration of rockwork. They may be propagated in quantity either by seed, which they ripen



*Dracocephalum Ruyschianum* (flowers purple and white).

freely, or by division of the root in autumn. A few such as *integrifolium* and *peregrinum*, which have rather a shrubby habit, may be increased by means of cuttings. Ordinary garden soil is all that is needed, except for *D. speciosum*, which requires a peaty soil on a partially-shaded rockery or border. The Argun Dragon's-head (*D. argunense*) is a pretty plant for rockwork. It grows about a foot high, has erect stems, and quite entire narrow leaves. The flowers, which are blue, open in July and August. It is a native of Dahuria. *D. grandiflorum*, the *D. altaianse* of gardens, is the prettiest of the genus. Its flowers, which often measure more than 2 inches long, are blue—often with coloured bracts. It is nearly allied to *D. speciosum*, a kind dwarfier and neater in habit, and therefore preferable for rockwork. *D. integrifolium*, *Royleanum*, and *peregrinum* are all in their way pretty, and should be grown wherever space can be spared for them. *D. moldavicum*, a native of Eastern Siberia, can scarcely be called hardy in cold districts. It is a handsome plant with large blue and whitish flowers, and with a large open throat. Its leaves, which are narrow, are neatly crenated. It flowers in July and August. *D. nutans*, which is nearly allied to *D. thymiflorum*, is a most profuse flowerer, yielding a succession of its pretty little blue flowers all through June and July. It is a native of Siberia. *D. Ruyschianum*, of which the annexed illustration gives a good idea of its habit and free-flowering character, is often met with in Switzerland.

Like nutans, it forms a valuable plant for the flower border during the months of June and July, yielding, as it does, a succession of purplish flowers about an inch long, generally six in each whorl. K.

**Crocuses.**—Replying to "M. F.," in THE GARDEN (p. 82), as to *Crocus* names, *Crocus nivalis* of Bory and Chaub is synonymous with *C. Sieberi* of Gay, which was the prior name. *C. "obesis,"* probably a misprint for *obesus*, is not to be found in any published list of *Crocus* species, and is probably the name of some horticultural variety. *C. pyrenaicus* of Herbert, not "*pyrenaicus*" as printed, is synonymous with *C. nudiflorus* of Smith. *C. pusillus* was Tenore's name for *C. biflorus* of Miller. Tenore applied it to the type, but his specific name has since been used as the name of a small variety of *C. biflorus* common in South Italy.—G. MAW, *Bentham Hall, Broseley*.

—My friend, Mr. Baker, of Kew, has kindly sent me the following. Since I am not the "M. F." in question, I have sent it to THE GARDEN. Is not "*obesis*" an error for "*obesus*," possibly introduced by some jocular person who had obtained some very fat bulbs? Mr. Baker says: "On the supposition that you are 'M. F.' of THE GARDEN (p. 82), allow me to say that *Crocus nivalis* is the same as *Sieberi*, *C. pyrenaicus* as *nudiflorus*, and *C. pusillus* as *biflorus* var. '*Obesis*' is some gardener's invention."—M. FOSTER.

**Single Dahlias.**—These I find fade more quickly than some other flowers, and, knowing this, those who wish to use them in a cut state should remember two things—first, that they fade quicker in hot weather than in cool, and that in gathering flowers which have been expanded for two or three days should be rejected, for whether in hot or cold weather a good deal depends upon the age at which the flowers are cut as regards retaining their petals. I have lately been watching the behaviour of some flowers, and I find that a fully expanded flower of *White Queen* dropped its petals within twenty-four hours, but those not so old when cut kept in good condition from three to five days. The best test as to the age of such flowers is the condition of the anthers. If these are prominent in any number—say, more than twelve, one may be sure that the flower is too far expanded, and that if there are flowers with a less number prominent, it will be wise to prefer them.—J. C. C.

**Hoya Paxtoni.**—When grown in a pot and encouraged to assume a bush-like habit this *Hoya* generally bears a somewhat unhappy appearance, being unsuited for that mode of culture, but if suspended so as to be strictly pendulous, it forms when in flower one of the prettiest of drooping plants. It needs an open well-drained compost, and thrives best in a stove where a moist atmosphere is maintained. The flowers are borne in small umbels on the points of the shoots, the individual blossoms being about half an inch in diameter, and in shape like a five-pointed star, overlaid in the centre by a small crimson one, the two colours—white and crimson—contrasting most effectively. The blooms last a long time in perfection, and are well suited in a cut state for button-hole bouquets, but their beauty when on the plant is so great that they should not be cut except for some special purpose. This *Hoya* is in the way of the better-known *H. bella*, itself a good basket plant, but stiffer in growth and less graceful than *Paxton's Hoya* when suspended; but for growing as a pot plant in the ordinary way *H. bella* is to be preferred.—H. P.

**Malvastrum Christeanum.**—This is a name proposed for a plant long known in gardens under that of *Modiola geranioides*. It was cultivated at Kew in 1856 under the name of *Malva geranioides*, a specific name which has also to be dropped, because a plant totally different in all its characters from that in question has already been described as such in "*Linnæa*," vol. v., and referred to in Hemsley's "*Mexican Flora*." This *Malvastrum* is a true perennial. I saw it in full flower against a south wall in the late Mr. Joad's garden at Wimbledon. It was 2 feet or 3 feet high, partly trained, and literally covered with deep rich rosy flowers 1½ inches in diameter. It seems to be hardy on a southern posi-



tion on rockwork, where it can be kept comparatively dry and get plenty of sunshine. The leaves are deeply three-parted, and these again are deeply and irregularly notched or serrated. It continues in flower from early summer until late in autumn. It may be easily increased by means of cuttings, which strike freely in a cool frame. It is a native of Parana, whence it was sent home by the collector whose name it bears. It is also known under the name of *Malva-viscus geranioides*.—D.

***Lilium candidum speciosum*.**—In the note on this Lily (p. 26) its flowers are stated to be more numerous than those of *candidum*, there being thirteen flowers and buds on the spike sent to THE GARDEN office. I could send you plenty of spikes with twenty flowers and buds on each, and in many instances this will hold good where there are two spikes springing from the one bulb. *L. candidum* is certainly wonderfully fine this season, and its effect is enhanced by carpeting the bed in which it grows with a dense mass of blue *Viola*. It is growing in the hottest and driest part of our flower garden.—E. B.

***Silene pendula compacta*.**—The double form of this pretty spring flower has the grave demerit of being inconstant, a fact due probably to its comparative incapacity to seed. The bulk of this is obtained from single-flowered forms which come rather too plentifully; indeed, but for these the double form would probably soon die out. I do not regard this selection as being more effective than is the single form; indeed here, in a bed which contained both single and double-flowered plants, I found the former to give much the best head of bloom. Also, I cannot detect on the double-flowered plants a single seed-pod. My stock came from a single-flowered plant last year, and I did not anticipate that any doubles would result, yet there was a proportion of these equal to 30 per cent.—A. D.

**Breaks in flower-colouring.**—Some of the new variations in the colour of flowers, although beautiful, may become a nuisance. I have some *Cyanus minor* (blue Cornflowers) coming into bloom now which I expected to be distinctly and beautifully blue and nothing else, and behold they are all pinks and purples, scarcely a true blue being amongst them. This is disappointing, and therefore seedsmen should keep their stocks of this pretty native plant to its own true blue. The same with *Convolvulus minor*, in which one gets all shades of violet and purple instead of true blue. We have so few good blue flowers, that any variations from the colour of these should either be destroyed or separated for the benefit of those who like them. Double Larkspurs have broken into a fine range of colour, but we ought still to be able to get the true pure blue if we desire it. Of course one can get one's own seed true by destroying all but the blue-flowered plants when they begin to show colour, but that destroys the decorative effect of the plants for the season, and is really the seedsman's business, and not the amateur's.—J. D.

**Carnations and Picotees.**—Mr. Douglas (p. 83) is in error in thinking that the Carnation and Picotee Society has had much to do with the great increase in the popularity of these flowers of late years. When I grew my first beds and borders of Carnations from seed ten years ago there was no such thing as a Carnation to be seen anywhere in London as a cut flower, and when I carried baskets and bunches of them about to friends, people asked me in the railway trains what they were; only a few had a vague idea that they were Pinks of some sort. Since then they have been persistently recommended as plants of easy culture both in THE GARDEN and *Gardening Illustrated*, and all the details of their culture explained over and over again. Not until they had become popular was any mention made of them in any other gardening journals. It is to this consistent advocacy of the Carnation as a border flower and the plates of border varieties which have been published in THE GARDEN that the present great popularity of the flower is due. Many small amateurs have grown nice little stocks of Carnations from seed, and wear their own flowers as button-hole bouquets. From what I can see this season, the Carnation is running even the Rose hard as the most popular flower.—J. D.

**Pegged-down Dahlias.**—At Chiswick Mr. Barron has adopted the plan of pegging down bedding Dahlias, both double and single, and in so doing has fully covered the ground, although the growth so far does not rise above 10 inches from the soil. Of course, the height will soon increase now, but it is certain that the plants will not attain to more than from 18 inches to 20 inches; such a mass should produce a fine bed and a grand show of bloom presently. Mr. Wildsmith pegged down Dahlias at Heckfield with capital results, and no doubt many others are doing the same. For the production of bedding displays dwarf plants are indispensable, but I have a decided preference for plants some 3 feet in height when I wish to admire the individual blooms, and that is one of the charms found in the Dahlia that single blooms of almost any kind command admiration.—A. D.

## GARDEN IN THE HOUSE.

### ARRANGING CUT FLOWERS.

IN hand bouquets it is difficult to avoid the Cauliflower type, but there is no reason why the same bunchy character should be given to flowers in vases or baskets. Miss Jekyll has done good service by supplying those who are fond of cut flowers with such a variety of shapes and sizes of flower vases, that a great variety of arrangements can be carried out. Perhaps the prettiest way for the greater number of flowers is to group them in a rather tall, narrow vase. In a moderate-sized group one kind of flower should be prominent and everything else subordinate. Three blooms of white Spanish Iris cut with long stems for the principal feature, with a spray of Mock Orange or wild white Rose, a few Buttercups, a spray of Ragged Robin, and a few Grasses make a perfect group. A plant's own foliage always looks well with its flowers, and where that is unmanageable, as in many Irises, something of the same kind may be chosen, such as that of the larger Day Lilies with purple Iris, or Reeds or strong Grasses with white or yellow ones. It often gives a good effect to carry out the colour of the principal flower chosen with smaller flowers of a different character. Roses are unmanageable flowers to group cut as they usually are. To make them look well they should be cut with about 18 inches of stem below the blooms and all the foliage preserved; then nothing looks better. A bold pale Rose like *La France* or a moderate-sized striped one like *Village Maid* with a few Pinks cut with long stalks, and a bloom or two of *Eschscholtzia* and Grasses, make a grand group. Wild flowers are easily managed on the same plan, the only difficulty being to get large flowers as prominent objects. *Iris pseudacorus* is a host in itself when in flower; then *Rosa systyla* cut in good clusters with plenty of unopened buds. In clay districts the late variety of the common Blackberry often bears fine clusters of flowers and its leaves are good. The Ox-eye Daisy is always striking. Scarlet Poppies can scarcely be carried home, but that difficulty is easily got over by cutting a good piece of the plant with erect buds on it; these open in water. Then there is almost always after June the fragrant Honeysuckle, which can

often be cut with the shoot to which it clings. A large piece of the greater Bindweed cut with the branch round which it is twisted has a beautiful effect, and will open many blooms after it is cut. A good way of arranging baskets is to line them with Ferns, Ivy sprays, and branches of hard-wooded trees, and on these set the flowers more or less upright in a negligent and informal fashion.

J. D.

## GARDEN FLORA.

### PLATE 503.

#### THE FRINGED IRIS OF JAPAN.

(*IRIS FIMBRIATA*.)

THE graceful Iris figured in the accompanying plate was first described by Thunberg in 1793, and named by him *I. japonica*. It must before this have been introduced into England, for Mr. Baker states that the Banksian herbarium contains a specimen from Kew Gardens dried in 1792. Curtis figured it in the *Botanical Magazine*, in 1797, as *I. chinensis*, and in Redouté's "*Liliacæ*" it appears as *I. fimbriata*. On the ground of priority, which certainly should in most cases decide a question of nomenclature, the plant ought to be called *I. japonica*; but *I. fimbriata* is so happy a term, and *I. japonica* so little distinctive a one, that I venture in this case to break a wise rule and adopt the name *I. fimbriata*.

In a considerable number of Irises the fall or outer perianth segment bears along the medium line of the claw and the adjacent part of the blade not a beard composed of hairs, as in the ordinary bearded Irises, but a crest—that is to say, a ridge cut up into a number of tooth-like projections. These crested Irises, as distinguished both from bearded Irises and from beardless Irises, in which the whole of the fall is smooth and even, have been classed together in a group under the name *Evansia*.

I have myself some doubts about the validity of this group, since, on the one hand, a crest more or less developed appears in certain bulbous Irises—*ex.gr.*, in the *Juno* group—while traces of a crest appear in some species whose allies are clearly beardless; and, on the other hand, the group, thus constituted by the possession of a crest, seems to me to contain plants wholly diverse from each other. Be that as it may, however, the Iris which we are considering now is a crested Iris and belongs to this group of *Evansia*.

It is a native of Japan (middle and southern islands) and of the middle and southern regions of China. The rhizome bears, fanwise, broad ensiform leaves, and sends out numerous runners or stolons, by which it may be rapidly multiplied. The stem, 1 foot or 2 feet high, is branched, bearing clusters of flowers. The individual flowers are short-lived, lasting only for a couple of days or so, but they are borne in





IRIS FIMBRIATA.







profusion, a well-established plant giving a succession of flowers lasting many weeks. The plate gives a fair idea of the form of the flower, the crisped and broken margins of the falls and standards, and especially the fringed edges of the crests of the styles, justifying the name of *fimbriata*, or fringed. But it is very difficult to reproduce the charm of the colouring, the delicate light blue-purple or lavender forming the ground colour of the whole flower harmonising pleasantly with the yellow and orange of the crest by help of patches and veins of darker purple scattered here and there. A well-grown plant with several stems covered with these graceful flowers, which make up in delicacy and refinement what they lack in size and depth of colour, is a very acceptable sight; and in a warm atmosphere a slight, but agreeable, fragrance makes itself felt.

Although, as I have said, I doubt the solidarity of the *Evansia* group as a whole, this *I. fimbriata* has certainly allies. *Iris tectorum*, also a Japanese and Chinese plant, with its much larger and more gaudy flowers, has many affinities with it; and intermediate between the two comes an *Iris* which was introduced by seed from the Himalayas by Mr. Frank Miles, and which Mr. Baker proposes to call *I. Milesi*. And I am inclined to think that the *I. nepalensis* of Royle, when we come to know it more fully, will also prove a very close neighbour, as indeed does an unnamed *Iris* from Lahul, which M. Max Leichtlin has kindly given me, but which proves to be a most difficult plant to grow. The *I. nepalensis* of Don, which is identical with the *I. decora* of Wallich and with an *Iris* from Kumaon called *I. kumaonensis* (which name accordingly ought to be withdrawn), though a crested *Iris*, differs in most important features from the others just named.

Confining ourselves to the narrower group to which *I. fimbriata* belongs, we thus find that, while its centre is in China and Japan, it stretches away westward to the Himalayas, where it disappears. Strange as it may seem, and yet in accordance with what we know of the laws governing the geographical distribution of plants, we can pick up the group again if, moving eastward instead of westward, we cross the Pacific Ocean and North American continent, for the little *Iris lacustris* of the shores of Lake Huron and *I. cristata* of the States of Virginia and Carolina are not only crested *Irises*, but *Irises* in their essential features closely allied to *I. fimbriata*. In accommodating themselves to their American homes they have become dwarfed, though they have not lost all their beauty. The effects of conditions of life are still further seen in the little *I. verna* of the more northerly Eastern States, for this seems to me to be in reality a crested *Iris* which has lost its crest.

All the specimens which I have hitherto seen of *I. fimbriata* are exactly alike. I have never met as yet with any distinct variations. I have, however, in my possession two named kinds from Roozen, but as they have not yet

flowered with me, I can say nothing about them.

In this rough climate of England, *I. fimbriata*—save perhaps in some southern paradisiacal garden, such as that of Mr. Ewbank—must be grown as a cool greenhouse pot plant. Even with me it will *live* out of doors (I did not try it, however, in the winters of 1879 to 1881), but it only *lives*. To flower adequately it must have the protection of glass and the help of artificial warmth in winter. In its native home it is found in moist and shady situations, and must not, therefore, be dried off like *I. tectorum*, which, as its name implies, may be and is grown in its native home on a dry house-top.

I have not found it very particular as to soil; a rich open one, composed of loam, thoroughly rotten manure, a little peat perhaps, and a good deal of sand, seems to me to suit it best; with too much peat the rhizome is apt to rot. I usually take a runner in winter, grow it on during the rest of the winter, spring, and early summer, shifting it from a 3-inch to a 4½-inch pot, and then to a 5-inch pot, giving plenty of water and a genial temperature. By that time the pot has become well filled with roots and most of the foliage has been made. I then place it out of doors, not wholly in the shade, but exposed freely to our feeble English sunshine, taking care that it never gets quite dry, but keeping it, as respects water, rather stinted than otherwise during the late summer and autumn. In the winter it comes back into the house; as growth begins again water is given more freely, and, according to the temperature to which it is exposed, the bloom may be expected from Christmas, or even earlier, onwards. If the young plant thus treated does not bloom the first winter, I keep it in the same pot, or one slightly larger only—for it seems to do rather better for being somewhat potbound, provided that it gets adequate nourishment—and subject it to the same treatment. The chief points of culture to be attended to seem to me to be—ample moisture, air, and light in the winter and early part of the year, and a season of comparative, but not absolute, rest during the latter half of summer and autumn.

M. FOSTER.

## NOTES.

**Iris.**—Somebody sent me quite recently from Antrim the finest English *Iris* I ever saw. The expanded flower was 8 inches across and of a milky whiteness, except that the standards are faintly tinged with lilac, and of course there is the usual golden, or pale lemon in this case, stripe on the falls. The best of the English and Spanish *Irises* are well worthy of more extended culture. Here we can bloom our own seedlings after three or four years' growth, and among them are some fine things. We got quite a nice stock of the Spanish Thunderbolt *Iris* in this way, finding it came true from seed. *Iris ochroleuca* (= *I. gigantea*) and *I. aurea* have been very tall and showy, so also the rich orange-yellow *I. juncea*. To those who cannot grow Spanish or English *Irises* from seed, it may interest them to know that they cost about 15s. per thousand.

**Crown Imperials.**—All the *Fritillaries* are great favourites here, and one of the very finest I have yet seen is Mr. Poë's giant yellow with long lemon-yellow flower-buds, reminding one of the flowers of the Mexican *Cattleya citrina*. So far, the "Crown upon Crown" varieties so called are not finer than the old cottage garden kinds, both red and yellow. Here we find them to do best in partial shade. In the full sunshine they have a foxy odour, and the flowers become scorched or sun-bleached soon after opening, added to which drawback is the too sudden yellowness of the leaves. I do not wish to lay down my own experience as a general rule, because I know somewhat of the subtle vagaries of plant growth, even in what seem to be precisely the same conditions. Here, for example, we have some plants which, do what we will, are disappointing either in blooming or in seeding, and yet our next door neighbours find no difficulty, the plants succeeding well with them while they persistently fail with us. Slugs and snails are delighted with Crown Imperials, and we lost many spikes that way, but since we used wood ashes as a slug protector (thanks to Mr. Wood, of Kirkstall) all have escaped.

**Rose Cœleste.**—A friend sends me the following note on this my favourite Rose: "Years ago I stood on the steps of the Ara Cœli in Rome on a winter's afternoon, after the sun had just set. Overhead some fleecy clouds were floating by of a lovely rose colour against the pure clear blue of an Italian sky. Many sunsets of similar effect have come and gone since then, but it is ever that from the Ara Cœli which I best remember. Now it is summer time—a blazing day in hot July, and wandering in the garden I come with glad surprise upon a sight, so cool and fresh, as to make me pause. It is a wide, low-spreading bush of the Rose Cœleste, covered with buds and opening blossoms of exquisite tint, and clustered into it a group of Larkspurs, blue as the southern sea. A thought-flash, and the Roman sunset is recalled, pictured before me in this soft Rose cloud beside the azure Larkspur blooms. This old Rose is far too rarely seen, but really it grows most freely when once established, sending up its suckers in all directions in its search for new feeding ground. If nipped in time, a lower growth is obtained, and the bush will spread for many yards, the suckers of this season being covered with blooms the following year. When left alone its natural habit is too tall, and so the stems at the base become bare and unsightly—in fact, a tree remaining untouched with me is now 7 feet high. Besides the charm of this Rose, which lies half concealed in its buds, the blue-green of its foliage is very pleasing, especially after rain while the moisture is yet retained, and by refraction gives the appearance of silver frosting."

**Oriental Poppies.**—To the four varieties of *Papaver orientale*, alluded to by Mr. Wilks, plus the blood-crimson kind more recently noted by Herr Max Leichtlin, I can add a sixth, that is to say, a variety of a crushed strawberry or rose colour, having darker lines behind and a dark blotch inside. So far as I know, this is the most rare and distinct of all the oriental kinds, although a friend will have it that he, years ago, saw a pure white variety of this race. Can any other observer corroborate the existence of a white Oriental Poppy? We have here a light orange or flame-coloured variety without spot of any kind, and some of our own seedlings have this year bloomed at 15 inches in height, so that we are in hopes of originating a dwarf race of these "black-eyed beauties."

**Sweet Pinks.**—No garden is complete without a good selection of Pinks, old as well as new. I say old, because to my mind one of the softest and sweetest of all fragrant flowers is the old fringed Pink of cottage and farmhouse gardens, such as now scents the evening air in the quaint old villages of Warwickshire, just as they did, no doubt, in Shakespeare's own day. Last year we had a pretty single kind yclept Pilgrim Park, but it seems hard to keep, while Mrs. Sinkins (Snowball of some) seems quite as free as the old white. Our plan, however, is to ignore the names, although we are ever glad to pick up a few pipings of a really good free-flowering garden Pink for its own sweet sake. In France there are nurserymen who grow little else except Pinks and



Carnations, and as a class but few other hardy flowers are better worthy of special attention in this way.

**The Bee Larkspurs**, as the Delphiniums are often called, have this season been most glorious, tall, stately, and most floriferous. Now that the Hollyhocks have failed us for some years we make the most of these grand plants. None, however, are finer when well grown than is the true old Siberian Larkspur (*Delphinium grandiflorum* fl.-pl.) with its dwarf spires of dark blue rosettes. Like the true old white Rocket, it was treasured in the old-fashioned gardens of the past generation, and one cannot but wish that both old favourites were more common than they are to-day. A grand mass of the dark blue *Delphinium formosum* beside a mass of the golden *Iris aurea* has been much admired for some time.

VERONICA.

## TREES AND SHRUBS.

### THE COLUMBIA MAPLE.

THIS handsome Maple (*Acer macrophyllum*) forms a large, rapidly-growing tree from 60 feet to 90 feet high, with ample head and somewhat rounded outline. The stem measures from 10 feet to 15 feet in circumference, and when the tree stands alone, and is furnished with its long, drooping racemes of yellow flowers, or when clothed with its large, glossy leaves in summer, it presents an appearance which few other trees can equal. It, however, is only suited for planting in parks, or very extensive pleasure grounds, on account of its great size. It is a native of the north-west coast of North America, where it is found principally in woody, mountainous regions along the sea coast, and on the alluvial banks of the Columbia River; it was first introduced into this country in 1826. It is perfectly hardy under all circumstances, and grows best in a free loamy soil, but thrives well in any kind of ground that is not sterile or swampy. The Columbia Maple has the largest leaves of all the *Acers*, and if we except *Paulownia imperialis* and *Magnolia macrophylla* and *tripetala*, the largest leaves of all the broad-leaved trees we possess. The leaves, however, vary very much in size, according to the vigour and age of the tree and the part of the tree upon which they grow. They are somewhat digitately five-lobed, with open, round, deep recesses and several large acute serratures and pointed lateral lobelets, and when fully grown are of a deep, glossy green above, and more or less pubescent on both surfaces. In the autumn the decaying foliage turns yellowish brown. The flowers are of a greenish yellow, sweet-scented, and are produced in long, dense, drooping, catkin-like racemes in the end of April or beginning of May, just as the young leaves are beginning to unfold. The keys are large, and mostly with two long, widely extended winged carpels, but sometimes three are produced on the same pedicel; when ripe in September they are of a brown colour, and are covered at the base with stiff, stinging hairs, which, if incautiously handled, enter the skin and cause considerable irritation. G.

**Platanus californica.**—The leaves of this Plane far exceed in size those of any other; it is a most distinct kind, and may easily be distinguished from all others. It is also said to be the hardiest of all, having been the least injured of any during the past two winters. Even a young plant of it is a noble object, and too much cannot be said in its favour as an ornamental tree. The plants are of course all young, but, judging by the rapid growths which they have made even this season, they will soon make fine trees, especially well adapted for avenues, streets, &c. One would think that such large leaves would be injured by wind and wet, but such is not the case; indeed, on an exposed slope in Messrs. Lee's Isleworth Nursery they looked the best of all during the past season. It is the same as *P. racemosa* of Nuttall.—G.

**The Silver Lime** (*Tilia argentea*).—This handsome Lime stands out conspicuously from all the rest on account of its noble growth and silvery undersides of the leaves, features which render it so dis-

tinct from all other kinds. Its greatest merit, however, is that of the foliage remaining in perfection long after that of the common Lime has fallen; it is, therefore, highly valuable on this account alone. It is somewhat remarkable that such a fine tree as this has been overlooked for such a long time, for it is a very old introduction. We have no instance of it, but we see no reason why it should not make a serviceable tree for streets and avenues, where its silvery foliage and bold habit of growth would be shown off to advantage.—G.

**Sambucus racemosa.**—The scarlet-fruited Elder is very seldom found in British gardens of such a size as to display its beauty. When laden with its large dense cymes of fruit, "which resemble miniature bunches of Grapes of the most brilliant scarlet," the tree truly presents a splendid appearance. Planted in open dry situations it does not seem to thrive properly, but in a rather damp cool spot it soon attains a considerable size, and fruits freely. For the woodland walk or the wild garden, where low-growing shrubs keep the ground shaded and cool about its roots, the Scarlet Elder grows as freely, and would, perhaps, attain as large a size as our common native Elder (*Sambucus nigra*). *S. racemosa* is widely distributed throughout Central and Southern Europe, and in some of the alpine valleys makes a splendid show with its masses of brilliantly coloured fruits. Like most of the Elders, it sports freely, and a cut-leaved form as well as one with variegated foliage, are in cultivation in Continental gardens.—G. N.

### THE FLOWERING DOGWOOD.

(*CORNUS FLORIDA*.)

THIS species, very handsome when in flower, and scarcely less so in fruit, is the finest of all the Dogwoods. It is stated to thrive best in a peaty soil, which must be kept moist, and the situation should be sheltered, though the foliage of the plants must be fully exposed to the influence of the sun, otherwise they will not flower. Ellwanger and Barry sum up the merits of this species, which they call the White-flowering Dogwood, as follows: "The flowers produced in spring, before the leaves appear, are from 3 inches to 3½ inches in diameter, white and very showy. They begin to appear just as the *Magnolia* flowers are fading, and are invaluable for maintaining a succession of bloom in the garden border or on the lawn. They are also very durable, lasting in favourable weather more than two weeks. Besides being a tree of fine form, its foliage is of a greyish green colour, glossy and handsome, and in the autumn turns to a deep red, rendering the tree one of the most showy and beautiful objects at that season. We regard it, all things considered, as one of the most valuable trees for ornamental planting, ranking next to the *Magnolia* among flowering trees, and only second to the Scarlet Oak (which it almost equals) in brilliant foliage in autumn." The wood is hard, heavy, fine-grained, and susceptible of a beautiful polish; the bark is sometimes used as a tonic and astringent. In a wild state it sometimes attains a height of 30 feet or 40 feet, and is found from Canada to Florida, west to Eastern Kansas, and southward to Kansas and Eastern Texas. Collinson, in a memorandum dated May 17, 1761, writes as follows: "Invited by Mr. Sharp, of South Lodge, on Enfield Chase, to dine and see the Virginia Dogwood; the calyx of the flowers (wonderful to see) are flowers as large as figured by Catesby, and (what is strange) it is the only tree that has these flowers amongst many hundreds that I have seen, and it began to bear them in 1759." G. N.

**Stuartia virginica.**—I requested you to name a flower sent to you. You did so as *Stuartia virginica*. The shrubs were planted some years ago by Mr. Hewitson at Oatlands, but he did not live to see it in bloom. My friend, Mr. Hancock, tells me that in his time it has flowered several times. This year the two shrubs are blooming well, and are very beautiful; they grow in a cool, rather damp place towards the bottom of the garden, with long Grass about them. As I believe this shrub is rare in gardens, I think, perhaps, that you may like to have this

note; the plant was thought to be a species of *Magnolia*.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath*.

**The Nine-bark.**—The beauty of the old Nine-bark, *Spiraea opulifolia*, is not alone in its graceful form, but in the fruit, which is far showier than the blossom. The umbels of fruit nearly cover the shrubs. They are red in colour and last for a long time.—*Rural New Yorker*.

**Good street trees.**—Mr. J. Jay Smith, of Philadelphia, the originator of the vast and beautifully-designed garden-like cemeteries near that city, recommends the Silver Maple, the Sugar Maple, *Magnolia cordata*, and *M. macrophylla*, the Yellow-wood (*Virgilia lutea*), the deciduous Cypress, the Kentucky Coffee tree (*Gymnocladus*), *Salisburia adiantifolia*, and the Slippery Elm (*Ulmus fulva*). These are for the most part trees of which we have little experience in Europe.

**Purple-leaved Barberry.**—This is a variety of the common Barberry (*Berberis vulgaris*) which, in spring, has leaves of a vinous red colour, afterwards becoming brown by degrees, until in autumn they change to a purplish green. When the plant reaches a certain age, it undergoes the common lot of mortals—loses its charms and becomes ugly. The branches droop and become warped, and the leaves grow small and wan-coloured. Fortunately, it is easy to preserve this handsome shrub in a condition of perpetual youth, beauty, and freshness by cutting it back close to the ground every second year. When cut back in this way, the plants seldom bear their yellow flowers and their little red berries.—G.

**Hemlock Spruce.**—One of the features of cheerful paradise-like Greenwood are the numerous low hedges which bound many of the burial lots in that cemetery. *Arbor-vitæ*, Box, Yew, Juniper, and Spruce are chiefly the plants used, and in my opinion the Hemlock Spruce (*Tsuga canadensis*) formed the most ornamental hedges. As there seen by me last July they were dense and dark—they had been but recently clipped—and from their sides sprang numerous limp-tipped twigs of a pale green, presenting a pleasing and decided contrast to the neighbouring *Arbor-vitæ* hedges. The gravest objection to the Canadian Hemlock as an ornamental hedge plant for Britain is its rather slow growth, but its Pacific coast ally is structurally and in habit so much like it, and yet so much more rapid in growth, that for this purpose it might form an excellent substitute.—G. S.

### COOK'S ARAUCARIA.

(A. COOKI.)

THIS species, of which a cone is represented in the accompanying illustration, is one of the most interesting of the ten members of the genus already known to science. All are natives of the southern hemisphere, but the only one hardy in this country is the Chilean *A. imbricata*. A. Cooki is a native of New Caledonia, &c., and was first noticed by the naturalists who accompanied the great navigator (after whom it is named) in 1774. Dr. Lindley, in "Notices of certain ornamental plants lately introduced into England," published in the "Journal of the Horticultural Society of England," vol. vi. (1851), gives the following summary of the history and introduction of this species, and from that account the remarks here given are condensed. In the year 1850 Mr. Charles Moore, the superintendent of the Botanic Garden, Sydney, was enabled to pay a short visit to New Caledonia and the neighbouring islands of the South Pacific in H.M.S. "Havannah," and, notwithstanding many difficulties, succeeded, through the very great kindness of Captain Erskine, in collect-



ing and bringing safe to Sydney a considerable number of very valuable plants, seeds, and specimens. Some of them were brought alive to England, and among them *Araucaria Cooki*, which grows abundantly on the islands of Aniteura, New Hebrides, and New Caledonia. In a memorandum accompanying the plant received by the Horticultural Society Mr. Moore says that the species here treated differs from *A. excelsa* in having a more compact habit when old and in being less rigid and more graceful when young, in the scales of the cones having a longer and more reflexed mucro, and in their gibbous—not wedge-shaped—form. In the island of Aniteura *A. Cooki* had become scarce, even at the time Mr. Moore wrote, the English traders having cut it down for ships' spars. He only saw one plant, and this was tabooed or rendered sacred by the natives, but in New Caledonia, on the south-east coast, whole forests of this alone were observed. In such situations the tops are not unlike basaltic columns, and were actually taken for such by the naturalists who accompanied Cook. Mr. Moore adds that it is "singular enough that the first plant of this noticed by Cook (described by that navigator in his account of New Caledonia 'as an elevation like a tower') still stands, and is in a flourishing condition. Its appearance now is exactly that of a well-proportioned factory chimney of great height." This peculiarity of habit caused it to be named *A. columnaris* in the *Botanical Magazine*, in which work it is figured, tab. 4635. In an instructive and interesting article on New Caledonia, contributed by R. Abbey to a contemporary about eight years ago, further information is given. In the southern parts of New Caledonia and on the adjoining Isle of Pines some of the trees attain a height of 200 feet, and they appear to thrive best on little rocky islands a few acres in extent or close to the sea. According to the observer just mentioned, "they have a somewhat curious habit, even when growing alone, of shedding their branches for five-sixths or more of their height, and then replacing them by a smaller and more bushy growth, so that the tree at a distance presents a very columnar appearance, the resemblance being increased by the summit being crowned by a mass of foliage somewhat like a capital. The natives not unfrequently plant these trees in their burial grounds, or rather in the bits of bush where they expose their dead to the birds and the hermit crabs." *A. Cooki* will thrive under the same conditions as those which

are found suitable for the justly popular *A. excelsa*, the Norfolk Island Pine.

GEO. NICHOLSON.

*Royal Gardens, Kew.*

**Conifers for swampy ground.**—I can fully recommend the following Conifers for planting in swampy ground, viz.: *Juniperus vulgaris* (communis) and its varieties, *J. hibernica* and *suecica*, *J. Sabiniana*,



Cone of *Araucaria Cooki*.

*tamariscifolia*, *J. tripartita*, *virginiana*, and its varieties, *Chamaecyparis sphaeroidea* and its varieties, *Taxodium distichum*, *Thuja occidentalis*. Besides these, the following do very well in rather wet, but well-drained ground, viz.: *Abies canadensis*, *Cupressus Goveniana* and *Lawsoniana*, *Picea grandis*, *Pinus austriaca*, *maritima* (halepensis), and *tuberculata*, *Retinospora ericoides*, *leptoclada*, and *squarrosa*, *Sequoia sempervirens*, and *Widdringtonia cupressoides*.—W. B.

***Cupressus cornuta*.**—I should like information respecting the true name of this Cypress, which I believe is a native of California. It is described by some authors as a form of *C. californica gracilis*, while others make it a distinct species. It forms a small bushy tree from 16 feet to 20 feet high, with numerous spreading branches and small scale-like leaves, closely set together, broad at the base, and

pointed at the apex. The cones are of a dark brownish colour, streaked with lighter lines, each of the four scales bearing, near its apex, a horn-like projection, nearly half an inch long, whence, probably the specific name *cornuta* is derived. These horns are generally curved at the point.—G.

**Deciduous v. coniferous trees.**—If we are to bequeath to future generations such noble tree growth as we inherited from our tree-loving and far-sighted forefathers of the past century, it is essential that more attention be paid to the planting of deciduous trees than hitherto. For years the attention of planters has been almost entirely fixed on Coniferous trees, to the neglect of those we think more valuable for the parks of these islands generally. Taking these Conifers at their best in their native countries, many of them (not by any means all) have excellent qualities; but the question for us is what they are likely to do in our own country or district. There can be no doubt to any observer who looks beyond the young nurseries, and watches what becomes of most coniferous trees as soon as they get beyond the fresh, moist soil of the nursery, and above its sheltering hedges, that a great number of what we may call fashionable Conifers are wholly unfitted for planting in our lowland parks generally. Of course there are places where a genial seaside or hill climate and favourable soil enable some of the trees to which we allude to keep in good health, and even to grow vigorously, for many years; but we speak of the country generally, and of the many places where there is no such careful tree cultivator as Philip Frost, of Dropmore, to place many a load of good loam over the roots of his favourite Douglas Fir.

**New Canadian Poplar** (*Populus canadensis nova*).—This is one of the best and most useful hardy deciduous trees which we possess. In the first place, it is the most rapid growing of all our hardy trees, making as much as 6 feet in growth in a season. This will give some idea of its rapid development. It is, moreover, a tree well adapted to London, and may be seen in luxuriant health in the plantations on the Thames Embankment at Chelsea. From the treatment to which it has been there subjected, it is evident that it will bear any amount of pruning, so that it may be kept to any size or form required. It is probably the best tree we have for planting in the smoky towns of the manufacturing districts in the north of England. Its nearest affinity is with the Black Italian Poplar, and, in fact, it may be described as a very much improved form of that variety, possessing greater vigour of growth, as well as larger leaves, which are retained fresh and green till a later period in the season. It is, in fact, in every way an improvement on that

well-known and useful sort, and as a screen tree has no rival.

**The Golden Larch** (*Pseudo-Larix Kämpferi*).—This Larch is generally believed to have been discovered by Kämpfer, but it was certainly re-discovered by Fortune on the mountains of the province of Che-Kiang, in North-eastern China, at an elevation of 3000 feet above the sea, and was introduced by him into British gardens in 1852. As yet, however, it is only represented here and there by a few plants. This scarcity is principally owing to the difficulty experienced in procuring seeds, and the fact of it being difficult to propagate by other means. The best plants of it with which I am acquainted—one being 20 feet high—are growing vigorously in light sandy loam, making from 1½ feet to 2 feet of growth annually; but not one of them has a continuous or



uninterrupted stem, in consequence of the immature points of the shoots being injured by the untimely frosts of early autumn. Independent, however, of such checks, the annual increase of the trees in height is considerable, though we need never expect this Larch to attain in England 120 feet, the height which Mr. Fortune found it to reach in China. Nevertheless, it is well worthy of a place in the pinetum or pleasure ground, on account of its beautiful pea-green colour in spring, its rich dark green in summer, and, as the English name implies, its golden yellow foliage in autumn. While seeds of it cannot be procured, the best means of increasing it is by cleft-grafting it on short, stout pieces of its own roots about the end of January or beginning of February. The after-success will greatly depend on the amount of moisture kept in the propagating case, which must be regulated so as never to accumulate on the scion.—G. S.

**Planting near houses.**—Great mistakes are often committed in the selection and planting of ornamental trees in the vicinity of mansion-houses. How often do we see trees that will ultimately attain large dimensions planted within a few feet of the side of a walk, and at other times planted in positions where they will blot out some of the finest views about the place before they are half grown. These are all points of paramount importance in ornamental tree planting, and in order to obviate such a state of things, the planter should make himself acquainted with the size and shape which the different trees may be presumed to attain under ordinary circumstances when full grown, and arrange and mature his plans accordingly. Contrast of colours should likewise have due consideration, so that they may be blended in such a way as to produce the most pleasing effect. Deciduous as well as coniferous trees afford great variety in this respect, and when the planting is executed with taste and judgment and these points always kept in view, the result obtained cannot be otherwise than highly satisfactory. It is also a matter of importance to plant the different species of trees on the soil best suited to their requirements, and in all cases where the texture of the soil is unsuitable, from whatever cause, such defects should be remedied before planting operations are commenced. Wet soils should be thoroughly drained, hard impervious subsoils should be well broken up with a pick, poor, thin, gravelly soil should be improved in texture by carting and mixing some rich fresh soil to add to its depth—all of which points should claim the attention of the planter, and when properly carried out cannot fail to command success.—J. B.

**Veronica Traversi.**—Till this year I believed that there were two forms of this Veronica, one which flowered freely, large bushes of it in a garden near here being one mass of blossoms, while in this garden smaller bushes about 2 feet high had but a few spikes of blossom, sometimes not even that. These plants (which would probably have been turned out of the garden this autumn as not worth growing) have at last flowered well. This Veronica is a useful Evergreen in winter for supplying sprays of foliage for cut flowers.—C. M. O.

**Cratægus Carrieri.**—This is said to be a charming addition to hardy shrubs. It was raised by M. Carrier from a seed of *Cratægus mexicana*, and is said to be extremely hardy, the severe winter of 1879-80 having left it entirely uninjured. It is valuable for its handsome bunches of large white flowers with conspicuous red-tipped anthers, produced freely about the middle of May, for the bronzy copper-red tints assumed by its foliage in autumn, and for its handsome and brilliantly coloured berries resembling

in colour those of the common *Arbutus*, but of a somewhat brighter hue.

**Mahonia fascicularis hybrida.**—This also forms a robust, many-stemmed bush, from 5 feet to 8 feet high, with quite the arborescent habit and general aspect of *M. fascicularis*. The leaves are from 6 inches to 8 inches long, with from four to six pairs of leaflets and an odd one; they are also of a deeper green than those of *M. fascicularis*, and much larger and thinner. The flowers are deep yellow, and are produced in great profusion in April and May, on short, simple, dense racemes in terminal close fascicles. Berries globular, deep purple, and only sparingly produced in short clusters. It is perfectly hardy, and very superior to any of the forms of *M. Aquifolium*; it is said to be a hybrid production raised between *M. repens* and *fascicularis* in Rivers' nursery at Sawbridgeworth, in Hertfordshire. Its synonyms are *Mahonia repens-fascicularis* and *M. Aquifolium-fascicularis*.

**Aucuba berries.**—At p. 63 "J. C. C." states that *Aucuba* berries retain their bright colour in the shade much longer than those on plants growing in exposed situations; and he asks whether it is the action of the sun or frost which is the cause of the latter losing their colour. There is no doubt about



Hardy Ferns in a Surrey wood.

it. *Aucubas* in Japan grow in the woods quite in the shade. I have several in my garden which have stood the severest frost for more than twenty years, quite in the shade, and the females are every year covered with berries, which remain on the plants the whole winter until March, and are thus very ornamental. They are easily propagated from cuttings inserted in wet sand, or even in water. This handsome shrub is, I consider, too much neglected.—JEAN SISLEY.

**Platanus occidentalis foliis argenteo-variegatis.**—Under this name a new variegated Plane is described in the catalogue of L. Späth, Berlin. It originated in L. Späth's nursery establishment, and, after having proved itself constant, after many years' observation, it is now sent out. The young leaves appear distinctly suffused with rose colour, but as they become older are marbled with white. In all probability this form is a variety of the London Plane, *Platanus acerifolia*, and does not belong at all to the Western Plane, the Button-wood of the United States. In almost all gardens and nurseries, no less than in books, no little confusion exists respecting the Planes. One fact is absolutely certain, that is, a large proportion of the so-called true western Plane is undoubtedly *P. acerifolia*, and not *P. occidentalis*.—G. N.

**The Pyracanth for hedges.**—The *Pyracanth*, *Cratægus Pyracantha*, or Fire Thorn, as it is called, makes a capital evergreen hedge for enclosing ornamental grounds. It is, however, a rather slow grower, seldom producing young shoots of more than 12 inches to 18 inches in length in one season, but the plants fill up as they progress; consequently they

require very little pruning, and when fully established no ordinary animal would ever make more than one attack upon their thorny surface. There is a white-berried variety of this Thorn which has small, oblong, pointed leaves, remaining permanently upon the plant during the coldest winters. It is propagated by cuttings and layers, and hedges should be formed with one or two-year-old plants, as older ones are not so readily transplanted, owing to their strong, deeply penetrating roots. It is also necessary to plant in autumn or very early in spring, as the sap moves the first warm weather; and after growth has commenced there is great danger of loss in removing.

**Weeping Purple Beech.**—This is a beautiful variety of the Beech, having pendulous branches, forming, when grafted standard-high on the common Beech, a surpassingly handsome lawn tree, and one, indeed, well suited for any prominent situation on the lawn, or in the pleasure ground or park. All the varieties with purple or copper-coloured foliage are invaluable for associating with green-leaved trees, and they have been largely used in the production of the finest landscape effects.—F.

**Rhus Toxicodendron.**—I am surprised to see this recommended in THE GARDEN as a desirable plant for covering unsightly buildings. We know to our cost that it is an irrepressible grower, for it overruns our fences and trees here in spite of a ceaseless war waged upon it, and it is a most pernicious weed, in consequence of its well-known poisonous properties, whence its popular name of Poison Ivy. True, there are people who are never affected by it, but, as a rule, contact with it results in an irritating and unsightly eruption, and with some constitutions the effects are both lasting and dangerous. I know of one case in which such contact produced chronic blood-poisoning; every spring when the sap began to run, the victim of it became a mass of eruption. I may add for the benefit of those who may be induced to adorn(?) their gardens with this shrub that the best remedy for the poisoning caused by it is to keep the affected part

covered with linen constantly moistened in alcohol. Why not cover unsightly places with another of our native Vines, *Ampelopsis quinquefolia*, which has all the advantages of the Poison Ivy and none of its drawbacks?—E. L. TAPLIN, *Maywood, New Jersey*.

**Gas pipes and street trees.**—Cuttings of Willow, the lower ends of which were placed in flasks containing a little water and filled with coal gas, developed only short roots, and the buds on the upper parts died shortly after unfolding in the air. Of ten plants in pots among the roots of which coal gas was conducted through openings in the bottom of the pots, seven died in four months. To show that the plants were killed, not by the direct action of the gas, but in consequence of the poisoning of the soil, several experiments were made with earth through which coal gas had passed for two or three hours daily for two and a half years. The rootlets of seeds sown in this soil remained very short and soon rotted. These results sufficiently account for the fact that trees planted near gas pipes in streets so often die; the enclosing of gas pipes in wider tubes, having openings to the air, and through which currents could be maintained by artificial means, has, therefore, been recommended as a remedy. Such a plan is still more to be recommended on hygienic grounds, since it has been shown that infiltration of coal gas through the soil takes place even into houses not supplied with gas.

**The late-fruiting Thorn.**—This, *Cratægus lobata*, *serotina* is the latest of all the Thorns, and therefore has not inaptly received the name of *serotina*. It is a vigorous kind that attains somewhat



large dimensions, being about 25 feet in height and most ornamental in appearance. Its leaves are large and handsome in shape; the fruit, when ripe, is of a very beautiful yellow colour, marked with brown specks, and ripens after most other trees have shed their foliage, a circumstance which gives additional value to this Hawthorn for ornamental purposes. Although in general appearance it bears a close resemblance to *C. lobata*, to which it is related, it is nevertheless very different as regards the period of ripening its fruit and the persistency of its foliage. Thus, while *C. lobata* has spotless fruit of a beautiful golden yellow, which are larger than those of *C. lobata serotina*, and ripen in September and October, the fruit of the latter is regularly speckled with brown, and does not ripen till much later. Again, the leaves of *C. lobata* disappear in October, while those of *C. lobata serotina* remain upon the tree throughout the entire season.

## FERNS.

### HARDY FERNERIES.

No one needs to be told that a hardy fernery is one of the most delightful features one can have in a garden, but not always do we find a garden provided with one, even though there is a shady wood on the spot which one could turn into a Fern paradise with very little trouble or expense. It is useless attempting a hardy fernery in an unsuitable spot. Ferns are essentially shade lovers, and shade they must have if they are to be grown successfully. But, failing a shady wood or a snug corner, where partial or complete shade is afforded by a wall or a building, or indeed in any other way, there is no reason why one could not grow numberless forms of hardy Ferns. A well-stocked fernery reveals at a glance what abundant variety exists in hardy Ferns alone. Not only can we grow British Ferns out-of-doors, but also all the European sorts. North America, which is peculiarly rich in Ferns, Japan, and China have likewise contributed to our outdoor ferneries, and even from New Zealand we have some of the most beautiful hardy Ferns that can be grown, an instance of which is afforded by the elegant *Hypolepis millefolium*, which is only just becoming known as a hardy Fern. During the week we saw a mass of this in Mr. Wilson's garden at Wisley, and thought at the time we had never before seen so beautiful or so elegant a Fern. The fronds are finely divided, and grow from a foot to 18 inches high. There is a mass of it at Wisley quite 6 feet in diameter, and its creeping roots are spreading in all directions. It is always well to emulate best examples; therefore, we might mention that one of the most complete and, at the same time, most charming open-air ferneries that we have seen is that in a Surrey garden at Cranleigh, belonging to Mr. W. Barnard Hankey, who, being particularly fond of Ferns, bestows much time and trouble upon his hardy fernery, not only in cultivating his plants well, but also in raising seedlings. He thus adds a great deal to the interest of his fernery, as it contains, as a matter of course, varieties not to be found elsewhere. One never knows when a variety may crop up in the seed pans that will eclipse all others of its race,

so sportive and variable are hardy Ferns. All who possess hardy ferneries would do well to follow Mr. Hankey's plan of raising seedlings in the way of which there is no difficulty. His plan was described and illustrated in THE GARDEN last August. In looking through catalogues of hardy Ferns, such as those of the Birkenhead's or Stansfield's, one is astonished at the wealth of variety to be found among them. Some species, such as the Lady Fern and the Hart's-tongue, alone yield scores of varieties, so that a good-sized fernery might be planted with them alone. There is, in short, as much beauty and variety among open-air Ferns as there is among greenhouse kinds. Our illustration shows a little heap of hardy Ferns at home in a shady wood.

## FRUIT CROPS.

(Continued from p. 102.)

### SCOTLAND.

**Auchencruive, Ayrshire.**—Apricots here are a large crop. Plums a good average crop. The sorts that do best here are Washington, Jefferson, Kirke's, Magnum Bonums, red and yellow, Coe's Golden Drop, Prince of Wales, Victoria, and Golden Gage, all on walls. Pears are a light average crop, and our surest croppers are Williams' Bon Chrétien, Jersey Gratioli, Beurré Diel, Marie Louise, Brown Beurré, Jargonelle, Josephine de Malines, and Beurré Rance, all on walls. Apples are a very large crop. Our surest croppers are Stirling Castle, Echlinville, Lord Suffield, Broad-eyed Pippin, Keswick Codlin, Tam Montgomerie, Carse o' Gowrie, Early Margaret, Ribston, Cambusnethan Pippin, Cox's Orange Pippin, and Hawthornden. Bush fruits, both Gooseberries and Currants, are heavy crops where grown in sheltered positions, or where they escaped the frost in the first week of May, but where exposed the frost damaged them greatly. Strawberries are a good average crop, but the fruit is small, owing to the drought; in fact, everything in this district is beginning to suffer from want of rain. We have not had any to go well down to the roots of plants since early in May.—A. WILSON.

**Culzean, Maybole.**—The fruit crop in this district is very irregular, except Apples, which are the heaviest crop we have had for years. Pears are a medium crop. Cherries and Plums a light crop. Red and Black Currants about half a crop. Of Gooseberries we have a very heavy crop, but in some gardens in this neighbourhood they are quite a blank. Bushes and young growths of Plums and Cherries are badly infected with green fly, and the fruit is very small. Strawberries are bearing a good crop, but about a month late. Lord Suffield, Stirling Castle, Echlinville, Lord Grosvenor, King of the Pippins, Oslin Pippin, and Maclean's Favourite are our best bearing Apples; and Williams' Bon Chrétien, Hessel, Marie Louise, Beurré Superfin and Brown Beurré are our best bearing Pears. Of Plums, Victoria, Kirke's, Coe's Golden Drop, and Jefferson do well. Our best Strawberries are Duke of Edinburgh, President, and Garibaldi.—DAVID MURRAY.

**Blythswood, Renfrew.**—Peaches out-of-doors here are not expected to do much; a dozen years ago they did admirably. Apricots showed well for bloom, but did not hold. Plums will be very sparse. Cherries, however, especially Morellos, are good crops. Pears, even on walls, are thin, and on many standards not a fruit is left. Apples will be an average crop with us; nothing could be better than our favourites—Lord Suffield and Stirling Castle; Dumelow's Seedling, Cellini, King of the Pippins, Oslin, and Alfriston in most seasons carry a few good fruits; this year they will be scarce. The small fruit is abundant with us, but in some places the Gooseberry crop has failed; they got rusty and dropped off. Here they are abundant and show no signs of disease. Strawberries are

very fine, and all varieties of Currants are heavy crops. Raspberries would be benefited by rain, otherwise they will be small. American Blackberries are promising better for a crop than they did last season.—JOHN METHVEN.

**Crathes Castle, Deeside.**—A few sorts of Apples are plentiful; Cellini, Stirling Castle, Lord Suffield, and Golden Pippin are loaded with fruit, and are always sure bearers on walls or standards; Golden Pippin carries very fine crops every year on walls, and is much liked as a dessert fruit; of Maltster, Lord Grosvenor, and Tower of Glamis there is a sprinkling of fruit; the following varieties are not worth their room here, viz., Blenheim Pippin, Emperor Alexander, Early Harvest, Dumelow's Seedling, King of the Pippins, Devonshire Quarrenden, Echlinville, Kentish Fillbasket, and Court Pendu Plat; they were planted five years ago along with the first-named sorts, but so far they have given no fruit; Lord Suffield here is very subject to canker. Of Pears we have but a poor crop; as usual, they were spoilt by frost. Plums will be but a poor crop; just now the ground is littered with dropped fruit; Victoria, Jefferson's, Kirke's, Rivers' Prolific, Oulins Golden Gage, Golden Drop, and Green Gage all do well in a general way. Cherries are rather a poor crop. All small fruits are excellent, Strawberries and Raspberries particularly so. Field crops of these fruits are really grand. Rivers' Eliza, Garibaldi, and Myatt's Seedling are the principal sorts grown for market. Gooseberries and Red Currants stood more frost when in blossom than I thought they would; lots of fruit dropped off, and still there is a fine crop. Black Currants are very fine. We have tried the American Blackberry or Bramble; it crops freely well, and the fruit is very fine, but it is too late in fruiting for our ordinary seasons; perhaps grown against a wall it might do well.—GEORGE STEPHEN.

**Raith, Kirkcaldy.**—Apricots in this district are good crops; Moorpark is the principal one grown. Apples are good crops; the ones that do best are Aitken's No. 2, Keswick Codlin, Lord Suffield, Stirling Castle, Irish Codlin, Cellini, King of the Pippins, Irish Peach, Echlinville, and Golden Drop. We have a very good collection of Apples, but they are not doing so well as I would like them to do; large branches die every year from canker. Strawberries are a heavy crop; the principal ones with us are Keen's Seedling, Garibaldi, Black Prince, President, Elton Pine, Duke of Edinburgh, and Newton Seedling; Black Prince we grow for a few early fruit. Cherries with us are not an average crop. Gooseberries are a heavy crop; the principal varieties which we grow are Whitesmith, White Warrington, Highland Queen, Crown Bob, Scotch Red, Green Hedgehog. Of Pears, Jargonelles are a heavy crop; all others grown here are below the average. Raspberries are heavy crops; Red Antwerp, Fastolf, and Baumforth's Seedling are those grown. White, Red, and Black Currants are heavy crops. On Nuts and Filberts there is no crop. Plums are all but a failure in this district, and Peaches and Nectarines are a failure on open walls.—PETER RINTOUL.

**Wishaw, Lanark.**—Fruits in our garden and district are an average crop. The Apples which do best here are Lord Suffield (which I have grown for seventeen years and it has never failed to bear a crop, even when grafted on Yorkshire Greening), Stirling Castle, Echlinville, Hawthornden (both Old and New), Keswick Codlin, Nonsuch, and Duchess of Oldenburg; all these do pretty well here, though in a cold clay soil. Of Plums, the only variety we grow is Victoria on a wall, but for these last three seasons it has suffered much from early frosts. Pears do not succeed—not even the Jargonelle. Black, Red, and White Currants do fairly well. Raspberries do not succeed. Gooseberries are good. Strawberries are greatly in want of rain. On the Clyde, Pears and Apples are reported to be good. Bush fruits suffered somewhat from frost, but Strawberries are good.—JOHN MUNRO.

**Bothwell Castle.**—Regarding the state of the fruit crops in this locality, I may state that in early spring the general appearance of fruit-bearing trees and bushes gave every indication of an abundant



crop, but the frosts in May and the lengthened continuance of cold east winds gave our bright anticipations rather a rude shake. On the 5th of May we had 9° of frost and on the three following days 8° each day, and between that and the end of the month the thermometer was on ten different days below the freezing point, and on one of them—the 12th—it was 8° below it. The consequence was that Plums, Pears, and Currants, both Black and Red, were greatly damaged, and I may say that standard Plums were wholly destroyed. Cherries were partially injured, but Strawberries, Raspberries, and Apples are loaded, and young trees will require to be greatly thinned of surplus fruit. The following are the Apples we grow chiefly here, viz., Stirling Castle, Lord Suffield, Keswick Codlin, Irish Pitcher, Echlinville Seedling, Winter Pearmain, Winter Strawberry, Luffness Matchless, Tower of Glamis, Ribston Pippin, Kerry Pippin, Downton Pippin, Cambusnethan Pippin, Thorle Pippin, Yellow Ingestrie, Nonpareil, Scarlet Nonpareil, Oslin Pippin, and Cellini. These sorts generally bear well with us, but the best and surest bearer we have is the Stirling Castle. I make no reference to sorts that do not bear. If the trees are healthy, I cut them down and graft them with sorts that bear well.—ANDREW TURNBULL.

**Polmaise, near Stirling.**—Of Peaches (on walls) we have very few fruit and small; Apricots, too, are a small crop. Plums good generally, except on standards. Pears on walls and standards both good. Apples extra fine; better than during the past nine years. Strawberries very good. Cherries (Morellos on walls) a medium crop. Currants (Black), very good; Red and White fairly good. Raspberries and Gooseberries good and very fine. Peaches do not do well in this part of the country now; they do not half pay the trouble bestowed on them. Few people in this district have them on walls; the best kinds with me are Noblesse, Royal George, and Rivers' Early Louise. Apricots do not thrive well here; the branches gum and die back in spring after they are started; several young trees have died back to the stock. The Breda is the only one I would plant; it does not die back so much as the rest—viz., Hemskirk and Moor Park. We have always good crops of Plums on walls south-east and south-west. The best are—Victoria, Jefferson, Kirke's, Pond's Seedling, White Magnum Bonum, and Prince of Wales. The above are sure bearers. Green Gage, Reine Claude de Bavay, and Coe's Golden Drop are good in some years, but do not crop like those above. Pears do well here generally, the best are (for walls) Jargonelle, White Beurré, Galston, Moorfowl's Egg, Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré Diel, Marie Louise, Beurré d'Arenberg, Passe Colmar; for standards, Moorfowl's Egg, Hessele, and Black Achan. There are others which I do not know by name. It is no use having fine Pears on standards here; on walls I would not grow Beurré Rance, Glou Moreau, Napoleon, &c. The best Apples for dessert are—Cox's Orange Pippin, Ochiltree, Margil, Golden Pippin, King of the Pippins, Lemon Pippin, Irish Peach, and Wormsley Pippin. These all succeed well; Ribston Pippin carkers. For kitchen we like Keswick Codlin, Yorkshire Greening, Hawthornden, Stirling Castle, and Cardross Green; Northern Greening, Lord Suffield, and Cellini canker. Morello Cherries do very well. I have had no experience of other kinds here. Of Strawberries we have always a fine crop; every kind I have grown does well—viz., President, Vicomtesse Héricart de Thury, Keen's Seedling, Wizard of the North, Oscar, Elton Pine, and Sir C. Napier. Gooseberries always do well and produce very large crops; the kinds which I grow are Early Sulphur, Late Sulphur, Warrington, Ironmonger, and Whitesmith. Of Currants I grow only the common kinds, of which there are always fine crops. Of Raspberries we grow Red and Yellow Antwerp, Bedfordshire Prolific, and Semper Fidelis; Fastolf does not do. Raspberries do not come to perfection, though, as a rule, they produce fair crops. Our soil is too stiff. So far as I have seen the crops in the gardens about Stirling are very good this season.—W. W. RITCHIE.

**Balmoral Castle.**—Here we only grow small fruits, the climate being unsuitable for Apples, Pears,

and Cherries. Gooseberries, Currants, Raspberries, and Strawberries are good crops, but late.

POTATOES are looking well, and with favourable weather will, I have no doubt, be a heavy crop.—WILLIAM PATERSON.

**Callendar Park, Falkirk.**—Apricots and Plums suffered from cold frosty nights and east winds, which continued till the second week in June, and nearly the whole crop has dropped off. The kinds which suit this locality are Moor Park, Shipley, Hemskirk, Orange, and Brussels. Apricots—Victoria, Green Gage, Jefferson, Caledonian, Kirke's, and Blue Orleans; Plums—Magnum Bonum has not fruited for four years. The only good Plum for market supply is Victoria. Apples are a fair crop; the best are Stirling Castle, Lord Suffield, Nelson's Codlin, Cat's-head Codlin, and New Hawthornden. Pears are also a fair crop with the exception of Marie Louise, Knight's Monarch, Williams' Bon Chrétien, and Louise Bonne of Jersey. The following kinds are bearing good crops, viz., Citron des Carmes, Flemish Beauty, Autumn Bergamote, Jargonelle, Hessele, and Duchesse d'Angoulême. For market Hessele and Early Crawford are the best; the latter with me this season is fruitless, but in most seasons it is a good cropper. Cherries are a grand crop, with the exception of Mammoth and Olivet, both of which are fruitless. May Duke, Late Duke, Morello, and Bigarreau are excellent. Gooseberries are a very heavy crop; Sulphur and Warrington are the best. Red, Black, and White Currants are fair crops, but not so good as last season, owing to frost; Damsons are, in general, a poor crop.—THOMAS BOYD.

**Blair Drummond, Stirling.**—Apples hereabouts are an abundant crop. The cold weather in May kept them late and saved the blossom. Pears, with a few exceptions, are scarce; Louise Bonne of Jersey, Paradis d'Automne, Yat, Green Yair, and Moorfowl's Egg are good. Plums are very thin, Victoria being the only reliable one. Small fruits, as usual, are abundant here, the garden being particularly well adapted for their culture. Cherries are thin. Apricots fairly good. Peaches outside very good this year. Strawberries small through want of rain.—JOHN KING.

**Dalkeith Park, Midlothian.**—Fruit prospects are the best we have had for many years, and the heavy rainfall on the 18th ult. has still further improved matters. Apples are over the average, large and clean. All the best known sorts are bearing fine crops, such as Warner's King, Stirling Castle, Echlinville, Lord Suffield, Duchess of Oldenburg, Keswick Codlin, Blenheim Pippin, King of the Pippins, Afriston, Hawthornden, Manks Codlin, Cox's Orange, Kerry Pippin, Wellington, and Northern Greening. Among the newer or less known varieties Lane's Prince Albert, Worcester Pearmain, Northern Dumpling, Golden Spire, Grenadier, and Red Reinette promise to be free bearers and fine as regards fruit. Pears are an average crop, and promise to be very fine. Marie Louise, Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré d'Arenberg, Beurré Superfin, Beurré Diel, Easter Beurré, Glou Moreau, Hacon's Incomparable, Beurré Rance, Winter Nelis, and Hessele are bearing the best crops. Plums are a fair average. On some trees there is a heavy crop; on others but a few. Victoria, Pond's Seedling, Transparent Gage, Kirke's, Jefferson, and Coe's Golden Drop are the best. Cherries are also a good average and the fruit fine. The best are Black Tartarian, May Duke, Elton, Frogmore Early, Governor Wood, and Morellos. Peaches and Nectarines are in most instances bearing fine crops on open walls, protected while in flower with double herring nets. Apricots protected in the same way are a heavy crop, the sorts being Moor Park, Hemskirk, Frogmore Prolific, and Large Early. Gooseberries are a heavy crop generally. The best are Industry, Keen's Seedling, Warrington, Speedwell, Ironmonger, and Rifleman, red; Hedgehog, Whitesmith, Stebburn Prolific, Souter Johnny, Leader, and Antagonist, white or green; and Leveller, Mount Pleasant, Drill, Gipsy Queen, Railway, and Early Sulphur, yellow. Currants are an excellent crop. Walnuts and Filberts not much grown, but good. Strawberries are an abundant crop. James Veitch, Garibaldi (Vicomtesse Héricart de Thury), and Keen's Seedling do best on our light

rich sandy loam; while on heavier soils in the district Duke of Edinburgh (Moffat's), President, and Elton Pine bear abundantly.

POTATOES are looking very promising and the recent rain will greatly improve the crop.—M. DUNN.

**Floors Castle, Kelso.**—Fruit crops in this locality, on account of the dry weather which we have had for the past two months, are not so good as they promised to be early in the season. Apricots, Apples, and Plums are average crops. Pears are under the average. Morello Cherries are good. Small fruits also good.—A. MCKELLAR.

**Dunmore, Stirling.**—Pears and Apples here are only average crops, and the quality under the average. Plums and Cherries are average crops; Apricots average; Peaches under the average; Gooseberries, Currants, and Raspberries good; Strawberries average. Apples, such as Lord Suffield, Cambusnethan Pippin, Codlin, and some of the small yellow Pippins, as Golden Pippin, do well here. As standard Pears, some of the old hardy ones can be most depended on. On walls the following do pretty well, viz., Beurré Diel, Duchesse d'Angoulême, and Jargonelle. Victoria Plum is a favourite, and does well either on walls or standards.

THE POTATO CROPS seem very promising and good as yet.—M. FITZGERALD.

**Castlemilk, Lockerbie.**—Fruit prospects in this locality are not what they promised to be owing to the prevalence of frost up to within six weeks or so ago. I do not remember so backward a season in Dumfriesshire for these last twenty-three years. We are fully a fortnight later than last year. Pears, Plums, and early Cherries are a very thin crop, and I am afraid what is will not come up to the usual size. Morello Cherries are an average crop. Apples are an abundant crop—much, indeed, above the average. Gooseberries, with a few exceptions, are under the average. Black and Red Currants are also under the average. Raspberries and Strawberries are very plentiful, and the fine rains with which we have been favoured lately will assist the swelling of the fruit.—JAMES DICKSON.

**Drumlanrig, Thornhill.**—Strawberries, Raspberries, and Currants are good crops here; Gooseberries got injured by late frosts; Apples are thin and very late; of Pears we have none. This is the latest season ever experienced here. There are no signs of colouring in Strawberries yet, and all other crops are similarly late.—D. THOMSON.

**Whittinghame, Prestonkirk.**—Apricots here are an average crop. Moor Park, Royal, Early York, Oullins Early Peach, Blenheim, and Hemskirk do best. Apples are good crops. The best are Lord Suffield, Warner's King, Stirling Castle, Echlinville, Nelson's Glory, Keswick Codlin, Gloria Mundi, King of Pippins, Kerry Pippin, and Cellini. Pears are a very scanty crop. Williams' Bon Chrétien, Beurré d'Arenberg, Hacon's Incomparable, Beurré Bosc, Easter Beurré, Marie Louise, Beurré Diel, Beurré Rance, and Hessele do best. Plums very poor crop. The best are Victoria, Jefferson, Washington, Kirke's, Orleans, Coe's Golden Drop, Green Gage, Golden Gage, and White Magnum Bonum. Peaches are an average crop. Royal George, Hale's Early, Early Alfred, Early Beatrice, Rivers' Early York, Early Victoria, Noblesse, and Early Louise do best with us. Strawberries are under the average, being killed by frost. Keen's Seedling, Dr. Livingstone, Elton Pine, Rifleman, Duke of Edinburgh, James Veitch, Oscar, Sir J. Paxton, and Sir C. Napier are our best. Gooseberries are an average crop. All varieties do well in this district. Raspberries are also an average crop. Baumforth's Seedling, Prince of Wales, Northumberland Fillbasket, Red and Yellow Antwerp, and Fastolf do best. Currants are a good crop. Raby Castle, Red Dutch, White Dutch, Black Naples, and Lee's Prolific Black do best. Cherries are also good. May Duke, Black Eagle, Early Red Bigarreau, and Morello succeed best with us.—JOHN GARRETT.

**Tynninghame, East Lothian.**—All fruit crops here are good this season, but the continued drought which has now lasted for eight weeks has damaged small fruits especially to a considerable extent. Some Pear trees carry a small load, but these are of the



so-called finer French kinds which do not ripen well here. On the whole, we have reason to be well satisfied with the prospects of the present year. Our more reliable Apples are Stirling Castle, Mère de Ménage, Colston Pippin, Cockpit, Echlinville, Warner's King, Northern Greening, Beauty of Kent, Alfriston, Cox's Pomona, Lord Suffield, and Kentish Fillbasket; of other kinds, Rymer, Gloria Mundi, Bedfordshire Foundling, Kentish Codlin Winter Greening, Manks Codlin, Hormead's Pearmain, and Rhode Island Greening are worth growing. Sorts which do not succeed are Wellington, Cellini, Hawthornden, and Blenheim Orange; these canker so much as to be comparatively worthless; dessert kinds are not very good unless favoured with a wall. Of sorts lately introduced we say nothing, as it requires a good number of years to arrive at a correct opinion respecting them. All kinds of Apricots bear good crops; our best kinds are Kaisha, Shipley, Peach, and Moor Park; the latter is here very liable to lose large branches. Our best Plums are Victoria, Kirke's, Washington, Jefferson, Coe's Golden Drop, and Green Gage. The best Pears are hardy kinds such as Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Napoleon, Winter Nelis, Seckle, Green Yair, and Hacon's Incomparable; kinds like Souvenir du Congrès, Beurré Bachelier, Doyenné du Comice, Beurré Diel, Easter Beurré, &c., do not, as a rule, ripen here, even on south walls. We get some good Figs annually off a tree of Castle Kennedy. Early ripening Peaches succeed, Early Beatrice being the best, but Early Alexander is also worth growing. The Strawberries on which we rely are Vicomtesse Héricart de Thury, President, and Elton Pine. American Blackberries invariably carry heavy crops trained on a west wall with an easterly aspect; these form a very desirable dessert fruit for late autumn, and are greatly appreciated by the cook.—R. D. BROTHIERSTON.

**Riccarton, Midlothian.**—Apricots, consisting of the Peach, Moor Park, Oullins Early Peach, all an average crop. Plums, consisting of Green Gage, Coe's Golden Drop, Transparent Gage, are average crops. Cherries, consisting of Archduke Bigarreau, Bigarreau Napoleon, Black Eagle, Black Tartarian, Cleveland Bigarreau, Governor Wood, Knight's Early Black, May Duke, and Morello, are all bearing average crops. Dessert Apples, consisting of Early Nonpareil, Duchess of Oldenburg, Early Strawberry, and Golden Pippin, are all bearing average crops; as are also the following kitchen varieties, viz., Echlinville, Hawthornden, Keswick Codlin, Lord Suffield, Yorkshire Greening, Stirling Castle, and Warner's King. Of Pears, our best are Winter Nelis, Beurré d'Amanlis, Beurré de Capiaumont, Beurré Diel, Beurré Rance, Easter Beurré, and Hacon's Incomparable; Williams' Bon Chrétien, Marie Louise, Louise Bonne of Jersey, Jargonelle, Duchesse d'Angoulême, and Duchesse d'Hiver are below the average—indeed, kinds upon which we cannot depend for a crop. Green Gascoigne, Ironmonger, Red Warrington, Early White, Hedgehog, and Early Sulphur Gooseberries are bearing average crops; as are also the following Currants, viz., Red Dutch, White Dutch, and Lee's Prolific Black. Strawberries, consisting of President, James Veitch, and Keen's Seedling, are bearing average crops, but the fruit is very small. Red Antwerp Raspberries are an average crop.—CHARLES CROMBIE.

**Galloway House, Wigtonshire.**—Fruit crops in this district are very good. Currants, Raspberries, and Strawberries are heavy crops; of the latter, Keen's Seedling, Garibaldi, President, and Elton Pine succeed best here. Gooseberries are mostly good, but in some places much thinned by sparrows destroying the buds after the pruning season. Cherries are good; Morellos under the average, many having turned yellow and fallen off. Apples are an abundant crop both on standards and dwarfs. Keswick Codlin, Cellini, Warner's King, Galloway Pippin, Early Harvest, Quarrenden, King of the Pippins, and Hawthornden are our most constant bearers. Lord Suffield produces fine fruit annually, but the trees canker and die back very much. Pears are under the average; Louise Bonne of Jersey, Ne Plus Meuris, Beurré Diel, Beurré Rance, and Gratioli of Jersey are carrying good crops. Marie Louise and

other late blooming kinds had the bloom destroyed by severe frost and east winds in May. Plums are good on walls; Kirke's, Victoria, Lawson's Golden Gage, and Goliath have required thinning. Green Gages and Damsons are very scarce. Figs are good crops, Brown Turkey and Brunswick being the best. Peaches are fairly good for this district. Nectarines very poor. Apricots very few, but not much grown around here.

POTATOES look remarkably healthy, and no disease has appeared as yet.—J. DAY.

**Torwoodlee, Galashiels.**—The sorts of fruit which do best in this locality are, of Apples, Aitken's No. 2, Alfriston, Beauty of Kent, Blenheim Orange, Cellini, Duchess of Oldenburg, Duke of Devonshire, Dumelow's Seedling, Echlinville, Hawthornden, Keswick Codlin, Lady Henniker, Lord Suffield, Manks Codlin, Mannington's Pearmain, Margil, Northern Greening, Peasgood's Nonsuch, Prince Albert, Red Astrachan, Ribston Pippin, Royal Russet, Stirling Castle, Tower of Glamis, Warner's King, Worcester Pearmain, and Yorkshire Greening; all these generally bear well, and the crop is very good this year, but suffering from want of rain. Of Pears, Bon Chrétien, Duchesse d'Angoulême, Beurré Diel, Jargonelle, and Beurré Rance are carrying fairly good crops. Of Green Gage, Jefferson, Kirke's, Orleans, Victoria, and Washington Plums the crop is poor; May Duke and Morello Cherries are fair crops. Strawberries, consisting of Black Prince, British Queen, Doctor Hogg, Elton, Marshal MacMahon, Keen's Seedling, President, Sir Joseph Paxton, and James Veitch, are plentiful, but suffering from want of rain. Gooseberries very plentiful; Black Currants a good crop; Red Currants an extra good crop; Raspberries look well, but all are suffering from want of rain.—THOS. SHANNAN.

**Castle Kennedy, Wigtonshire.**—Apples in this district are a large crop; generally more have set than the trees can bring to maturity. Cherries are very abundant; in most cases trees on walls are loaded with fruit now beginning to colour; therefore a full crop is secure. Figs are only grown outside in warm sheltered gardens; where grown they are carrying a good crop; the Brown Turkey is the favourite; here and there the Castle Kennedy is to be met with; old trees fruit freely. Pears, although they blossomed abundantly, have set indifferently, and many which set have dropped off prematurely; the crop, therefore, both on standards and walls will be under the average. Plums bloomed well, but, like Pears, set indifferently, and dropped a large portion of those set when a little larger than Peas. The weather during May and June was often cold and stormy; little rain fell; consequently there was a deficiency of moisture at the roots, which may account for the deficient crop of Pears and Plums. Peaches and Nectarines are not much grown out of doors, but where grown the leaves are sadly blistered, and the trees altogether in a very unsatisfactory state; the crop of fruit is irregular. Apricots are little grown in this county, in which they do not generally thrive. Currants, Gooseberries, and Raspberries in most places are very abundant; in exceptional cases Gooseberries are thin. Strawberries are an average crop.—A. FOWLER.

**Marchmont House, Dunse.**—Apples here are a heavy crop, but generally late, and unless we have favourable weather for the next two months, many sorts will not ripen. Pears are not so plentiful, though occasionally trees are to be seen bearing a full crop; they are also late. Plums are a medium crop, with the exception of Victoria and Magnum Bonum, which are heavy crops, but the finer sorts are scarce. Apricots are a fair crop. Moor Park set so well, that in most cases thinning was necessary. Peaches on walls are fairly good, but late. Strawberries have not set well, the result of frosty nights. On June 23 the black bulb thermometer resting on the Grass read at 9 a.m. 23°, or 9° of frost; on the 26th, 28°, or 4°; on the 30th, 31°, or 1° of frost; and on July 1, 26°, or 6° of frost; on July 9, 29°, or 3°; on the 12th and 14th it touched the freezing point. These low temperatures have completely destroyed this crop here. There are a few berries to be got that have been sheltered by the foliage, but they are shrivelled and unshapely. Black Currants are a heavy crop—the

best fruit crop indeed of the season. Red and White Currants are medium; they suffered when in bloom from the frost, and they are not swelling as they should do. Raspberries are plentiful, but late; the first shoots were killed by frost. Filberts are scarce. Gooseberries very scarce. Walnuts plentiful. Altogether this is not a good fruit season in this neighbourhood.—PETER LONEY.

**The Hirsell, Coldstream.**—Speaking generally, Apricots are an average crop; Plums average; Pears average; Cherries average; Apples over the average; Peaches under the average (few grown out of doors); small fruits average. Among kitchen Apples the most reliable are Lord Suffield, Warner's King, Dumelow's Seedling, Stirling Castle, Manks Codlin, Echlinville, Cox's Pomona, Annie Elizabeth, Alfriston, Aitken's No. 2, Hawthornden, and Golden Noble; and among dessert sorts are Ribston Pippin, Kerry Thorne Pippin, King of the Pippins, Paradise Pippin, Fearn's Pippin, Cambusnethan Pippin, Devonshire Quarrenden, Worcester Pearmain, Duchess of Oldenburg, Red Astrachan, and Bush Peach. Among dessert sorts that do not do well are Scarlet Nonpareil, Pennington's Seedling, Cockle, New Rock Pippin, Cox's Orange Pippin, as a standard, Mannington's Pearmain, and Sturmer Pippin. Most kitchen Apples do fairly well; Cellini is very subject to canker. Among Pears those that succeed best are Citron des Carmes, Jargonelle, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Diel, Beurré d'Aremberg, Beurré de Rance, Beurré Superfin, Louise Bonne of Jersey, Marie Louise, and Doyenné du Comice. The finer French sorts do not succeed. As standards, Early Lammas, Jargonelle, Doyenné Boussoch, Louise Bonne of Jersey, Marie Louise, and Moorfowl's Egg all do fairly well. The Plums that do best are Green Gage, July Gage, Kirke's, Jefferson, Coe's Golden Drop, and Victoria. Moor Park Apricot is the best. Of Cherries, May Duke and Morello are what we rely most on.—JOHN CAIRNS.

**Paxton House, Berwickshire.**—The fruit crop in this district is fully an average one. Apples are a heavy crop. The kinds which succeed best here are Adams' Pearmain, Alfriston, Allanbank Seedling, Aston Pippin, Bedfordshire Foundling, Court of Wick, Cox's Orange Pippin, Dumelow's Seedling, Echlinville, Irish Peach, King of the Pippins, Kentish Fillbasket, Keswick Codlin, Hawthornden, Lord Suffield, Newton Pippin, Northern Spy, Norfolk Bearer, Rymer, and Stirling Castle. Our best Pears are Aston Town, Beurré d'Amanlis, Beurré Bachelier, Beurré Diel, Beurré Superfin, Flemish Beauty, Fondante d'Automne, Marie Louise, and Williams' Bon Chrétien. Apricots, Morello Cherries, and Plums are fair crops. Small fruits, such as Black and Red Currants, are excellent. Gooseberries and Strawberries are only fairly good crops, the frost in May having injured the former and the dry weather in the end of June the latter.—ALEX. M'INTOSH.

**Alloa Park.**—Apples here are a very abundant crop. The varieties which do best and which are most grown are Stirling Castle, Waltham Abbey Seedling, Cellini, Coe's Golden Drop, Keswick Codlin, Manks Codlin, Dumelow's and Echlinville Seedlings, Hawthornden, Lord Burghley, Lord Suffield, Cox's Orange Pippin, and King of the Pippins. The crop of Cherries is rather over the average. May Duke and Morellos are the only varieties grown worth mentioning. Pears are under the average crop. The kinds most grown are Beurré d'Aremberg, Beurré Diel, Williams' Bon Chrétien, Glou Morceau, Hesse, Louise Bonne of Jersey, Jargonelle, and Marie Louise. Plums are under the average. Coe's Golden Drop, Green Gage, Jefferson, Kirke's, and Victoria are the principal varieties cultivated. Strawberries are a plentiful crop. The varieties giving the best results are Black Prince, President, Cambrian Prince, Duke of Edinburgh, Elton Pine, Garibaldi, James Veitch, Keen's Seedling, Sir Joseph Paxton, and Stirling Castle. Apricots, Peaches, and Nectarines do not succeed very well here. The crop of all three is poor. Small fruits are abundant.—THOMAS ORMISTON.

**Balcarras, Colinsburgh.**—The fruit crops in this district are fairly good. Apples are a heavy crop, particularly Lord Suffield, Keswick Codlin,



Warner's King, Cellini, Hawthornden, Irish Peach, Aitken's Seedling, Tower of Glamis, and Ribston Pippin. Pears, consisting of Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Marie Louise, and Beurré Capiaumont, on walls are good crops—the best for several years. Plums where protected are about half a crop. The best are Victoria, Kirke's, Jefferson's and Golden Drop. Cherries are good, particularly Morello. Of Apricots and Peaches we have about half a crop in sheltered places, but they are not much grown outside now in this district. Strawberries are an average crop, but suffering much from want of rain. Garibaldi and President are the best, and Elton Pine is the best late variety. All varieties of Gooseberries are heavy crops, particularly Whitesmith, Crown Bob, Sulphur, Green Gage, Green London, and Warrington. Currants, Red, White, and Black, are all good; also Raspberries. All kinds of fruit are ten days late. Our soil is strong heavy loam, and the garden is well protected all round with trees.—EDWARD TATE.

**Wemyss Castle.**—Apricots, Plums, and early Cherries, except in dry, sheltered situations, are a failure in this part of Fifeshire. Peaches only succeed under glass, a statement which also applies to Figs. Pears, both on walls and standards, are much below the average. All the above suffered greatly from late spring frosts and cold east winds, which prevailed in this district during April, May, and June. Apples are a good crop. Gooseberries, Currants, and Raspberries are fair average crops. Strawberries are excellent, but much in want of rain to swell the fruit.—J. CLARK.

**Poltalloch, Lochgilphead.**—Apples with us are always a precarious crop, neither soil nor situation being suitable for them. The trees are grafted on the Paradise and Crab stock, and grown as standards and bushes round the garden quarters and orchard. Some of them bear crops for a few years; then they suddenly get blighted and decay. The following are the kinds that do best, viz., King of the Pippins, Kerry Pippin, Stirling Castle, Emperor Alexander, Keswick Codlin, Nelson's Glory, Dumelow's Seedling, Yorkshire Greening, and Alfriston. The last two bear, but do not ripen their fruit; indeed this may be said of all kinds when the season is cold and wet. Pears as standards do not thrive here in the open, and only a few of the earlier sorts succeed on walls. The following do best, viz., Beurré d'Amanlis, Beurré de Capiaumont, Comte de Lamy, Louise Bonne of Jersey, Marie Louise, Gratioli of Jersey, Fondante d'Automne, and Doyenné d'Été. Plums are all grown on walls and generally produce good crops. The following are our best sorts, viz., Green Gage, Golden Drop, Jefferson, Kirke's, Orleans, Victoria, Early Prolific, and Washington, the last named not being very productive. Of Cherries, only two varieties are grown here, viz., May Duke, which bears rather a thin crop this year, and Morello, which are bearing good crops. Apricots and Peaches are not grown here on walls, the climate being unsuitable for them. Gooseberries are good crops; only the following dessert sorts are grown here, viz., Green Gage, Iron-monger, Red, White, and Yellow Champagne, Red Warrington, Rumbullion, Whitesmith, Yellow Sulphur, and Rough Red. Currants, Red and White, are good crops; of the former Victoria is by far the best bearer; and Raby Castle the worst; Black Naples and Ogden's Black are the best of that class, but do not usually bear well. Strawberries are an uncertain crop; Keen's Seedling and Garibaldi are among the most successful kinds. The climate is too wet and cold for the others.—J. RUSSELL.

**Munches, Dalbeattie.**—Cherries here are average crops. Pears on some varieties are fairly good, and Apples the same. Of Pears, in a cool orchard house, and Plums we have plenty; Plums outside are thin. Strawberries are a grand crop. Gooseberries an average crop. Raspberries look well. Of Red and Black Currants we have fair crops.—JOHN JEFFREY.

**Drummond Castle.**—Apples, such as Lord Suffield (of which I grow a quantity), Stirling Castle, Cellini, and Hawthornden, are good. These are all kitchen Apples grown here, and all do well. Of dessert Apples we grow Scarlet Nonpareil, Ribston

Pippin, Northern Spy, Oslin, and Irish Peach, all of which are good. Of May Duke Cherries we have forty trees loaded with very fine fruit; of Morello too we have bushels. Plums, consisting of Coe's Golden Drop, Green Gage, Jefferson's, Kirke's, Orleans, Pond's Seedling, White Magnum Bonum, and Washington, are good crops, and on Victoria there is a heavy crop. Gooseberries are a very sparse crop. Red and White Currants are heavy, also Black. Strawberries and Raspberries are also heavy crops, very much better than I have seen them for years; but, as a rule, in this part of Scotland Plums and Cherries are the best and surest crops of fruit. Pears and Apples of the finer sorts require glass protection to make them fit for table.—JOHN ROBB.

**Taymouth Castle, Aberfeldy.**—Pears here are a light crop; Plums average; Apples a heavy crop; Cherries good; Strawberries and Raspberries heavy crops; Gooseberries and Currants also heavy. We grow a great many varieties of Apples, but the most reliable are the following, which seldom fail to produce good crops, viz., Lord Suffield, Echlinville, Hawthornden, Keswick Codlin, Cellini, Stirling Castle, and Tower of Glamis. Pears, except Jargonelles, are never good. All sorts of Plums do well trained to walls. Victoria we grow as standards, but they seldom ripen their fruit thoroughly. Cherries are almost invariably good. Other sorts of bush fruits are plentiful.—ADAM YOUNG.

**Rossie Castle, Montrose.**—Gooseberries here are thin. Apples, although there was a great deal of flower, are not so plentiful as one would have thought. Currants good, likewise Strawberries, but small. The dry weather has been against them. The older kinds of Pears succeed well here, though the climate is rather too cold for them; Jargonelle especially does well. All round about here, as far as I can learn, fruit is thin.—THOMAS NESS.

**Pitfour Castle, Perth.**—We have given up outdoor Peach growing here for some years; what with unripened wood in autumn and blistered foliage in spring, the matter became so unsatisfactory, that we decided to extend our houses and make provision for a full supply under glass, and now I consider that we have made a good investment. Apricots invariably do well with us, and are a full crop. Pears and Plums, which blossomed unusually well, suffered from hail and sleet and are only half a crop; Marie Louise, Louise Bonne of Jersey, and Jargonelle suffered worst. Figs fair. Apples and Medlars are bearing enormous crops, and if relieved of half of them it would be an advantage. Walnuts and Filberts will be scarce. Currants, Gooseberries, and Strawberries are full crops, the latter due principally to a full supply of water having been brought to the gardens last year. We are now passing through a very severe drought of some eight weeks' duration.—ALEX. FORBES.

**Beaufort Castle, Beaulieu.**—A very sharp frost on the 11th of May hurt our fruit crops sadly, so much so that Black and Red Currants are almost a failure, and Gooseberries but half a crop. Pears, Plums, and Cherries in most cases will be but poor crops. What few Pears we have on walls are small and stunted. Apricots, where the trees are healthy, are a good crop. Apples, which were very late in flowering, will be a very heavy crop, above the average, but the fruit will be late and small in size. Early Strawberries just coming in are suffering from want of rain. Peaches at one time were grown on open walls here, and did well in some seasons, but for some years they have been given up and some of the finer sorts of Pears and Apples substituted, but of late they have not done well. The situation of the garden here is low, and in some parts the soil is rather light. In some of the places near this where the soil is of a heavy texture, Apples and Pears do well in favourable seasons.—WILLIAM ANDERSON.

**Scone Palace.**—The fruit crop in this district is on the whole a good one. Strawberries are plentiful, but owing to the late spring and long continued drought, they are small in size and very late. Apples and the harder kinds of Pears are abundant crops. Gooseberries, Currants, and Raspberries are below the average and very late. Plums, Apricots, and Cherries are fair crops. Peaches and the finer kinds

of Pears grown on open walls, unless in some favoured localities, do not produce satisfactory crops in our climate. Apples generally succeed well, but the fruit as a rule is smaller, not so well coloured, and much more acid in flavour than examples grown in the south. Strawberries and all kinds of bush fruits do remarkably well in the climate of Perthshire.—A. MCKINNON.

**Terregles, Dumfries.**—Fruit crops here are not so heavy as might have been expected. Pears, Plums, and Cherries are poor crops; the cold frosty nights which we had during the first and second weeks of May caused many of the fruit to drop. Apples are looking well, and promise to be the best crop we have had for a number of years. The following sorts are the best, viz., Lord Suffield, Echlinville Seedling, Tower of Glamis, Keswick Codlin, Manks Codlin, Stirling Castle, Duchess of Oldenburg, King of the Pippins, Kerry Pippin, Melon Apple, Northern Greening, Yorkshire Greening, and Worcester Pearmain. Red and Black Currants are a splendid crop. Gooseberries abundant and good. Strawberries also excellent, but owing to drought small and very late. We only gathered our first dish on the 9th. Raspberries also very fine, and promise to be a good heavy crop.—ALEX. CHALMERS.

**Haddo House, Aberdeen.**—Fruit crops hereabouts are in most cases under the average, with the exception of Apples, which are a large crop. Plums, Pears, and Cherries being in flower in the end of April and beginning of May, when we had three weeks of cold, wet, sunless weather with frequent sharp frosts at night, set very thinly. Victoria is the only Plum on which there is a fair crop. Other sorts which usually do fairly well here are Early Prolific (Rivers'), Orleans, Jefferson, Kirke's, Peach, and Coe's Golden Drop. Pears seldom bear well, and with the exception of Bon Chrétien and Moorfowl's Egg are this year almost a failure. Cherries are about half a crop. The only sorts that succeed well with us are May Duke and Morello. Apples, being late, have set an enormous crop. In many cases three-fourths require to be taken off. The following sorts do pretty well here, viz., Golden Pippin, Ribston Pippin, Kerry Pippin, Oslin, King of the Pippins, Nonsuch, Blenheim Orange, Cellini, Golden Noble, Devonshire Quarrenden, Early Strawberry, Stirling Castle, Lord Suffield, Keswick and Manks Codlins, Warner's King, Golden Spire, and Northern Greening. Small fruits are very irregular; in some places a fair crop, in others almost none. On the whole, they are under the average. Strawberries promise to be a large crop; also Raspberries, but in every case they are late, and will not be generally ripe for ten days.—J. FORREST.

**Glamis Castle, Forfar.**—Fruit crops here and in the neighbourhood are mostly quite up to the average, with the exception of Pears, which are a very thin crop. Apples are more plentiful than they have been for twenty years. We grow but few dessert Apples, but grow a large collection of kitchen varieties. Lord Suffield and all the Codlin varieties do extremely well. Northern Dumping, a new Apple, does splendidly; among other varieties that do well are Stirling Castle, Hawthornden, Echlinville, Northern Greening, and Tower of Glamis. Plums are an average crop; our most satisfactory sorts are Victoria, Prince of Wales, Goliath, Magnum Bonum, Jefferson, Pond's Seedling, and Coe's Golden Drop. Of Pears the most satisfactory are Louise Bonne of Jersey, Marie Louise, St. Germain, Thompson's, Moorfowl's Egg, Jargonelle, Vicar of Winkfield, and Williams' Bon Chrétien. Cherries are a good average; Black Heart, Elton, May Duke, Knight's, Early Black, Mammoth, White Heart, and Morello all do well. Strawberries are a large crop, but owing to the drought are small in size; Old Keen's Seedling, Vicomtesse Héricart de Thury, and Elton are our favourites. There are excellent crops of Gooseberries, Currants, and Raspberries.—G. JOHNSTON.

**Pitcaple Castle, Aberdeen.**—The fruit crop here is above the average; Gooseberries, Currants, Raspberries, Plums, Cherries, and Strawberries will be abundant, but at least a fortnight later than usual. Apples are above the average, owing doubtless to the cold weather experienced in May retarding the bloom, and so preventing its being destroyed by frost.



The varieties that produce the best results with me are—Arbroath Oslin, Beauty of Kent, Carlisle Codlin, Cellini, Lord Suffield, Keswick Codlin, Early Harvest, Hawthornden Old, Juneating, and Ribston Pippin. Regarding Pears grown on walls, the only sorts that do well with me are, Moor-fowl's Egg, Knight's Monarch, Swan's Egg, Crawford, and Black Achan; Jargonelle does not do well in this locality. Standard Pears do not succeed in this garden, being destroyed when in bloom by spring frosts. It is rather cold also for Peaches. Apricots do well enough if provided with a brick wall and the situation of the garden is favourable. Small fruits bear abundantly; there has been no scarcity as yet.—**GEORGE THOMSON.**

**Dupplin Castle, Perth.**—Apples here are about an average crop; the sorts bearing best are Lord Suffield, Stirling Castle, Keswick Codlin, and Cellini. Pears are not much grown here; Moorfowl is carrying a good crop. Apricots are a good crop; Moor Park and Hemskirk exceedingly good. Cherries are a very thin crop. Plums are good; Kirke's, Coe's Golden Drop, Prince of Wales, and Jefferson are all bearing excellent crops. Strawberries were partly destroyed by May frosts, but, nevertheless, set a fairly good crop, but have suffered very much from cold nights and drought; consequently the fruit is small. Raspberries and Gooseberries are bearing heavy crops, but very late. Insects have been very troublesome this year on all kinds of fruit trees. With the exception of Apricots nothing was protected here.

POTATOES are looking very well in this district, but everything is suffering very much from want of rain, and crops of all kinds are in a very backward state.—**J. BOWNING.**

**Kinfauns Castle, Perth.**—Of Apricots we have here a full average crop. Peaches (wall) under the average. Plums, with the exception of Coe's Golden Drop and Victoria, are poor. Cherries under the average, except Morellos, which are good. Gooseberries, early sorts much damaged; later sorts good. Currants, Red and Black, abundant. Strawberries, owing to the long dry weather, will be a light crop. Of Pears, most of the finer sorts are a complete failure; the later and harder kinds are a fair average. Apples will be over the average; sorts that do remarkably well with us are King of the Pippins, Warner's King, Stirling Castle, Keswick Codlin, Lord Suffield, Echlinville, Dunmore Pearmain, Cambusnethan Pippin, Bedfordshire Foundling, Ribston, Tower of Glamis, Dutch Mignonne, Kerry Pippin, Irish Peach, Cellini, and Nonsuch. A good many useful Apples, such as Dumelow's Seedling, Blenheim Orange, Lady Henniker, Cox's Orange Pippin, and a number of Reinettes, Nonpareils, Leadington's, and Pippins are quite fruitless. Unless we have a change of weather fruit will be small.—**D. MACDONALD.**

**Dunkeld.**—Apricots are extra fine and the foliage clean, especially Shipley, Royal, Large Early, and Orange; these are the best crops we have had for years. Plums and Cherries bad. Peaches and Nectarines good. Apples extra good. Pears not an average crop. Small fruits under the average. The sorts of Plums that do best here are Jefferson, Victoria, Kirke's, Goliath, and Lawson's Golden Gage; every Plum we have tried does well except Washington. We grow most Apricots here, and they all do better than Moor Park. Amongst Cherries, May Duke and Late Duke are our favourites; however, I may say that most Cherries do well here. Amongst Peaches my favourite is Hale's Early; I gathered magnificent fruit of it out-of-doors on August 12 last year. Early York is grand, also Early Albert and Early Silver, and number of others do well. Likewise of Nectarines I find Elruge, Pine-apple, and Balgowan very good; Lord Napier is good also. Of Apples we grow a great many; Cellini is the best cropper we have. Of Pears for early work, the best is Jargonelle, next Williams' Bon Chrétien, and for late work we like the Beurrés.—**P. W. FAIRGRIEVE.**

**Dunrobin Castle, Sutherland.**—Fruit crops here this season are in most instances over the average. Apples are a heavy crop, but will probably be undersized. Small fruits are abundant and have every appearance of being of good quality. Gooseberries

are a very heavy crop. Cherries are over the average. Plums are an average crop. Pears below the average. The most satisfactory Strawberries here are Garibaldi for first crop, and Elton Pine for late use. The most satisfactory Cherries are May Duke, Elton, Black Circassian, and Morello. Plums, Coe's Golden Drop, Denyer's Victoria, and Magnum Bonum. Of Pears the best are Jargonelle, Williams' Bon Chrétien, and Autumn Bergamot. The old Red Warrington Gooseberry does well here for late autumn use.

POTATOES look well, but are later than usual. On the whole both vegetables and fruits promise to be abundant and good, but ten days or a fortnight later than usual. We are sheltered from the north, north-east, and north-west by woods and rising ground, but we are full exposed to the east and south-east winds. Owing to our proximity to the sea we seldom have more than 15° to 18° of frost.—**D. MELVILLE.**

**Parkhill, Ross-shire.**—Fruit prospects in March and April this year were good, but the trees suffered from the exceptionally cold and frosty weather during May, which, in many instances, prevented standards from flowering until the end of the first week in June. Early fruits do well here, but I do not expect great results from late varieties, as they have already lost at least one month's growth. The prospect of a crop on walls where protected is better than in the case of standards. Apricots, Peaches, and Nectarines are good crops, and promise to do well; also Apples and Pears. Cherries are good on walls, but in many instances failed on standards. Plums on walls are very plentiful, especially Victoria, Kirke's, Jefferson's, and Magnum Bonum; but owing to the frosts, May Gages are almost a failure. Strawberries are plentiful and of excellent quality. Gooseberries are not so plentiful. All other small fruits are plentiful and good.—**J. MACKAY.**

**Brodie Castle, Forbes.**—The Apple crop in this neighbourhood is above the average. Pears about an average, and small fruits the same, with the exception of Gooseberries, which in some places are very thin. Respecting the gardens here, which have a northern aspect, I would say Apples are above the average; Pears rather under; Cherries average; Plums very fine; Apricots and Gooseberries average; Black Currants under the average; Red Currants average; Strawberries under the average, Black Prince just getting coloured, but none gathered yet. Apples that do well here are Stirling Castle, Tower of Glamis, Carlisle Codlin, Paradise Pippin, Lord Suffield, Hawthornden, and Ribston. The last two are much given to canker. Amongst Pears, Hessele, Williams' Bon Chrétien, Moorfowl's Egg, Swan's Egg (never misses), Jargonelle (cankers very badly), Easter Beurré, Winter Nelis, Hacon's Incomparable, and Louise Bonne of Jersey all do pretty well. Amongst Strawberries, the best are Black Prince, Garibaldi, President, Sir J. Paxton, and Elton Pine. Dr. Hogg and British Queen do not do well.—**JOHN CLARKE.**

**Cullen House, Banff.**—I never recollect seeing Apple trees so much loaded with clusters of fruit as this year. They literally crowd each other. Less than half the rainfall of ordinary seasons has fallen this spring, and up to the present date all sorts of crops are suffering much for want of moisture. Plums are the only fruits that are next to being a failure in this part. The extraordinary crop last season accounts for the shortcomings of this one. Apricots, Peaches, Nectarines, and Cherries are full crops. Pears, Apples, Strawberries, and Gooseberries are good here, but there are complaints throughout the county that Gooseberries are a failure and that Strawberries have suffered a great check through the extra heat and drought of the last fortnight. Gooseberries in exposed situations suffered very much from the severe weather in March, which destroyed them when in bloom in much exposed gardens. Other sorts of small fruits are very abundant, especially Black Currants, where the bushes were not stripped of their buds in early spring by bullfinches. Upon the whole, fruit crops in this quarter are good.—**GEORGE BARRY.**

**Gordon Castle, Fochabers.**—The fruit crop in the north of Scotland may in general be considered to be of a satisfactory character, except in a few isolated districts, where fruits have dropped off lately,

although apparently well set and from causes not easily accounted for, as some sorts escape, while others closely adjoining fail. Here we have good crops of all kinds except Plums. Standards flowered profusely and apparently set freely; but after attaining the size of Peas, large numbers ceased to grow further, and the consequence is that we have a short crop both on standards and on walls. Apricots, Pears, and Peaches are good on walls; on espaliers and standards some sorts of Pears have lately shed their fruit a good deal. Conspicuous amongst them is Williams' Bon Chrétien, which usually fruits freely here on espaliers. The following growing in the same manner have more or less shed their fruits, viz., Louise Bonne of Jersey, Comte de Lamy, and Napoleon. Apples are generally abundant; so are Strawberries and all kinds of bush fruits. Owing to the long continuation of cold, harsh winds, the foliage of some of the old Apple trees has suffered from blight, which will cause the fruit to be smaller than usual.—**J. WEBSTER.**

**Cawdor Castle, Nairnshire.**—Gooseberries are good here; bushes unpruned for fifty years loaded; old-fashioned sorts small, highly flavoured, and sure bearers. Currants average; Black, Red, and White scarcely ever fail. Raspberries good. Strawberries prolific, small, and in much need of rain. Apples enormous on all sorts of trees, but likely to be small unless well thinned and we get more moisture than at present; Lord Suffield is our best for kitchen use, it never fails to crop well; for early dessert we like White Astrachan, which is also a sure bearer; Thorle Pippin is a pretty early dessert fruit. Pears flowered profusely, but dropped so many that they are now thin; the best Pear we have is the Jargonelle; it seldom fails to bear a crop. Cherries dropped their fruit and are thin. Plums thin, even Victorias are far under the average; Plums cropped heavily last season, and it being dry failed to mature their buds for this season; Jefferson's, Golden Drop, and Victorias are the best and surest here. Peaches and Apricots are fairly well cropped; Royal George Peach and Hemskirk and Moor Park Apricots are the best we have here.—**JAMES MAITLAND.**

#### IRELAND.

**Straffan House, Kildare.**—Apricots here are an average crop. Plums much under the average, and suffering very much from drought; upon Early July Green Gage, Victoria, Angelina Burdett, and Denniston's Superb we have fairly good crops. Amongst Cherries, May Duke and Morello are bearing average crops. Of Peaches we have none; the trees seem to be quite killed by the cold east winds which we had during May and early part of June, but in a Peach case we have a splendid crop. Apples are under the average, having dropped very much; on Golden Pearmain, Hawthornden, Golden Reinette, Cox's Orange Pippin, King of the Pippins, Blenheim Orange, Lemon Pippin, Echlinville, Bess Pool, and Cackle, however, we have fair crops. Pears are a good crop; the best are Beurré Rance, Glou Morceau, Passe Colmar, Thompson's, Knight's Monarch, Ne Plus Meuris, Pitmaston Duchess, Autumn Bergamot, Bergamote d'Esperen, Doyenné du Comice, and Winter Nelis. Strawberries are over the average and extra good; Vicomtesse Héricart de Thury, President, Sir J. Paxton, and Black Prince are sure croppers here. Gooseberries are an average crop and good; Currants and Raspberries are also average crops, but very late, and suffering from drought. Filberts promise to be a good crop.—**F. BEDFORD.**

**Powerscourt, Enniskerry.**—Apples; consisting of such kitchen varieties as Keswick Codlin, Echlinville, Tower of Glamis, Lord Suffield, Stirling Castle, and other sure croppers, are very plentiful and good. Of shy bearing sorts we have none. Amongst dessert kinds, King of the Pippins, Lemon Pippin, Golden Pippin, Quarrenden, Cackle Pippin, Cox's Orange Pippin, Adams' Pearmain, and Margil are plentiful and good. The trees are affected with mildew, and suffered badly from frost and east winds early in May. Pears are very scarce, with the exception of one or two varieties, chiefly Thompson's and Williams' Bon Chrétien; of other sorts there is not half a crop. Plums are plentiful and good on walls; standards almost fruitless. Cherries and Apricots



are very plentiful and good. Nuts are very good. Strawberries and Raspberries also very good. Other small fruits full average crops, but a fortnight later than usual. In this district whenever a full crop of Apples and Pears is found, it is invariably in sheltered positions, a circumstance which proves that the cold winds and frosts of May, when the trees were in blossom, had much to do in making small crops. Vegetation generally is a fortnight later than usual.—G. H. McCULLOCH.

**Markree Castle, Sligo.**—Owing to the gardens at this place being low and situated on the banks of a sluggish river and surrounded by large forest trees, we are very much subjected to late spring frosts, which have frequently in one night made our hopes of a good crop entirely vanish. This season standard Plums in the open have suffered, likewise early flowering Apples, but later kinds have set an over-abundant crop, thinning being necessary; the following are the most to be relied on in this district, viz., Dutch Mignonne, King of the Pippins, Betty Geeson, Keswick Codlin, Northern and Yorkshire Greenings; the following do fairly well, viz., Bedfordshire Foundling, Golden Noble, Hawthornden (Winter), Lady Henniker, Tower of Glamis, Small's Admirable, Kerry, Ribston, and Blenheim Pippins; the following have failed here, viz., Oslin, Cellini, Dumelow's Seedling, Beauty of Kent, Lord Suffield, Cox's Orange Pippin, and Gravenstein. Of Pears there is a good average crop on walls; we can place no reliance on trees in the open, and seldom ever get a good crop from them. Apricots do not succeed here. Cherries are a good average crop. Medlars average. We have given up growing Peaches and Nectarines on open walls, as being altogether unreliable. Plums are rather under the average; out of a collection of thirty varieties the following are the best, viz., Victoria, Kirke's, Coe's Golden Drop, and Jefferson's. Quinces seldom ever set their fruit here. Small fruits and Strawberries are abundant, but Gooseberries are badly affected with the Gooseberry fungus which is very prevalent in this district this season.—J. MCPHAIL.

**Shane's Castle, Antrim.**—I have made inquiries as far as possible during the week, and find that most of my neighbours have about the same amount of crop as we have here. One and all complain of fungi on their Gooseberries. It appeared just after a very heavy hailstorm, which occurred when the fruit was small. I find, however, that the berries not attacked by it will be much larger than last year, and will turn out pretty well on the whole. The Jargonelle Pear carries a grand crop here again this year. The Irish Peach Apple, which generally carries a good crop in most places, is almost a failure this season. Of Apples in the garden here early varieties are scarce, but late kinds are a very heavy crop. Pears are an average crop; Peaches and Nectarines very light; Apricots none; Plums a very light crop; Figs a good crop; Strawberries very abundant, but small; Gooseberries an average crop, but good; Red and White Currants are fair crops, Black a very heavy crop; Raspberries also a heavy crop.—CHARLES WARWICK.

**Charleville Forest, Tullamore.**—Apples here are a good crop. Pears much below the average. Plums a failure. Cherries very good. Apricots are a fair crop. Strawberries a large crop, but small, owing to want of rain. Raspberries are good, but not ripe. Black Currants under the average. Gooseberries are very good, and a heavy crop. Red and White Currants are very heavy crops. Damsons a fair crop. On Pears, Plums, and Damsons we had a fine show of bloom, but owing to the frosts and harsh winds which then prevailed the crop has proved a disappointment. Rain is very much needed at present. Cherries and bush fruits are suffering from drought, but the few good showers which have fallen lately have done much good. No variety of Peaches will grow outside here, and as regards Cherries the only ones which succeed well are May Duke and its varieties. In other districts adjoining I hear the Plum crop is very small.—J. ROBERTS.

**Glenart Castle, Arklow.**—Fruit crops in this neighbourhood are good, but they dropped a good deal after being set, especially Pears, Plums, and Cherries. Apricots are good in some places; Plums

are a poor crop except the Victoria on walls. Of Peaches and Nectarines few are grown out-of-doors; where they are, the trees are much blistered. Pears are good on walls; none on standards or pyramids. Our best sorts are Beurré Diel, B. de Capiaumont, B. d'Aremberg, Easter Beurré, Althorpe Crassane, Doyenné du Comice, Marie Louise, Louise Bonne of Jersey, and Pitmaston Duchess. Crops of Apples are very good; our best sorts are Lord Suffield, Keswick Codlin, Cox's Pomona, Orange Pippin, Court of Wick, Adam's Pearmain, Alfriston, Ashmead's Kernel, Beauty of Kent, Echlinville Seedling, Lord Burghley, Tower of Glamis, and Lord Derby. Small fruits of all kinds are good.—R. WILLMET.

**Lismore Castle, Waterford.**—After an unusually fine show of bloom heavy crops of Apples were expected, but May and the beginning of June turned out so unfavourable, what with heavy hailstorms and frosty nights and an unusually low temperature, that great injury was done. They have, however, come out of the ordeal better than was expected, and I think the yield will reach something above the average. The varieties mostly grown and which give most satisfaction are: Dessert kinds—Kerry Pippin, King of the Pippins, Golden Pippin, Blenheim Orange, and Court Pendu Plat. Ribston does fairly well, but is very much subject to canker. Our best culinary sorts are Hawthornden, Lord Suffield, Keswick Codlin, Emperor Alexander, Mère de Ménage, and Kentish Fillbasket. Many other varieties are grown, but the above are the surest croppers. This district and the valley of the Blackwater abound in orchards, and I think the yield of cider this year will be better than was generally expected. The Pear crop, on account of the severity of the weather when in bloom, this year will fall far below the average, especially kinds which blossom early, they having been literally cut to pieces by hailstorms. Even Williams' Bon Chrétien, one of the surest croppers, is almost devoid of fruit. The other best varieties grown here are Beurré d'Amanlis, Easter Beurré, Beurré Superfin, Marie Louise, Duchesse d'Angoulême, Louise Bonne, and Jargonelle. Plums are an abundant crop. Those which give most satisfaction are Coe's Golden Drop, Rivers' Early Prolific (a very sure cropper), Magnum Bonum, Pond's Seedling, Victoria, and Washington. Green Gages do very well on a south wall with a little protection. Cherries promised to yield heavily, but a great many have fallen. However, the crop is a good average one, Morellos in particular being very heavily laden. Peaches and Nectarines (out-door), thanks to the fine season of last year, ripened their wood splendidly, and produced a grand show of bloom, which set very well, but the cold weather of May retarded them very much, and caused a great deal of blister on the young foliage. The spell of fine weather since has, however, completely recovered them, so that Peaches and Nectarines ought to be an abundant crop. Our park walls are protected by glass copings 3 feet in width. Noblesse, Royal George, Barrington, Violette Hâtive, and Walburton Admirable we find to be the best, and to give a good succession. Of Nectarines, Elruge, Violette Hâtive, and Pitmaston Orange are the only sorts grown. Apricots this year are carrying very fair crops. Moor Park is the only variety grown, and by far the best. Small fruits of every kind are carrying abundant crops, especially Strawberries. The varieties principally in cultivation are President, Vicomtesse Héricart de Thury, Dr. Hogg, James Veitch, Maréchal MacMahon, and Elton Pine for late use. On the whole, I consider that the fruit crops in this district will far exceed the average of late years, Pears excepted. Early springs are a great evil in this country, as we generally have some cold frosty weather about April or May, which injures, more or less, the young fruit. The thermometer in winter seldom falls below 20° Fahr., but we have a very heavy rainfall.—P. AHERNE.

**Headfort, Meath.**—Apples generally hereabouts are a fair crop, except in exposed orchards where the late frosts destroyed the bloom. Pears are very thin. Of Peaches and Nectarines we had a nice set on trees planted in the spring of 1883, and the trees are very healthy and clean; the varieties are Royal George, Stirling Castle, Early Alfred, Noblesse, and Dymond Peaches, and Pitmaston Orange, Elruge, and Pine-

apple Nectarines. Of Plums we have good crops, and Victorias remarkably heavy. Of Damsons we have scarcely any. Apricots (Moor Park) are very good. Strawberries are a remarkably heavy crop, particularly Gee's Wonderful, Vicomtesse Héricart de Thury, and Wizard of the North, the last a somewhat late variety, but a very abundant cropper. Gooseberries set well, but in most places have suffered a great deal from fungus on the berries. Small fruits are average crops. Figs look well, and if the autumn be favourable will be a fine crop. Most of the fruit trees here are young, and are making nice, clean growth, which, if well ripened, should give good returns next season.—WM. IRELAND.

**Fota Island, Queenstown.**—Fruit crops in the south of Ireland are on the whole very satisfactory. Apples promise to be good in quality, but the heavy hailstorms and long cold spring destroyed the hopes of some growers of having very heavy crops. The kinds that stood the best amongst kitchen fruit are Lord Suffield, Golden Noble, Lady Henniker, Hawthornden, Northern Greening, and Cox's Pomona. Among dessert sorts the best are Ribston Pippin, Cornish Gilliflower, Kerry Pippin, Irish Peach, Cox's Orange Pippin, Blenheim Orange, and Sturmer Pippin. Pears are an average crop; Williams' Bon Chrétien, Duchesse d'Angoulême, Louise Bonne of Jersey, Comte de Lamy, Glou Morceau, Beurré Diel, Chaumontel, and Beurré Hardy are our best croppers, and the last-named Pear is not so much grown as it should be, as it has so many good qualities to recommend it; the tree is a very healthy grower, and bears regularly not too heavy a crop; the fruit is of large size and good quality. Peaches and Apricots under a glass coping are very heavy crops. It is yet too early to judge of their quality. Plums are a fair average crop; Victoria, Prince Englebert, and Orleans bore far too much fruit; therefore three-fourths have been taken off; Kirke's, Jefferson's, Green Gage, Magnum Bonum, Prince of Wales, and Golden Oullins are also bearing a heavy crop. Cherries on walls are very good. Of small fruits we have a fair crop. Gooseberries are not so heavy as in some seasons, but very fine.—W. OSBORNE.

**Kylemore Gardens, Kylemore.**—In exposed places along the west coast of Ireland the Atlantic gales do serious damage to all fruit trees when in bloom. There is, however, a good crop of Apples on varieties such as Warner's King, Stirling Castle, King of the Pippins, Lord Suffield, Echlinville, Keswick Codlin, Peasgood's Nonsuch, Hawthornden, Alfriston, Cellini, and Wellington. Pears, being a thin crop, are likely to swell to a good size. Marie Louise, Louise Bonne of Jersey, Williams' Bon Chrétien, Beurré Diel, Autumn Bergamot, and Jargonelle are bearing the best crops. Apricots, Peaches, Nectarines, and Cherries are very thin out-of-doors; but Strawberries, Raspberries, Gooseberries, and Currants are abundant, large in size, and good in quality. JOHN MCKINNON.

**Castlewellan, Down.**—Apples hereabouts are an abundant crop. In bad seasons the most reliable varieties are Lord Suffield, Warner's King, Stirling Castle, Echlinville Seedling, and Keswick Codlin. The following Pears are an average crop, viz., Knight's Monarch (always a full crop), Comte de Lamy, Jargonelle, Beurré Diel, Williams' Bon Chrétien, Doyenné d'Été, Beurré Rance, and Easter Beurré. Plums and Damsons are a failure. Cherries about half a crop. Currants of all sorts are a heavy crop, but much injured owing to drought. Gooseberries are an average crop. Raspberries and Strawberries are full crops. Apricots, Figs, Peaches, and Nectarines, and also choice kinds of Plums, Pears, and Apples are grown under glass.—T. RYAN.

**Palace, Armagh.**—Of Apples we have a very good crop. King of the Pippins is the surest cropping variety we grow. Of Apricots we have very few in this neighbourhood. Morello Cherries are good; others very thin. Our soil does not suit them. Black Currants set well, but have all dropped off through blight. Red and White are both fair crops. Figs are very thin; they have not done well for some years. Gooseberries are a very fair crop, but late; frost destroyed some of the fruit near the tops of the bushes. Peaches and Nectarines are not grown outside, being too uncertain. Pears are thin; Napoleon



is the surest cropping variety here. Plums are very thin. Raspberries very good, but want rain. Strawberries also good, but late; first Black Prince gathered on July 4. Walnuts are very fair crops, but they seldom ripen well here.—THOS. SHEASBY.

# WALES.

**Hawarden Castle, Flint.**—Fruit crops here are very good, with the exception of Plums and Apricots. In the neighbourhood there appears to be a good general crop, but stone fruits I am afraid are a failure. Strawberries, Cherries, Gooseberries, Currants, and Apples succeed best hereabouts. Pears, Plums, and Apricots are sometimes not good.—JOHN FORSYTH.

**Maesllwch Castle, Radnorshire.**—Fruit crops in this district are not good. Apples are a very poor crop. The best are Lord Suffield, Hawthornden, Juneating, Quarrenden, Ribston Pippin, King of the Pippins, and Striped Beaufin. Pears set in great numbers, but have since fallen off, leaving the trees in some instances quite bare. The best are Marie Louise, Glou Morceau, Louise Bonne of Jersey, and Easter Beurré. Cherries are a failure; and of Plums we have very few, with the exception of Victoria and Diamond, which are carrying good crops. These two never fail with us. Strawberries are a heavy crop, but small, from want of water. Gooseberries and Currants plentiful. Apricots and Peaches on walls are, the first pretty well, the last thin. On the whole, our fruit crop is much below the average.—THOMAS BETTS.

**Plas-yn-Dinas, Merioneth.**—Fruit crops are not good in this district, with the exception of Strawberries and Raspberries. Apples, Pears, Plums, and Cherries are complete failures; in fact, it is rare that we get a good season for these fruits here. I cannot say there is a single variety of Plum or Pear that would do well here, and I only know of two varieties of Apples—viz., Duchess of Oldenburg and Lady Derby. These two seldom miss a single year without producing grand crops. Peaches, Nectarines, and Apricots will not succeed here at all outside. Gooseberries and Currants succeed very well as a rule, but are very poor this season. Strawberries are a certain crop every year, bearing abundantly. We have a large break of President that has not been touched for seven years, and it has equally as good a crop this year as it had five years ago. The climate alters so much in this district in short distances, that it is quite possible that ten miles, or even five miles, may make a great difference as to what varieties of tree would succeed. This is owing to the mountains. It is very moist in this locality, and we have very little sunshine, the latter leaving us about three o'clock even at this time of the year; and in winter, if it shines at all, it is something uncommon.—JAMES LAURIE.

**Singleton, Swansea.**—Peaches, Nectarines, and small fruits generally are quite average crops here; in fact, Peaches and Nectarines we have never seen better. In some of the lower and more sheltered parts there are capital crops of Apples and a great many Pears. Amongst Plums, Coe's Golden Drop, Victoria, and Haling's Superb are our best bearing kinds, especially as standards. The following Peaches are named in the order of their ripening here, viz., Early Beatrice, Alexander, Hale's Early, Dr. Hogg (one of the best bearing and constitutioned Peaches we have), Early Louise, Grosse Mignonne, Bellegarde, Alexandra Noblesse, Sea Eagle (the best September Peach we have), Walburton Admirable, Salway, Royal George, and Old Noblesse. This last we have lately failed to grow satisfactorily out-of-doors, being so subject to mildew. We still look upon Royal George as our best forcing Peach. We have not found the following Peaches prolific out-of-doors, viz., Crawford's Early, Stump the World, Goshawk, and Lord Palmerston. These are flavourless. The following Nectarines have set good crops, viz., Rivers' Early Orange, Elruge, Pitmaston Orange, Humboldt (very fine), and Victoria. The last does well here, although we hear of it not doing so well in some places. Small fruits are very good here in crop and quality, particularly Gooseberries. Cherries and Apricots do not succeed here.—J. HARRIS.

**Cardiff Castle.**—Fruit crops in this neighbourhood, with a few exceptions, are light. Apples, Pears, Plums, and Cherries flowered abundantly, but the fruit, in most cases, did not set well. Of Pears, our best crops are on wall trees, consisting of Beurré Diel, B. Bosc, B. Clairgeau, B. Superfin, Williams' Bon Chrétien, Duchesse d'Angoulême, Glou Morceau, Marie Louise, and General Todleben; pyramid trees that are bearing best this year are Jargonelle and Duchesse d'Angoulême. Of Apples, generally, we have not more than half a crop. Peaches, Apricots, Cherries, and Figs good. Plums none. Gooseberries very partial; in some place a good crop, and in others a short distance off none, the buds having been destroyed by birds. Strawberries are not more than half a crop; owing to the dry weather, their fruit is much smaller than usual and deficient in flavour.—A. PETTIGREW.

**Margam Park, Glamorgan.**—Most fruit crops here and in this district are very satisfactory this season. Apples are an average crop; Pears above the average; Plums rather under; Apricots good; Peaches extra good; Strawberries, Gooseberries, Currants, and Raspberries are all fine crops, and so are Morello Cherries, but none of the sweet varieties succeed so well as Morello. All crops are at least a fortnight later this season than has been the rule in former years; the size, too, I think is a little below the average, but the foliage is clean and healthy. Devonshire Quarrenden, Irish Peach, King of the Pippins, Red Astrachan, Cornish Aromatic, Court of Wick, Ashmead Kernel, and Northern Spy are a few dessert Apples which succeed well in Central Glamorgan. Our best kitchen Apples are Lord Suffield, Golden Noble, Keswick Codlin, Hawthornden, Lord Derby, Stirling Castle, Blenheim Orange, Cat's-head, Cellini, Tower of Glamis, Warner's King, Hanwell Souring, and Northern Greening. Of Pears our best are Williams' Bon Chrétien, Beurré d'Amanlis, Brockworth Park, Jargonelle, Marie Louise, Autumn Bergamot, Autumn Nelis, Beurré d'Aremberg, Beurré Diel, Louise Bonne of Jersey, Glou Morceau, Passe Colmar, Thompson's, Winter Nelis, and Easter Beurré. Of Plums, the best are Kirke's, Victoria, Green Gage, Coe's Golden Drop, Jefferson's, Late Orleans, and Pond's Seedling. Peaches—Barrington, Dr. Hogg, Bellegarde, Hale's Early, Royal George, Noblesse, Prince of Wales, Sea Eagle, and Walburton Admirable. Nectarines—Elruge, Violette Hâtive, Pitmaston Orange, and Victoria. Lord Napier never gains flavour, and is, therefore, a failure. Moor Park Apricot dies off too much, and is therefore hardly ever planted; Blenheim, Kaisha, Orange, and St. Ambrose are our best. American Blackberries do not succeed here, but of Strawberries, Gooseberries, Currants, and Raspberries I know of no kinds which fail in this district.—J. MUIR.

**Hendre Gardens, Monmouth.**—Fruit crops here have not proved to be so abundant as they promised to be early in the season. Pears, Plums, Gooseberries, and Currants suffered severely early in May from a hailstorm, and blight has been prevalent. Apricots are a heavy crop and the fruit is good; the varieties D'Alsace, Peach, and Shipley had to be much thinned. Plums are thin, the best being Reine Violette, Transparent Gage, Victoria, and Washington the, first-named is usually reliable and is of excellent quality. Pears that were protected from the storm are good, viz., Jargonelle, Brockworth Park, Flemish Beauty, and Beurré Diel, and some other kinds carry fair crops. Apples are partial, but may be termed an average crop. Cherries, like Plums, are thin, particularly Morellos; while Strawberries and Raspberries are abundant, as are likewise Cob and Filbert Nuts. Figs against walls are very prolific, and the fruits promise to be unusually fine.—THOMAS COOMBER.

**Maesgwynne, Whitland.**—Apples in this neighbourhood are not an average crop and the trees are very much blighted. Some varieties, such as Cellini, King of the Pippins, Cornish Aromatic, Glory of Fairfield, and Dumelow's Seedling, are bearing tolerably good crops; but this is not an Apple district. Of Plums we have next to none. Peaches and Nectarines very few and trees greatly injured. Cherries are good, May Duke in particular on east walls; the Morello is sadly blighted. Bush fruits we

have in abundance. Gooseberries large. Strawberries very good on heavy ground, but some ten days later than usual. Black Currants are blighted in sheltered places. The caterpillar is very troublesome, nearly everywhere on Red and White Currants, entirely stripping them of their leaves. Fir-tree oil, mixed with water, applied through a fine-roset watering pot, will dislodge them, when they may be readily killed by the feet. Pears are an average crop. Medlars and Quinces fair. Raspberries abundant. Nuts are plentiful.

POTATOES on light soils will be small, but good.—JAMES HIGGINS.

**Penrhos, Holyhead.**—Apples here are a very good crop, especially Keswick Codlin, Lord Suffield, Hawthornden, Yorkshire Greening, Royal Russet, Emperor Alexander, and Cox's Orange Pippin. Ribston and Golden Pippin are also very good. These sorts do well in this part of the country. Pears are also a very good crop; the most prolific kinds are Louise Bonne of Jersey, Marie Louise, Beurré Bosc, Duchesse d'Angoulême, and Van Mons Léon Leclerc; Seckle also does well here. Of Cherries the only sorts that do well here are May Duke and Morello—the former on a south wall, the latter on a west wall. Strawberries are a very good crop; the sorts that do best are President, Keen's Seedling, and British Queen. Of Raspberries we have very good crops. Plums are a total failure, except Victorias, which are very good on a west wall. Gooseberries and Currants are abundant. Peaches and Nectarines very good, but all under glass. Apricots are quite useless in this county. Figs rarely ripen out-of-doors.

POTATOES are very good, and as yet quite free from disease.—F. W. EVERETT.

**Dynevor Castle, Llandilo.**—Apples here are a poor crop, and the leaves very much blighted. Pears in some places are good, but in general they are poor. Of Peaches we have about half a crop. Red Magdalen does best. Plums are good; Victoria always bears well against a wall, but will not do as a standard. Of Currants and Gooseberries we have half a crop. Strawberries good, but very late. Raspberries a heavy crop.

POTATOES are very healthy, but late. No signs of disease.—J. TICEHURST.

**Chirk Castle, North Wales.**—Fruit crops in this district are fairly good. Apricots and Peaches protected with a double ply of inch netting are poor on some trees, whilst on others there are good crops. Apples set well, Ribston Pippin, Alexander, Cellini, Gloria Mundi, Lord Suffield, Hawthornden, Mère de Ménage, and Yorkshire Greening being particularly well loaded with fruit. Pears are good on walls, especially Jargonelle and Williams' Bon Chrétien, but thin on pyramids and espaliers. Cherries have been remarkably well cropped, especially May Duke; Morellos, too, are very good. Plums are fairly good on Dennistons Superb, Belle de Septembre, Orleans, and Victorias; other sorts very thin. Strawberries are grand, both as regards size, colour, and flavour; President, Keen's Seedling, Dr. Hogg, Sir Charles Napier, and Black Prince are our best varieties. Raspberries are abundant and good. White, Red, and Black Currants are good average crops, and the latter unusually good in quality. Gooseberries scarce on closely pruned bushes. Filberts plentiful.—J. OLDFIELD.

**Nerquis Hall, Mold.**—Apples here are a very fair crop; they were greatly injured by the slight frosts which we had when they were in bloom. Pears are rather thin in this district. Plums, too, are very scarce, Green Gage being the only trees here bearing any fruit. Of Cherries we have none. Gooseberries, where not troubled with birds, are good. Black, Red, and White Currants are very good. Raspberries and Strawberries also very good; President and Primer are the best. Apricots are fairly good crops.—W. H. CASH.

**Powis Castle, Welshpool.**—Apricots here are very good. Peaches and Nectarines set well, but are now looking unsatisfactory, owing to the east winds and blight so prevalent last month. Plums are poor also. Cherries are abundant, especially Mo-



rellos. Pears on walls are very good. Jargonelles, Glou Morceau, Crassane, and Marie Louise are the best here. Apples bloomed well, but are not an average crop. Stirling Castle is the best here; it never fails to bear a crop of good useful fruit. Gooseberries, Currants, and Raspberries are very good. Strawberries a grand crop, but ten days late, and sadly in want of rain to enable them to swell off their fruits properly.—WM. LEE.

**Brynkinalt, Denbighshire.**—All kinds of fruit in this neighbourhood are this season good average crops, and the general outlook encouraging. Insect pests, which have been unusually troublesome this year, are disappearing under the frequent use of the hose and syringe. Peaches, Nectarines, and Plums have been much affected by blister, although protected during spring with strong frigi domo. Most Apricot trees are carrying good average crops, especially Moor Park and Hemskirk, but Moor Park this year is much cankered. Peaches and Nectarines abundant, especially Royal George, Prince of Wales, Barrington, and Late Admirable Peaches, and Rivers' Orange, Pitmaston, and Elruge Nectarines. Pears are everywhere looking well, and the trees on our long south Pear wall are bearing abundant crops. Of Apples there have not been such good crops for years as are here this season. Plums are, too, quite an average crop, and the trees are recovering from the ravages of the fly which attacked them during the spring months. Prince Englebert, Green Gage, Denbigh Seedling, and Reine Claude de Bavay are carrying heavy crops. Dessert Cherries are scarce and in most places under the average, the dry weather causing the bulk of the crop to fall during stoning. Black fly has been also very prevalent; Morellos are unusually abundant. Strawberries are very heavy this season, but the fruits are smaller than usual, owing to the dry weather we are experiencing here. Raspberries are swelling off excellent crops of very fine fruit; Red and White Currants are abundant, but Black here are quite a failure, owing to the drought and our shallow soil. Filberts thin; Walnuts good crops.

POTATOES are looking well and as yet there are no signs of disease. Early kinds are good, but small owing to the weather being so long dry.—J. W. SILVER.

**Llanover Court, Abergavenny.**—Apples and Pears here are average crops. Plums under the average. Cherries and Apricots average. Of Figs we have a heavy crop. All bush fruits are very plentiful. Strawberries abundant. We grow the following varieties, viz.: Early Crimson Pine (a large handsome fruit, fine in flavour, and a very free bearer), La Grosse Sucrée (excellent), Vicomtesse Héricart de Thury (a great cropper and excellent for forcing), Loxford Seedling, Lucas (the latter one of the best for main crop) President (a great cropper), and Newton Seedling (late and very good). Of Apples, the following varieties are the most productive here this season, viz.: Cellini (a culinary Apple of the best quality), Warner's King (very large and first-rate for cooking; tree very hardy and distinct in growth), Lord Suffield (a general favourite, and one of the very best early cooking Apples, a good bearer as bush, pyramid, or standard, enjoying a warm and dry situation), Worcester Pearmain (a great bearer, and from the beauty of its fruit a general favourite), Cox's Orange Pippin (a sure bearer, but does best as a pyramid), Herefordshire Pearmain (a free and vigorous grower and an excellent bearer), Irish Peach (a nice standard and an abundant bearer; in this neighbourhood there is a tree that during nine years has never failed to carry a heavy crop). To these may be added White Transparent (a Russian variety which does well here), Summer Pippin, Early Margaret, Echlinville Seedling, Norfolk Scorer, Lord Grosvenor, Manks Codlin, and Tewkesbury Rival. The following varieties, cordon-trained and planted at the foot of a south wall, each year carry very heavy crops of fine fruit, viz.: Cellini, Downton Pippin, Blenheim Orange, Lord Derby, Reinette du Canada, Keswick Codlin, Kerry Pippin, Winter Peach, and Rushock Pearmain. The following Pears are the best bearers this year, viz., Doyenné d'Été, Beurré d'Amanlis, B. Diel, B. Clairgeau, B. Duhaume, B. Goubault, B. Superfin, Citron des Carmes, Comte

de Lamy, Louise Bonne of Jersey, Thompson's, Duchesse d'Angoulême, Williams' Bon Chrétien, Crassane, and Chaumontel. Of Plums, the following varieties are the best bearers, viz.: Angelina Burdett, Bryanston Green Gage, Cox's Golden Drop, Cox's Emperor, Denniston's Superb, Early Orleans, Pond's Seedling, Prince Englebert. Peaches and Nectarines here are all under glass; we have 200 feet-run of Peach houses, and are able to keep up a supply from the first week in June to the middle of November. Last year we gathered the last dish of Peaches on November 20, and in 1881 on November 30, when we had a fine dish of Golden Eagle.—E. M. D.

## OBITUARY.

THE well-known Hollyhock raiser and cultivator, Mr. WILLIAM CHATER, of Saffron Walden, died on July 21, aged 84. For many years he had enjoyed a great reputation for his superb Hollyhocks, which he continued to cultivate to the very last. At the age of 22, when he went to Saffron Walden, he commenced cultivating Carnations and Picotees, Tulips, Ranunculuses, and other florist's flowers. While with his father at Bower Hall, Bumpstead, Essex, he had turned his attention to the culture of the Hollyhock, and soon after settling at Saffron Walden he entered into an engagement with Charles Baron, a shoemaker at Walden, who had made a great reputation as a raiser of seedlings, to propagate and sell his flowers. But his own seedlings soon distanced in value those of all other florists; he raised a large number of varieties, and brought the Hollyhock to a very high state of perfection. In addition to Hollyhocks, he had large transactions as a seed-grower, but of late years advancing age and natural decay laid him aside from business. He was much respected by all who knew him.

## LAW.

### RATING MARKET GARDENS.

KAY, APPELLANT—THE PARISH OF FINCHLEY RESPONDENTS.

In this case, which was of considerable interest to market gardeners, Mr. Philip Kay, Long-lane, Finchley, appealed against a general district rate of 1s. 2d. in the pound. Mr. Forest Fulton appeared for the appellant; Mr. Bartly Dennis for the respondents. It was stated that this was a friendly appeal, made in order to obtain a decision as to the interpretation of section 211 of the Public Health Act, 1875. A sub-section of that Act provided that all woodlands, market gardens, or nursery grounds should be assessed at only one-quarter of the annual value. The appellant owned about two-and-a-half acres of ground, of which two acres were covered with glass-houses used for the purpose of forcing fruit and flowers for market. For the appellant it was contended that such property came within the exemptions specified by the Act. In support of the appellant's case, Mr. Charles F. Jones, surveyor, and Mr. Morris, of the firm of Protheroe and Morris, were called, and both stated that, in their opinion, the glass erections in question were nurseries, and that the appellant's property could only be described as a market garden or nursery ground. For the respondents (the Parish of Finchley) it was contended that the Act was only meant to cover arable land or pasturage, or such gardens or grounds as were used to grow fruit and flowers by the agency of Nature unassisted. In the present case there were no "grounds," all the growing being done in what were unmistakably buildings—horticultural buildings. The appellant had admitted that these buildings had cost him £7000 to erect, and that he annually sold many thousands of pounds of Grapes at from 2s. to 12s. a pound, besides flowers, the profit from which equalled that made on fruit. The appellant had, in fact, as much advantage from the expenditure of the rates as if his property was an ordinary manufactory, and he made his money by selling cloth instead of Grapes. The Bench decided to allow the appeal. In their opinion the appellant's property was within the exemptions mentioned in the sub-section of the Act. In answer to Mr. Dennis, however, it was said that

the opinion of the Bench was that it was by no means a clear case and that they would certainly grant a case for a Superior Court. Each side must pay its own costs.

## LATE NOTES.

**Chiswick (Hereford).**—Apply to Mr. Barron, Royal Horticultural Gardens, Turnham Green.

**Peach leaves speckled (T. P.).**—The small whitish or transparent spots on the leaves are of little or no importance. They merely represent a slight deficiency of leaf-green.—W. G. S.

**Diseased Vine leaves (W. Y.).**—We can see nothing specially the matter with the leaves; they are slightly mildewed, and possibly scorched by the sun. The mildew has not caused the withering; the mode of culture should be looked to.—W. G. S.

**Diseased Irises.**—I send the enclosed Irises for your inspection, and should be glad to know why they go off so. They have been planted two years the coming autumn in a new border, consisting of rather heavy soil, and were covered with sand.—S. B.

\* \* We are unable, from the material and information sent, to say why your Irises have failed. Garden Irises for several years past have been attacked by a parasitic fungus named *Puccinia truncata*, and yours may have suffered from a similar attack.—W. G. S.

**Twin-flowered Lycaste Deppei (Edward).**—We believe two flowers on one stem of this Orchid to be unusual. Perhaps some Orchid grower, however, can speak positively as to this matter.

**Almonds fruiting.**—I have two large Almond trees now laden with fruit. Is there any way in which they can be made useful, or is the tree merely grown for the sake of its flowers?—C. C., Sudbury, Suffolk.

**Cactus culture.**—I send you two stems taken from one of my plants of Cactus to show the growth that should be made where flowers are produced and the growth just starting after flowering. I consider a great many of the Cacti are crippled by being burnt up by the sun, as the stems which I send that have flowered will suffice to show.—A. CHAPMAN, Westonbirt.

\* \* The specimens sent show the growth made in one season and where the flowers are produced. As the flowers appear on the previous season's growth, it is important, as Mr. Chapman observes, to encourage all the new growth possible.—Ed.

**Gloxinias (T. Jones).**—Your specimens represent a very good strain. The flowers are large, good in form, and rich and varied in colour. Some of the large selfs are the finest.

**Viola The Dove (F. Bull).**—A pretty variety, but how far it differs from numbers of others already in cultivation we are unable to say without actual comparison. The soft purple of your variety has, no doubt, a beautiful effect in a mass.

**Red Water Lily.**—In reply to Sir. Chas. Isham's inquiry about Messrs. Henderson's red Water Lily sent out in 1878, I may say that my plant has done fairly well. It did not flower the first year, but it has done so ever since and has increased in size and strength. I planted near it this spring a strong root of the *Nymphaea odorata rosea* sent out by Sturtevant, of Bordertown, New Jersey. It has not yet flowered. I should be glad to see reports of any plants which have flowered in this country.—F. CLOWES, Windermere.

**Names of plants and shrubs.—West Highlands.**—*Melampyrum sylvaticum*.—A. Z.—1, *Zygadenus glaucus*; 5, *Epipactis palustris*; 7, *Isula salicina*; 9, *Thalictrum colinum* var. *appendiculatum*.—S. W. Saunders.—*Epipactis palustris*.—D. M.—*Lonicera Caprifolium*; *Cypripedium* Cambridge and Oxford, but introduced. It is doubtless the same in your case, as it is not a native plant.—B. H. B.—*Spiraea pachystachya*.—E. S. Neall.—1, *Lælia Dayana*; 2, *Cheilanthes hirta*; 3, *Variegated Gout Weed* (*Egopodium Podagraria variegatum*).—E. Plunkett.—*Eryngium amethystinum* (blue). We cannot name the Rose, as the flowers had dropped.—H. H. T.—*Lysimachia vulgaris*.—C. M. O.—*Phlox fruticosa*.—C. D.—1, *Hypericum elatum*; 2, *Campanula latifolia*; 3, *Viburnum Opulus* (not the common sterile variety).—T. Smith.—*Lilium* is *Alstroemeria aurantiaca*, other *Campanula pusilla alba*.—T. Scott.—A very pale form of *Odontoglossum Roezli* (not common).—J. Stott.—*Mormodica Charantia* (native of the East Indies, not edible).—E. M. G.—*Clarkia elegans*.—A. G. B.—1, *Veronica longifolia*; 2, *Alonsoa incisa*; 3, *Eriogonum bistricta*; 4, double Sweet William (*Dianthus barbatus*).—C. Davidson.—*Sanicula europæa*.—J. Davidson.—*Spiraea Aruncus*.—D. C.—1 (shrub), *Myrtus appendiculata*; 2, *Lobelia laxiflora*; 3, *Campanula garganica hirsuta*; 4, *Teucrium fruticosum*.—*Knockdolian*.—1, *Thalictrum colinum*; 2, *T. minus pubescens*; 3, *T. nigricans*.—Delta.—*Campanula persicifolia alba* fl. pl.; *Pea* flower specimen insufficient.—J. W. K.—*Anthemis montana* var. *Linæanum*.—J. L. Baldwin.—*Cephalaria taurica*; *Sidalcea oregana*.—R. C. Appleton.—1, *Campanula rotundifolia* var. *Scheuchzeri*; 2, *C. saromatica*; 3, garden hybrid (?), send better specimen; 4, *C. tenella*; 5, *C. pulla*.—S. W. C.—Next week.—W. G. M.—1, *Spiraea chamædrifolia* var.; 2, *Weigela hortensis* var.; 3, *Lythrum Salicaria superbum*; 4, *Epilobium angustifolium*.—A. S.—1, *Lomaria cycadoides*; 2, *Aspidium acrostichoides*; 3, species of *Osunda*; 4, *Aspidium aculeatum*.—C. Scott.—2, apparently *Eriogonum bistricta*; 3, *Veronica longifolia rosea*; 4, *Sedum ochroleucum*.—J. H.—1, *Sedum glaucum*; 2, *Thymus Serpyllum lanuginosus*; 3, *Herniaria glabra*; 4, *Lamium maculatum aureum*; 5, *Hemerocallis fulva*.—T. C.—We cannot name the variety of *Pentstemon*; the seedling *Begonia* we consider a good one.—*Rosalie*.—*Cedrus Deodora*, the Deodar, the cones of which are somewhat uncommon.—W. S.—The Apricot is Moor Park.



## WOODS & FORESTS.

### NOTES.

**THE SOIL FOR POPLARS.**—There are many common beliefs not supported by facts, and amongst them I think we may class the general notion that the Poplar does not thrive except in moist situations. This may probably be accounted for by more Poplars growing by the sides of rivers and streams than in most other places. I do not mean to pretend that the Poplar is not a tree eminently suited for such places as this, but what I wish to remark is, that the Poplar will grow readily enough in many places that are anything but "moist." I have lately been especially impressed with this. One instance where a number of trees were growing on a dry thin soil overlying rock particularly struck me. The trees were principally Scotch and Spruce Fir, Birch, Horse Chestnut, common and mountain Ash; but prominently amongst these trees stood a White Poplar, and apparently this Poplar was the most thriving tree in the plantation. The vigour of its growth contrasted strangely with that of the Scotch Fir. The latter, a tree one would have expected to have seen doing well in such a position, was the most stunted of all. The Spruce Firs were doing fairly well, as were the other kinds; but the two extremes were represented by the Scotch Fir and the Poplar, and under precisely the opposite conditions one would have expected to have seen them. Probably in ordinary cases the Poplar would not grow so rapidly in dry situations as it would in a moist soil, but I am inclined to believe that the timber grown on the drier land would be harder and more durable. By a moist soil I do not mean marshy land, or a soil containing stagnant water, as this would be inimical to its progress.

**WHAT TREES TO PLANT.**—In seeking for new trees for general planting we are apt to overlook some of those with which we are already well acquainted. Is this not the case with the Ash? This is a tree if cut whilst young and really good in quality will realise, speaking from present prices, as much if not more than the Oak, and it is a tree for which there is always likely to be a steady demand; indeed, the strong presumption is that the demand for a long time to come will be, as now, in excess of the supply. In the face of this very little seems to be thought about planting it to any extent. Some landowners, I know, look upon it with an unfriendly eye, and seem to be bent on exterminating it, but I am quite at a loss to understand why this should be, except that in hedgerows it has the property of exhausting the surrounding soil, in consequence of its roots running so far horizontally and at a small depth. If this is the reason, the Ash is not the only offender; and, considering the valuable qualities the tree possesses, such a character should not greatly militate against it. It cannot be denied that it is a tree that deserves better treatment at the hands of the planter, as it

is not, like many, of comparatively little value until it reaches maturity, but may be classed amongst the few woods which are really better before arriving at a mature age than they are subsequently. At any period, from the merest sapling to the full grown tree, the wood of the Ash may be turned to good account, but as soon as it ceases to grow it rapidly deteriorates, and, from the nature of the purposes for which it is employed, the Ash in a state of incipient decay is the most useless of woods. The usefulness of the tree at an early age is a great recommendation, as the planter is not obliged, as in the case of many hard-wood trees, to wait a lifetime for a return. If, instead of covering large areas with trees of doubtful qualities and value, we were to adhere more closely to such as the Ash, where the qualities are known and a ready sale could be effected, there would not be so much said about unprofitable woodlands. It would not be so well, perhaps, to cultivate plantations composed of this tree alone, but in mixed plantations it should be introduced wherever possible. Mixed with deeply rooting species, the disadvantage of its surface roots would not be felt. The Beech, again, is a tree that demands attention, and one that should be profitably grown. With regard to its manner of rooting, it is somewhat similar to the Ash, and for this reason probably it is generally found mixed with other hard-wood trees. This, however, is not always the case, as I could point to very large areas covered exclusively with Beech growing as closely together as any trees possibly could. These trees, perhaps, reach to 60 feet or 70 feet in height and grow vigorously, and apparently suffer no inconvenience from the fact of their growing in plantations by themselves. With reference to its value in the market, it does not reach the price of Ash, but for really good Beech, at any rate in this part of the country, there is generally a ready sale, and its similarity to the Ash holds good in its being of use as soon as it has reached a very moderate size. The one thing needful is quality; the size is secondary.

**THE APPLE AND PEAR AS TIMBER TREES.**—From the smallness of the demand there is but little said about the wood of these trees, and although they would be welcome everywhere if they possessed no timber value, it may be well enough to remember that Apple and Pear wood have their uses, although these uses are quite different. There is an apparent similarity in the wood, but it goes no further than the appearance, as the substitution of Pear for Apple wood is liable to lead to trouble. Where, in mills, wooden cogs are still in use, the wood of the Apple is generally used to replace worn ones, when it can be obtained; but if the Pear by any accident should happen to be employed, the difference in the wood will soon become plain. The softer Pear wood soon succumbs to the wear and tear, and will probably soon lead to another breakdown. This softness, however, and its freedom from twisting out of shape give it a value in the manufacture

of mathematical instruments and the like. There are other woods of fruit trees respecting which a word may be said, but I will only now refer to the Cherry. A few years ago there was a considerable sale for this wood, and trees of fair quality and dimensions could be disposed of at a good figure. This, however, now seems a thing of the past, as I am not aware of any considerable demand. The market was principally for furniture manufacture—I believe chairs. Probably, if the truth was known, this, like the Walnut, has "gone out of fashion," and will remain so until someone suddenly "re-discovers" it and a demand arises.

**HEDGEROW TREES.**—It would, perhaps, be going too far to say that the value of the trees growing in the hedgerows in this country anything like approaches the value of those in woods and plantations; at the same time I know several well-wooded estates where, if a valuation was made, the trees in the hedgerows would run the woods and plantations very closely. This is an important consideration, as the woods and plantations occupy large acreages, whilst the trees in the hedgerows interfere in a very small degree with the value of the land they shelter; the scale, in fact, often turns in favour of the sheltered land. It may be possible, no doubt, to have too many trees in our hedges, but the evil is oftener the other way. It costs nothing to encourage the growth of the hedgerow tree, but the return is often considerable. On pasture land the growth of isolated trees or small groups in the fields should be encouraged. In the latter case where the land is let there may, perhaps, be some difficulty in getting the tenant to see the force of occupying his land by planting groups, but the objection would not hold good with single trees. Many an owner has been able, through thinning the hedgerow trees, to effect permanent improvements on his estate with the proceeds of the sale of timber which otherwise must have gone undone or been accomplished by an onslaught on his income. If, then, for no other reason than for providing funds on an emergency cultivating hedgerow trees should not be neglected.

**FIREWOOD.**—How much of the annual supply of home-grown timber and underwood goes for fuel? This question I cannot pretend to answer, but certainly much more than would appear on the first blush. Perhaps some critic will inform us that the bulk of it eventually finds its way to the fire, but this is not the sense in which the question is put. That a very considerable quantity of the produce of our woodlands is consumed in this way without first answering any other end must be apparent on a moment's thought, but in spite of this we hear little about it. This may arise from its not often appearing as an article of commerce beyond the spot on which it is produced; but I am not sure that this should be so. If thousands upon thousands of tons of wood that



makes but indifferent fuel can be annually imported from abroad by our large centres of population, why should not the firewood produced in our own country have a share of the plunder? To anyone who has had experience of a fire made from our Beech, Ash, or Elm wood, the contrast between it and the stuff that is sold as firewood in our large towns needs no comment. If coals can be raised and sent to town when they have to pay a rail rate of sometimes as much, if not more, than 9s. per ton, cannot something be done to find a better outlet for the firewood that often lies and rots for want of a market? One great obstacle we know in the way of doing this would be the comparatively large outlay in proportion to the return, but when the raw material is on the spot it seems against the grain to be beaten out of our own markets with even such a thing as a cord of firewood.

**WOOD FOR GATES.**—There is one more point to which I wish to call attention, and that is the fashion that appears to be coming into vogue of using foreign wood for ordinary field gates. We are prepared to submit to a great deal, but this is a little too much. The notion of bringing wood such as this for hundreds and perhaps thousands of miles to be made into gates that get broken by the first strain that comes upon them, whilst there is wood growing on the spot that would last out the rough usage of half a century, is preposterous. This inferior foreign stuff may effect a saving of 5s. in a gate in the first cost, and be for ever afterwards a source of trouble and annoyance. D. J. YEO.

#### AGE FOR FELLING OAK TIMBER.

THE age at which Oak timber ought to be felled, with a view to profit, must depend on the soil and climate in which the tree is grown, as well as on other circumstances. Whenever the tree has arrived at that period of its growth that the annual increase does not amount in value to the marketable interest of the money which, at the time, the tree would produce if cut down, then it would appear more profitable to cut it down than to let it stand. Perhaps it would not be difficult to construct a table to show the proportion between the annual increase of the trunk at a certain distance from the ground and the annual amount of timber added to the tree; and the price of timber and bark being known, a calculation might thus readily be made of the total value of the tree and the total value of the annual increase. We are not aware, however, that any such table has been calculated, but the idea of it may be useful to proprietors of trees with a view to felling them. An eminent purveyor of timber for shipbuilding once stated, when examined before the East India Shipping Committee, that in situations the most favourable for ship timber (the Weald of Kent, for example), the most profitable time to cut Oak was at ninety years old, as, though the largest scantlings were produced at 130 years' growth, the increase in the forty additional years did not pay 2 per cent. Another authority observes that, as the Oak, like all other trees, varies exceedingly in its growth according to soil and situation, &c., no one fixed period can be given for cutting it down applicable to all, or even to the generality of cases. A practised eye, he says, will be able readily to decide when a tree is ripe for the axe. "There will no longer be any vigorous shoots in the extremities of the branches; but instead of this, a curling or crinkling of the spray, with scarcely any perceptible growth; dead branches or small ones will occasionally be seen towards the top;

and above all the bark will cease to expand, and, of course, will no longer exhibit those light red or yellow perpendicular streaks in its crevices, which are a certain proof of its expansion and of the consequent growth of the wood beneath." As to the question at what age Oak should be cut down so as to make the best return in point of profit, this will depend mainly on the demand for Oak timber of this or that particular size and quality in each neighbourhood.

#### OSIERS ON SEWAGE FARMS.

AN Osier bed, according to some ideas, is associated with a low, swampy place, where such as newts and frogs love to congregate. Yet, although the whole of the Willows generally like moisture, and will not do well where they do not get sufficient of it, still, where there is much stagnant water present in the soil, it is so far unsuited to the growth of Osiers that, under such conditions, they will not produce anything like the weight that can be had where the land is not saturated, but where there is yet enough moisture to supply the crop with sufficient for its requirements. To this may be attributed the frequent failure that has followed an attempt to grow Osiers in swampy places. On the other hand, where water can be supplied to the crop as required and no more, such as when grown on land where sewage can be used, this is just what they need.

As there are few, if any, crops so well calculated to effect the desired purification of sewage water as Osiers, it may not be out of place to say a few words bearing on what has so far been done with sewage. One of the leading questions of the present day is what can be done with sewage to get rid of it without polluting the rivers; whereas, as matters now stand in many places, the water that should have been pure and pleasant to look upon has become a turbid nuisance, that everyone endeavours to shun as much as possible. Untold sums have already been spent, and in not a few cases all but wasted, in an endeavour to separate the solid matter of sewage from the fluid, and to allow the latter to pass off to the nearest stream in what should be an inoffensive condition. But the failure has generally been twofold—first, in the solid matter being of little value as a manure; and, secondly, through the water, if even comparatively free from that which was most objectionable to the eye, being nevertheless charged with much of the offensive elements with which it has been polluted. In places where it has been found practicable to follow the more reasonable course of running the sewage on land occupied with crops calculated to thrive upon it, there is still usually a good deal of difficulty at some times of the year in dealing with the sewage, a difficulty that is increased in wet seasons in localities where the rainfall is heavy, inasmuch that Grass or root crops, vegetables, Strawberries, &c., are not in a condition to bear the water running on the land occupied by them continuously, even during the growing season; consequently often there are times when it is difficult to dispose of the sewage without letting it escape into the nearest stream without going on the land

at all in just the state it was received—a course which is often followed on some sewage farms in the south of England.

With Osiers the case is different. Where there is means for the water getting away so that the land does not become saturated, they will take it and be benefited thereby regularly through the summer in quantities greatly in excess of that which any other crop would bear. Few things pay better than basket Osiers when well managed. Another advantage is that after planting there is not long to wait for a return, especially when grown on land where sewage is applied, as with it they start off from the first in a way that completely distances anything that can be done by other means. And the weight of crop that they yield under this system of cultivation is enormous; but, like any other crop that is to be made the most of, they must have the land wholly to themselves; there must be no joint occupancy between them and weeds. Nothing less than perfectly clean cultivation will admit of the land yielding the full weight of this crop of which it is capable. Shortcomings in this important matter have been the rock on which numberless attempts at Osier growing have been wrecked.

A few years back an instance came under my notice where Osier cultivation to a considerable extent was begun on ground where sewage in unlimited quantities was available. The land was naturally good—and it may be well here to note that Osiers, like most other things, like good land—yet the attempt ended in complete failure, as the crop never covered the cost of the labour expended on it, leaving out of account anything in the way of profit. Failure has arisen through the land having some Couch Grass in it that should have been eradicated before the Osiers were planted, and means were not taken to get rid of the troublesome weed afterwards, so that the Osiers were not able to make headway, and ultimately were smothered. In another case that I have had an opportunity of seeing the result has been directly opposite, the difference being solely attributable to attentive cultivation, as all the conditions were similar except that the land is better where the failure took place than it is where success was attained.

At Woodcote Farm, near Altrincham, Cheshire, now held under lease by Mr. James Arrowsmith, basket Osier growing with sewage has been tried and has turned out a complete success. The farm is part of an extensive tract of pure peat land several miles in extent, much of which has not yet been brought into cultivation. For a considerable number of years before Mr. Arrowsmith's time, the sewage from Altrincham and Bowdon had been used on the farm, and most of it, including the land that is now occupied by Osiers, had for some years been arable, and was in as foul a condition as it well could be; so bad, in fact, that most of the corn was so much over-run with weeds, that it was scarcely worth reaping. In



addition to Couch, annual weeds had been allowed to seed year after year until the soil was so full of them, that each spring they covered the ground as thickly as if it had been sown with Mustard. Whatever crop was put in there was only one chance for it—keeping the horse and hand hoes going until it had made enough progress to keep ahead of the weeds. The space intended for Osiers was cleaned as well as circumstances would permit; most of the Couch was got rid of; but those who have had to deal with land where weeds have been let to have their way for a series of years will not require to be told that when all was done that could be, every time the top was turned under by the plough a fresh lot of seed was brought up.

The surface of the land is flat, but with a slight inclination to the south. When put in shape previous to the Osier cuttings being planted, it was ploughed into moderately wide beds, well rounded up in the centre; a gutter for conveying the sewage was carried down the middle of each bed, which, when dammed at intervals in the usual way, overflowed right and left, percolating through the soil and finding its way into the alleys between the beds, and by these conveyed in a clear state to the ditch adjoining. Six acres were planted; the cuttings, strong ones, were put in at the rate of about 15,650 per acre. The first year's produce was at the rate of over three tons and a half to the acre, the rods running from 8 feet to 10 feet in length. The second season the crop was just on four tons and three quarters per acre, the rods reaching as much as 11 feet and over. The ground had two or three hoeings the first spring, so as to kill the weeds as they appeared until the Willows had made growth enough to cover the surface in a way to prevent the weeds being able to live. Now, all that is required is to hoe the ground once or twice each spring to kill the comparatively few weeds which still appear, after which the crop is so dense that nothing could possibly live underneath. If all goes well, the yield per acre will increase for two seasons yet, after which it may be expected to fall off slightly, but after this for some years, to give a profitable return. The sewage is kept running on the ground throughout the summer, except when it is wanted for other crops, which, as will be easily understood, is more or less according to the amount of rainfall that occurs. Under any system of cultivation other than sewage, Osiers could not be made to yield near the weight; but, so grown, they do not fetch quite so high a figure as a smaller size will, being only fit for strong work where exceptionally strong rods are required. After the first cost for cuttings and putting them in, there is no crop that costs so little, for there is no recurrence of expenditure for seed, as in the case of Corn or roots. Neither are Osiers affected by bad weather during the growing season, like other things. As a natural consequence, the crop, when grown with sewage, may be expected to be heaviest in dry seasons, as then the plants can take more of it. It is scarcely

necessary to say that it is doubtful if it would be a wise proceeding to turn the whole of a sewage farm to Osier growing; but, independent of their paying well when a considerable breadth are grown, there is the great convenience of being able to turn the liquid on the land they occupy at times during summer when such things as Turnips and Mangolds would not take it; the latter especially in wet summers are usually overdone with moisture from the clouds; in dry seasons, like the present, the case is different. The farm in question is about 100 acres in extent, and it is more than likely that a considerably larger breadth of the crop under notice might be profitably grown.

T. B.

#### TIME FOR SOWING ACORNS.

WHAT is the best time to sow Acorns? and how they may be best preserved till sown? are questions which admit, perhaps, of considerable difference of opinion. No doubt, Nature seems to dictate that the Acorns should be committed to the ground as soon as they are perfectly ripe, for they will often begin to sprout even before they fall from the parent tree. But, then, if sown immediately in autumn, they run great risk of being devoured by birds, mice, or other vermin; while, on the other hand, if kept till towards spring and in too dry a state, many will perish; and, again, if in a moist one, many more will sprout out to a considerable length, and thus (as is supposed) exhaust their strength by premature vegetation. From an experiment, however, which I made last year, quite accidentally, it should seem that neither the late sowing nor the sprouting of the Acorns is at all prejudicial to the future growth of the young plants. Last year I had occasion to sow a considerable quantity of Acorns; several beds were sown in the end of autumn, others in the early part of winter, and some Acorns were reserved to be dibbled in among newly-planted Quickset fences. After all were disposed of that I had an immediate occasion for, a large garden-potful still remained; instead of throwing them away, I had them sown in rows in a bed. I regret that I did not note the exact time, but think I am safe in saying it was not before the latter end of February, or perhaps the beginning of March; and the Acorns, I am sure, had sprouted out, many of them to the length of several inches; and the sprouts were so entangled one with another, that it was difficult to separate them without injury. These late-sown sprouted Acorns, contrary to my expectation, came up well, and have made the finest seed-bed of any sown on the premises.

J. B.

#### USING HOME-GROWN WOOD.

We cannot wonder that surprise is expressed at the deeply rooted notion that our British woods are inferior for general estate purposes to those brought in from abroad. Various reasons have from time to time been given in our columns in explanation of this prejudice, as prejudice it must be, as on a fair investigation the belief is untenable. We do not pretend to say that the woods most commonly grown on estates in this country will answer every purpose upon them for which timber is required, but we do maintain, and we earnestly wish to impress it on our readers, that foreign wood is often used unnecessarily, and to the disadvantage of the owner of the estate. A correspondent recently remarked that his carpenter urged upon him the idea that our home-grown Scotch and Spruce Fir, in the points of grain, freedom from knots, and other qualities, would not hold its own against foreign deal,

We must not be understood to assert that where a certain species of wood grows in this country, and the same species is found in other timber-producing countries, that for any especial purpose the timber grown in each country is equally suitable, as we do not believe it to be the case. As an instance, the same kind of Fir grown in Great Britain and in the north of Russia would probably vary considerably in the purposes to which it could properly be applied; but we do maintain it is absurd to argue from this that because our home-grown Fir is not so well suited say for joinery uses, it cannot be turned to any other equally useful account. If any candid observer with a very slight knowledge of the subject will compare some of the consignments of wood sent into this country from Norway and Sweden as building timber with a fair sample of, say our home-grown Spruce, he will be bound to admit that the scale turns in favour of the latter. For a great many building purposes, notwithstanding what has been said against it, the wood of the Spruce may be profitably used, always providing it is for positions in the dry.

Now we come to the question of cost. To the ordinary estate owner, after the wood has passed through the importer's and the merchant's hands, the very lowest figure it will stand him delivered home for a very moderate quality will be some £10 per standard, or something less than 1s. 3d. per cubic foot. Of course at this figure he has the wood ready for use, and sawn to the required dimensions; but granted all this, if we suppose really good Spruce will fetch 6d. per foot in the market, which it probably would not, taking the qualities as being equal, 9d. a foot is a wide margin for sawing and waste. We will assume, however, that Spruce is not ready to hand, that what is available is not of sufficiently good quality, or that Spruce is not suitable for the purpose for which the foreign wood would have been used. If we put the cost of sawing at 3d. per foot cubic, we have a margin of 1s. per foot to enable us to use any other wood growing on the estate that could be more properly applied to the work. This is more than would be realised for Elm, Scotch Fir, or Larch, and treads very closely on the heels of the Oak as it is selling at the present moment. It is self-evident that someone must pay the cost of getting the foreign wood to the sea-board, the freightage from the foreign ports to those in our own country, and then the carriage inland to where the estate is situated, to say nothing of a profit to those handling the goods, and this someone must be the consumer.

This, of course, would apply in a certain degree to all kinds of produce brought into this country that can be as well grown here, but not so forcibly as in the case of timber, as in this commodity the value is relatively so small when compared to the weight and bulk. That we are indebted to our neighbours abroad for many things we do not



dispute, but it does seem unreasonable that we should so far sink our interests in this matter as to allow our own produce to lie idly by, whilst we are continually using up theirs, as if with the express purpose of keeping them afloat. We have lately however, been pleased to note on some estates that a more sensible view of things has prevailed, and that instead of disposing of the annual fellings at an unremunerative figure, they have been sawn up at the estate timber yards and turned to account, instead of sinking money in the more than doubtful plan of purchasing what is called cheap foreign building wood.

The purposes for which timber are required on an estate are so numerous, and includes such a variety of work not requiring any high degree of finish, that the arguments so often brought forward of the difficulty of working up our common hardwoods amount to but very little, and with regard to durability they amount to absolutely nothing. We have had rather extensive opportunities of seeing work executed with both home grown and foreign woods, and have no hesitation in saying that, in such positions as our own woods can be reasonably used, we would infinitely prefer them to the lower priced wood that is often sent in from abroad. Common sense, however, must be exercised as to where each kind can be best employed, care taken in selecting, and, above all, for indoor work and in places where shrinkage would be fatal to the satisfactoriness of the work, thoroughly seasoned material only must be admitted. We have spoken perhaps rather strongly on this subject, but not without due reason, and we trust the remarks will not be altogether lost upon such as have it within their power to materially modify the existing state of things. The planters' and the foresters' cases are hopeless if the consumer of timber does not aid them by using to the best advantage the material it has cost so much time and labour to produce.

#### AUSTRIAN, CORSICAN, AND SCOTCH PINES.

IN recommending foreign trees to be grown in the British Islands, it is well to be cautious in belauding any particular tree, and, above all, to be in a measure sure of the general adaptation of the tree or trees in question as to whether they are considered likely to prove valuable to those who plant trees for profit. To speak positively of the fitness of this, that, or the other foreign Pine, and to urge the planting of such on a large scale, is a doubtful and often a most mischievous proceeding. It would be highly injudicious to plant a country or any large part of a country with trees the qualities of which are so little known, if at all, and the planter who would over-plant a property with such doubtful trees would be very indiscreet.

The Austrian and Corsican Pines are doubtless trees with some good qualities, but, on the other hand, with as many bad

ones. And to say that they ought to take the place of the Scotch Pine in plantations formed with a view to profit would, I fear, be a very doubtful proceeding, one which would eventually turn out to be vexatious as well as imprudent. Nothing in particular is known of these two foreign Pines to recommend them above others for planting in this country as probable profitable timber trees.

They will not compare in a single quality with the Scotch Pine, except one, and that ornamental only, which, *per se*, is of small consequence in a pecuniary point of view. It cannot be too often reiterated, especially when sentimental fancy is like to get the better of the more stable judgment, that the chief end in growing trees is profit. And the trees most suitable to realise such an end are those that are natives, or those that are long since become naturalised, and therefore much on a par with natives, and best adapted to fulfil the anticipated result. These points are apt to be forgotten in the desire for novelty and change; as a rule, any introductions within the last fifty years or less should not be excessively planted, save as mere experiments, until it be certain that they will retain all their indigenous qualities in their new conditions. To test that they will have to undergo much and dissimilar treatment, for they cannot be deemed of general utility till they have been so tested.

Now, the Scotch Pine will grow in any soil, situation, and climate in which the Austrian and Corsican Pines will grow, but the Austrian and Corsican Pines will not grow in any soil, situation, and climate in which the Scotch Pine will grow. What is here intended by growing is growing to yield valuable timber. Hence the Scotch Pine is of much greater importance (as a timber tree) to the British planter than either of these others. But to compare the qualities of these three Pines more fairly, let us do so from their earliest existence, or as near to that as possible, beginning with the seed.

The Austrian and Corsican Pines contain a much larger quantity of spurious seed than doth the Scotch Pine in any given weight. The vitality of the Austrian Pine seed is at least 70 per cent. lower, and that of the Corsican Pine much lower still, than the Scotch Pine; next in the seedling stage, the death-rate of these foreign Pines is greatly in excess of the Scotch Pine, that by the time they are fit to plant out in the forest this has grown to be very great. The Scotch Pine is fit to plant in the open forest ground after being once transplanted, while the Austrian and Corsican Pines must be several times transplanted ere they are fit to plant out, and even after much care in seeking to supply them with plenty of roots (which they are tardy to obtain), yet the death-rate again will probably be very high. The Austrian and Corsican Pines become, moreover, a prey to the Silver Fir bug, and succumb easily to its attacks. I never saw a Scotch Pine so succumb; indeed, I never saw more than

one or two Scotch Pines so infested, from which they appeared to suffer no injury and grew out of very rapidly.

Now, viewing the large primary cost there must be in the establishment of a plantation of any one of these foreign Pines, it is not easy to see how they would repay the planter. Their timber would require to be two or three times the value of Scotch Pine at the period of final cutting to be then of equal value, which they are not likely to be in either case. The Austrian Pine produces a very coarse and inferior timber.

Some may think that I am biased against these Pines, but that is not so, as I have a particular fancy for both trees; which, nevertheless, I cannot allow to obscure the points that seem to me to be their real worth as timber trees in the forest economy of this country because of any sentimental fancy I could advance in their favour. I have seen both of these Pines making excellent growth in low-lying sheltered sites, and the Corsican is a free grower in such conditions, and the Austrian even in a marine atmosphere greatly exposed to severe tempest making astonishing progress. Still, I never saw either do much good on bleak moorland slopes, hundreds of feet above sea level, on which the Scotch Pine thrives like a Mushroom, compared with their puny, weakly attempts at growth. Pamper these Pines with selected soils and situations, and they may produce as much and perhaps as valuable timber as the Scotch Pine; but put them on terms of evenness as to all conditions, and they will be nowhere in the trial. The Scotch Pine, after the Larch, is the best Fir for general planting, and produces heavy useful timber. When and how the Austrian and Corsican Pines may become valuable timber trees in the forestry of this country will be when, like the Larch, the progeny of the future can be reproduced from trees grown in this country, and not only acclimatised, but legitimately naturalised.

In that marvellous catalogue of all sorts which the reputed, and one might add the deputed, M. Howitz has prescribed for the reafforesting of Irish waste land, I have little or no belief; in fact, I look upon the greater part of the trees he has named for that purpose as *nugæ canoræ*—suitable only for a botanic garden or museum. If Ireland is ever likely to be profitably reafforested, it must be accomplished principally by our well-known British trees. GLEN DY E.

**Oaks in Northamptonshire.**—Some of the finest specimens of British Oaks I ever saw are to be found in Northamptonshire, more especially on the estates of the Dukes of Buccleuch and Manchester. In Morton and Corby Woods hundreds of splendid, straight, clean Oaks averaging from 30 feet to 45 feet in length, and from 5 feet to 6 feet girth 12 feet to 14 feet from the surface. The soil is loamy and the trees thinly planted, which adds to the progress of growth. The underwood is chiefly Hazel, Maple, Ash, and the Hawthorn, which is very straight and good, and chiefly used for hurdle manufacture, and the small Hazels and Hawthorns for splitwood, which is used for thatching.—W.



"This is an Art  
Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## ROSE GARDEN.

### ROSES FOR BUTTON-HOLES.

SOME may, perhaps, contend that all Roses are suitable for button-holes, but the majority will think as I do, that the number of Roses suitable for that purpose is limited chiefly to the Noisette and Tea-scented varieties, with just a few of the Hybrid Perpetuals to furnish bright bits of colour. In this, however, as in other matters, we must make some allowance for taste, and if the selection which I shall give does not embrace a sufficient number, the difficulty is soon got over by extending the list. Certainly my choice lies chiefly amongst the Teas; of these I should select *Mdme. Falcot* (apricot colour), *Letty Coles* (pink), *Niphetos* (white), *Devoniensis* (creamy white), *David Pradel* (pale rose), *Elize Sauvage* (pale yellow), *Isabella Sprunt* (light yellow) and *Marie Van Houtte* (yellowish white). Amongst Moss Roses I would choose *Céline* (crimson), *Lanei* (pale rose), *Marie de Blois* (bright rose), and *Reine Blanche* (white). From amongst Noisettes the following may be chosen—viz., *Céline Forestier* (yellow), *Ophirie* (coppery salmon), and *William Allen Richardson* (deep orange-yellow). Amongst Perpetuals my favourites are *Duke of Teck* (crimson), *Red Dragon* (brilliant crimson), and *General Jacqueminot*. So far as my experience goes I am persuaded that it is better to limit the selection to a few well-known varieties of distinct colour for the production of flowers during winter than to have a large number of sorts, and my selection for that purpose would include *General Jacqueminot*, *Mdme. Falcot*, *Elize Sauvage*, and *Devoniensis*. I am assuming that the plants thus selected are to be planted in a well-made border, which is undoubtedly the most satisfactory way of growing them. If to be grown in pots, a larger number of plants will be required in order to keep up a constant supply. When Roses are grown under glass they are so accommodating, that they may be cultivated in either large or small houses; the primary consideration is to give them plenty of light, and this cannot be done in the dead of winter unless they are trained immediately under the glass. As great numbers of blooms may be cut suitable for bouquet making from a limited space when the plants are well established and the management right, a rather small house is to be preferred to a large one. The house may be either a lean-to or a span-roofed one; a lean-to 16 feet long with roof lights 10 feet in length would furnish plenty of Roses all winter with only a moderate outlay for firing. The roots would be better inside than out, although an inside border is not an absolute necessity, as if outside

they could be protected in the same way as many protect the roots of outside Vines. As regards the branches, it will be necessary to provide wires, placed about 8 inches from the glass, on which to train them.

Those who may wish to grow their Roses in pots should make an effort to get some full-sized specimens capable of producing a good number of flowers. Plants in 12-inch and 14-inch pots and from 3 feet to 4 feet in height are the right sizes to aim at, as one large plant will furnish more flowers than four smaller ones; whether, however, the plants are planted out or in pots a good holding soil is necessary, and nothing in that way is so suitable as good fibrous loam; in such a soil they grow vigorously without anything being mixed with it. If it is necessary to add anything to it with a view to supply any deficiency of fibrous matter, broken bones or charcoal may be added at the rate of one-sixth part. In a border it will be necessary after they have been planted two years to keep up fertility by means of rich surface dressings or frequent applications of liquid manure. Specimens grown in pots may also be kept in a satisfactory condition for two years by the same means without re-potting, but in that case it is important to keep the drainage right, or a falling off in the number of flowers may result from bad drainage whether the plants are in pots or in borders. If they are expected to produce flowers during winter they will require special treatment. Where a house is devoted to them, the lights should be taken off the roof at the end of June, so as to expose the branches to the air and rains of the summer months, treatment which will be found to build them up in strength, for they get weakened during winter, and what pruning they require should be done at the time when the lights are taken off, but severe pruning must be avoided. A few branches only should be cut out where crowded. Early in autumn they will begin to grow again, and every shoot made at that time and during the winter should be preserved, and if the treatment has been right they will be bristling with flower-buds in October, when it will be desirable to replace the lights. Fire-heat must be given according to the time when they are wanted to be in flower.

The Hybrid Perpetuals and Moss varieties are not well suited for flowering during winter, except they are in a good border and the branches trained up under the glass; even then they are not equal to Teas. Moss varieties should only be attempted in pots, and then the middle of February is as soon as they can be had in flower in a satisfactory condition. Pot-grown specimens of Teas for winter flowering should be re-potted or top-dressed with fresh soil in June, and then the plants should be placed out-of-doors in a sheltered and shady corner and remain there until the end of August, when they should be set in full sunshine until the time has arrived to take them under cover for the winter.

Where there is a large demand for Roses early in autumn it is best to depend on Tea, scented varieties grown in pots. The specimens should be of good size, and ought not to be encouraged to flower too freely during summer; indeed, it will ensure a larger number of flowers in autumn if the buds are removed before they open. This should be done for about ten weeks, commencing in the early part of June; and then if the pots in which the plants are growing are plunged to their rims in a shady border the plants will get comparative rest, and when brought into warmer quarters by the middle of August they will quickly start into fresh growth and produce a fair crop of flowers for several weeks—i.e., if they have the protection of a greenhouse early in the autumn.

J. C. C.

**Rose Etoile de Lyon.**—As regards the growing and flowering capabilities of this Tea-scented Rose, I do not think anyone can be disappointed with it; but in colour it is by no means that striking sulphur-yellow which it was reported to possess. It certainly has the merit of producing full well-formed flowers, but those who are looking out for the best yellow Roses should not include this, as the outer petals fade to a creamy white, the centre being of a soft sulphur-yellow.—J. C. C.

## FRUIT GARDEN.

### EARLY PEACHES.

In an article on early Peaches (p. 108), "W. I. M." compliments me by saying that the best dish of A Bec he has yet seen was grown at Eastnor, and requests my opinion of the merits of this Peach. When I state that I am more than twenty years older than I was when I first commenced showing from my original tree, worked on a bad French stock, that the fruit almost invariably found favour with the judges and the public, and that its handsome appearance and fine flavour fit it to be placed before a king, he has my opinion of this valuable early Peach. From this tree for many years I always gathered fruit for the 24th of May, but finding it getting the worse for wear, I sent the late Messrs. Osborn plentiful supplies of buds, with the request that they would supply me with half-a-dozen trees, worked on the Brompton Stock, which suits it better than the Mussell. These trees are now about 6 feet over; one of the best occupies the place of the original, and I have this year gathered a beautiful lot of fruit from it true to name, which is more than I can say for some obtained from other growers. Although I have given away thousands of buds, I have hardly ever met with it true to name, and so much was I interested in the variety, that I requested Messrs. Veitch to look after this and Early Grosse Mignonne, still two of the best early Peaches, when the Fulham collection was brought to the hammer. I believe the whole of these trees were secured by Messrs. Veitch, and it is gratifying to me to know that all who wish to secure the cream of the cream will now know where to obtain it.

Experience justifies me in saying "W. I. M."—I wish he would sign his name—is thoroughly practical in his statement that it is most difficult to replant an early house from the open wall, at least without running the risk of losing a crop; but by working the trees through succession houses, lifting annually, and making the final move when they are in full leaf, forcing may be commenced in December with every chance of a full crop of fine fruit. I do not, however, approve of his system of shouldering out good old sorts by the introduction of young ones, simply because they are new; for after all, assuming that the Hales, the Alexanders, and the Amsdens are as good as the Georges, the Bellegardes, and the Mignonnas—a point which I do not admit—they only have earliness in their favour, whilst size is woefully



against them. But independently of quality, which I shall hereafter discuss, the system from a cultural point is sadly at fault. A young tree may be planted between two old ones to test the merits of the fruit, but the orchard house or a house adapted to pot culture is the most suitable place for testing, not one, two, or three new sorts, but a whole batch, side by side with the old ones, also in pots, and in every respect under uniform treatment and conditions.

The formation of a really good Peach border is an expensive business; but when properly made, occasional renovation and root-lifting should keep the trees going for 20 years or more. Three good trees, if worthy of the name, will fill a house 60 feet in length, and, once bitten by the extension system of training, the cultivator will soon wish for two more houses for his superfluous trees, as one in the centre will readily fill the space allotted to the three. What chance, in such a structure, will two or three young trees stand when overshadowed by the veterans? They may be starved into fruitfulness for a year or two. They may cause a little mutilation and much confusion, but eventually the veterans will shoulder them out. Quite right, too. For as long as a Royal George, a Noblesse, or a Bellegarde will give a good Peach to every square foot of foliage, no power should induce me to cut off a leaf to make room for new kinds simply because they are new. So much for culture. Now for quality. Having devoted much time to the cultivation of Peaches under glass, and on open walls, I have endeavoured to find out and make known those which I consider the best. Culture in pots has been my system. A Bec and Early Grosse Mignonne were amongst my first loves, and they are likely to remain with me as long as I grow Peaches, for I have met with nothing new to equal them. Then came Rivers' seedlings, and I must say I like his Nectarines better than his Peaches, Napier, Stanwick Elruge, and Albert Victor being my especial favourites. This remark must not, however, be allowed to go against the Peaches, as many of them are excellent and decided acquisitions. The American batch I have purposely left till last, as I do not think the much-lauded Hale's Early worthy of a place amongst our fine standard kinds, old or new, where quality is the true test of merit. It may be that it varies on different soils, but with me it is thin, watery, and hardly second-rate in quality. Alexander was this year ripe on an open wall on July 20; but, notwithstanding the fact that the tree was well mulched, fed, and syringed, the fruit, deeply coloured, was barely second-size, whilst its flesh was thin, moderately sweet, and most decidedly adhesive to the stone. Amsden June on a west wall, now ripe, August 1, is in every respect the counterpart of Alexander. Waterloo I have not yet tested; but unless it proves a long way ahead of the preceding kind, it will pass out of my hands, as I could not send the fruit to my employer's table, and I should not cover myself with credit were I to send it to market. With such a copious list of first-class Peaches and Nectarines to choose from, it is to be regretted that these early American kinds are being extensively worked, as they are greatly inferior to the best seedlings raised by the late Mr. Rivers.

W. COLEMAN.

#### STRAWBERRIES IN AUTUMN.

It is to be regretted that we do not pay so much attention to the little alpine Strawberry as is done in France; for in this country by growing the large-fruited kinds we get a glut for a time, and then during one of the hottest months of the year none at all. In many French gardens the large-fruited kinds are not grown at all, the object being to get plenty of fruit from the middle of July onwards, and especially during August. I have often felt surprised that some of our market growers do not undertake the production of Strawberries through the late summer and autumn; they surely would find a ready sale in London and in other large towns. I know of nothing more refreshing in the sultry month of August than these alpine Strawberries. A good deal has been written of late about Strawberries in autumn, and those who force Vicomtesse Hélicart de Thury appear to be able to secure a second crop from it by planting it out in good soil; but if seedlings of

the alpine are raised in spring and planted out on good ground, they will bear abundantly from the middle of August onwards. One-year-old plants bloom at the same time as the large-fruited kinds, and although they continue to bear longer, they are in a measure exhausted by late summer. The Paris market growers go over a portion of their plants as soon as they come into bloom and cut off the flower-stalks, which throws them into fruit a month later, these being succeeded by the young plants raised from seed in spring. In this way a good succession is maintained through the summer and autumn, and it is really surprising the quantity of this little Strawberry that is consumed throughout France in the warm season. In this country when bush fruits are over there is a void in the fruit supply, but which might be easily filled by means of this little alpine Strawberry.

Ryfellet.

J. C.

#### OWN-ROOT FRUIT TREES.

THE influence of the stock on the graft and *vice versa* is a question that has been agitated for some time and doubted by some, but at present generally admitted, although the degree of influence is not exactly ascertained, particularly in the case of fruit trees, a much more important matter than that relating to other trees. Till now nurserymen who propagate fruit trees on a large scale have generally raised their stocks from seed collected rather at random, and thus it happens that amongst the seedlings there is great diversity of character resulting from the natural and universal law of variation. Some may be vigorous and others weak without this being apparent when they are fit for grafting; therefore, purchasers get disappointed, and yet the seller is unaware of the cause. Under this impression I have read with interest the article of D. B. Weir in THE GARDEN of July 4, where it is stated that in the United States the orchards are planted with Pear and Apple trees on their own roots propagated by root-grafting, the result being greater vigour and productiveness. As this is a matter of much importance to fruit growers, more information concerning it would be welcome. I have had for many years in my garden several standard Peach trees, some on their own roots obtained by me from seed, and some American varieties grafted, I suppose, on Prunes or Almonds. The trees on their own roots have given me yearly a much larger crop than those which are grafted, a circumstance which I attributed to the variety, but I am now led to think that D. B. Weir's correspondent is right, and that it is the stock that is at fault; another reason for supposing so is that in the hard winter of 1871 all my Pear trees grafted on the Quince were killed. I may add that owing to the hot and dry summer which we have had all our trees are suffering, and we shall have no fruit. The trees seem to be dying and we have been obliged to water them, work which we have never done before.

JEAN SISLEY.

Monplaisir, Lyons.

**Early Peaches.**—Our first ripe fruit of Early Amsden was gathered on July 21. It is not a large Peach, but fine in colour and delicious in flavour. The next, Princess Beatrice, was gathered July 30. This is scarcely so large as the Amsden and the colour is deficient. Hale's Early I have seen to-day. It is yet quite hard. Amsden for three years back has always been from eight to ten days more forward than any other. I may add that all the varieties enumerated are smaller than that grand early variety Early Louise, which I shall grow in future.—R. GILBERT, *Burghley*.

**Colour of garden walls.**—"J. W. C.'s" query with respect to the best colour for garden walls is one that has been asked and answered many times during the past 50 years. Some time ago quite a mania set in in favour of white-washed walls, because it was asserted that white reflected more light and heat than any other colour. Some, therefore, had their walls coloured white, others dull stone, and some a heavy grey; but the whole matter speedily collapsed, because it was ultimately found that not an atom of advantage resulted therefrom, while white walls were offensive to the eye, especially in summer. Dull brick-red, on the other hand, is

singularly inoffensive. The point, however, is, which colour is the best for the wall trees in any garden; that must, of course, dominate any objection as to colour. The universal practice of employing red bricks in the building of garden walls and permitting the bare surface to remain untouched by colour of any kind naturally leads to the conclusion that experience has shown uncoloured walls to be best. Moreover, it is notorious that whilst white repels heat, dull red is an absorber of it in the daytime. At night, however, it parts with it, and thus assists in maintaining an equable temperature for the trees.—A. D.

#### PHOTOGRAPHS OF GARDENS OR PLANTS.

THE days of amateur photography have come, and there are besides such various means of getting good photographs in most parts of the country, that it has struck us that it may be useful to invite our readers to take or procure photographs of beautiful garden scenes and plants of peculiar grace or other merit. Our purpose is to get pretty or suggestive pictures of any gardening objects of interest, whether from the open garden, the hothouse, greenhouse, rooms, or windows. The best photographs of objects of gardening interest that are sent to us during each month will be engraved as soon as possible in the most fitting manner for publication in THE GARDEN. That is, perhaps, the best honourarium we can bestow upon the senders, but those who send the chosen pictures will also be entitled to receive not less than one guinea and a half's worth of books useful for garden reference or practice. Inasmuch as the tendency of a great deal of the so-called landscape gardening of a past generation or so has been to mar or blot out wholly the most precious feature of British gardens, the lawn, we wish in the first series of prizes to encourage good views of that portion of the garden. Our first prizes, therefore, will be for the most beautiful

#### LAWN VIEWS.

Either to or from the house, or from any position that may be found most picturesque. Any other views, however, will be welcome. In addition to the above we propose to give to the reader who, during the current year, sends us the best series of photographs for engraving a painting by Alfred Parsons, shown in the present exhibition of the Royal Academy. It shows a bunch of the common Moss Rose, bought in Covent Garden, and painted by the artist in oils.

Photographs of the outdoor garden should be taken with a lens adapted for the purpose; some photographers use lenses unfitted for landscape work. All photographs sent must be clear, the subject intended to be shown in good focus, and of a size to be distinctly seen; imperfect photographs will not be admitted to competition. Figures of men or women, barrows, vases, and all similar objects should be left out of the photographs.

Photographs should be addressed to the Editor of THE GARDEN, and marked "Garden Illustrations." The name and description of each object sent should be distinctly written on the back of every photograph. The photographs may be those of objects in one's own possession or cultivation, or of any others that may be obtained, but the source whence they are derived should be stated, and none sent the copyright of which may be questioned. Unmounted photographs will do as well as mounted.

Drawings and photographs for the first competition should reach us by September 15.

#### QUESTIONS.

5371.—**Honeysuckles.**—How many Honeysuckles are worth a place in a garden? Will any of the readers of THE GARDEN tell one who wishes to make a pretty feature of them? They should be hardy on a poor clay soil.—H. B.

5372.—**Passion-flowers.**—I have a very fine show of blooms on *Passiflora quadrangularis*, and am vexed to see that after a very few hours in water they wither and become unsightly. Is there anything that could be added to water that would prolong their life—salvolatile, or vinegar, or what?—D.

5373.—**Monthly Roses.**—I am very much interested in these, and having some reason to think that in earlier days there were various kinds raised that are now lost or scarce, I should be glad if any Rose grower will kindly tell me the names of such, or of the hybrid Chinas that come near them in colour, and above all in the precious quality of blooming long and often.—R. E.



## ORCHIDS.

## THE GENUS ANGRÆCUM.

THOSE who value winter-flowering Orchids should cultivate the best representatives of this genus. They nearly all produce their flowers during winter and early spring, and can be grown in any hothouse if shaded from bright sunshine. There are few more striking Orchids in existence than that remarkable plant *A. sesquipedale*, discovered and sent home from Madagascar by the late Mr. Ellis, of Hoddesdon. It generally flowers at mid-winter, but we had it in bloom this year as late as the end of March. There are two distinct types, one flowering later than the other. Those who possess examples of this plant will now find that it is rooting freely into the live Sphagnum Moss, and that it requires plentiful supplies of water. As much may be said of the handsome, though small-flowered, species *A. citratum*; a well-grown pan or basket of this species, with a dozen of its graceful spikes beautifully curved, forms a striking feature in any collection of plants. It does equally well in shallow pans or the usual teak baskets. The plants ought to be suspended near the roof glass in winter, but they do better placed on the stage in summer. *A. Ellisi* is also a very interesting and striking species distinct from any other sort, except the nearly allied form, *A. articulatum*. It produces a very long spike of flowers, which takes a long time to develop itself. The spike also takes a great deal of the strength from the plant. We flowered a very fine variety of this plant last year, but it got into bad condition and ultimately died after flowering. This, like the preceding species, succeeds best in a pan or basket, and the material in which it grows best is live Sphagnum Moss.

Our enterprising Orchid collectors are constantly adding new and distinct species to those at present in cultivation. The most recent is *Angræcum Leoni*, introduced by Messrs. Sander & Co., St. Albans. It has not yet flowered in this country, although we may expect it to do so during the ensuing winter, as many of the imported plants are already showing spikes. From material in the possession of Messrs. Sander a lithographed plate of a magnificent specimen by Mr. W. G. Smith has been published; it is stated to be the natural size of the plant, and is 22 inches across from tip to tip of its sickle-shaped leaves. There are forty-two fully-expanded flowers and unopened buds on four spikes. The long tail-like appendage peculiar to all the *Angræcums* has a twist in the middle, which, in most cases, turns the tail up over the flower. Years ago Darwin stated that there must be a moth with a proboscis sufficiently long to extract the nectar from the bottom of the long spur attached to the flowers of *A. sesquipedale*. Such a moth was discovered, and with a long proboscis there would be no difficulty in extracting the nectar. In the new species it would not be possible for any insect to pass its proboscis round the sharp twist or curve, but if the drawing by Smith is a correct one, the twist is an advantage, as every one of the flowers represented are in such a position that the nectar must needs drain from the bottom of the nectary down to the curve. This distinct species was discovered by M. Léon Humboldt in the Comoro Islands, at an altitude of 5000 feet. It is likely to succeed in the Cattleya house with *A. falcatum*. I am trying it in both temperatures. It is evidently very plentiful, and much more easy of introduction than any of the other species. *A. Scottianum*, also found in the Comoro Islands, is evidently rare in its native habitat. It was first exhibited by the late Mr. Scott, of Walthamstow, after whom it was named. The spike and flowers are large for the size of the plant. I am not sure whether it would be winter flowering, as the plant exhibited by Mr. Scott was in flower early in June. Owing to its rarity, it will always be expensive. At present it is worth rather more than its weight in gold. *A. eburneum* and the varieties of it, *superbum* and *virens*, are noble growing plants, flowering freely in winter in any house where the temperature is from 60° to 65° in winter. This species and its varieties are not adapted for small houses. The flowers are ivory-white and last more than a month in good condition if kept free from

damp. Some persons keep their houses very damp during the winter months. This is a grave error, and not only destroys the delicate flowers before they have lived half their days, but is injurious to the plants, exciting them into growth when they ought to be at rest.

*Angræcums* have not been so long in our gardens as some other species of Orchids. *A. falcatum*, introduced from China in 1815, is the oldest species; *A. eburneum*, from Madagascar in 1826, and *A. sesquipedale* in 1857; *A. citratum* in 1866, and the latest, *A. Leoni*, in 1885. There are now upwards of forty distinct species known to science, all of them very interesting both to the horticulturist and the botanist.

J. DOUGLAS.

**Native Orchids.**—I quite agree with Mr. Groom that British Orchids are well worthy of the attention of all lovers of flowers. Although in point of size and brilliancy of colour they may be inferior to many exotic species, they surpass quite as many in real beauty, and if their cultivation were taken up in earnest they would soon become popular. In point of variety they compare favourably even with *Cattleyas* or *Odontoglossums*. Of *Orchis maculata* alone from twenty to thirty varieties may be found in a walk across a common where they grow wild, each possessing sufficient distinction to ensure its having a name did it but belong to one of the popular classes of exotic Orchids. That wild Orchids have the character of being difficult to grow for a number of years is almost as well known as the plants themselves; still we need not despair on that account; if they will not grow in pots, let us look round and see where they will grow. They are usually to be found on open commons, fully exposed to the sun, but they will grow quite as strongly under the shade of trees. The soil is almost always moist and at times very wet, of a fine fibrous character—sometimes with a lot of sand mixed with it, at other times decayed vegetable matter almost resembling peat or bog earth. The tuberous roots do not go deep in this compost, but around the stem for several inches Grass and Moss grow closely, thus protecting the roots from the drying influence of sun and wind. Many gardeners could easily find such a place in pleasure grounds where the Grass is allowed to grow wild. In wild gardens, with scarcely any trouble, many *Orchises* would flourish quite as well as in their native homes. In small villa gardens a spot could be found even in borders for them, where they could be given a thin mulching of Cocoa fibre refuse. They may also be grown well in pots if the surface of the soil is covered with Moss, and the pots plunged so that the sun does not shine upon their sides. They must never suffer from want of water, even when at rest if they have such a period, which is very short.—W. B. W.

## WORK DONE IN WEEK ENDING AUG. 4.

JULY 29 TO AUG. 4.

As the drought still continues, our variety of work is so limited that daily note of it has, for the present, been discontinued. The bulk of it consists in striving to keep plants alive—shrubs and trees that were moved last autumn and winter—and vegetable and fruit crops from collapsing entirely, by daily watering whatever seems to require a supply the worst. Peas, Runner and French Beans, Celery, Lettuce, and Tomatoes are all of them both mulched and regularly watered, and therefore they are in prime condition. Potato crops may now be pronounced a failure; the early varieties have been, and still are, good, though small, but late varieties have scarcely tubered at all, and when rain comes there will be a secondary growth of tubers that will deteriorate those now formed, and there is no remedy or preventive measure other than lifting them now, and that is out of the question, seeing that they are so few and so small. We could not wait any longer for rain, and this week, therefore, we set to work and got out Broccoli on the old Strawberry plots; we made good wide holes with a crowbar, and filled in the holes with fine soil and fastened the plants by drenchings of water. Planted more Savoy on ground that had been cleared of early Potatoes, and sowed French Beans on a south bank. They are sown in deep trenches, which will

admit of watering them freely, and so are late Peas. The flower garden, in all its departments, could scarcely be more gay or better filled out, a circumstance due to our good supply of water and the freedom with which it has been applied, as well as our persistency in keeping seeding and bad flowers regularly picked off. What may be termed "wet weather" flower garden plants, such as *Verbenas*, *Violas*, and *Calceolarias*, vie with *Pelargoniums*, *Fuchsias*, *Marguerites*, and *Heliotropes* in both vigour of growth and profuse flowering, a circumstance that plainly indicates the requirements of such plants to have them satisfactory as bedders. Annual sub-tropicals, too, have made magnificent growth, the best being *Wigandias*, *Ricinus*, *Solanums*, and *Nicotianas*. They all need and have attention as to tying up, &c., once each week, and dwarf foliaged bedding plants have the same periodical attention as to stopping and pinching and some few kinds of pegging to keep them in neat order. The fine-foliaged bedding *Pelargonium Sophia Dumaesque*, the best tricolor, and the best white variegated variety, *May Queen*, have grown so rapidly, that, in cutting them into form, we have managed to get a goodly lot of cuttings, and which are now being planted on a south border in the open garden; the soil being a fine sandy loam, no addition to it is needed. Indoors work also mainly consists of watering and syringing. Early Vines and Peach trees that have been cleared of fruit have been given repeated washings with the garden hose to effect a riddance of red spider, which, as might be expected this dry season, has been unusually prevalent. The laterals on early Vines are now kept closely pinched in, and the ventilators are left open night and day. Early Peach house we still close up at night, as the growths are still full of sap, and till the shoots get harder, or what is called ripier, night warmth will be continued, and the shoots be kept well thinned out, that sunshine may have its fullest maturing effects on every shoot alike. Smooth Cayenne Pines are still kept closely shaded to prevent the foliage getting brown; but all other varieties are gradually being inured to bear sunshine, by shading, for a less period every day. Potted on *Poinsettias*, tied up tuberous *Begonias*, top-dressed with well decayed manure and loam *Pelargoniums* of various kinds that are being grown on in pots in the open air for winter flowering. Potted Strawberries for forcing and picked flowers off the plants that are intended for late autumn fruiting; the flowers that next show are those that may be expected to fruit throughout the month of October. Gathered first Apricots from the open walls (*Musch-Musch*) on the 30th ult., and first Peaches (*Early Louise*) on the same date. The latter grows much larger and is much better in quality from the open walls than when grown in a house. Pear *Belle de Bruxelles* we gathered on the 30th ult., but as it decays almost before it is ripe, it is hardly worthy of cultivation.

HANTS.

## FRUITS UNDER GLASS.

CUCUMBERS.

The good old-fashioned system of turning Cucumber frames round to face the north during the summer months may once more be put into practice, as we have not had such a thoroughly tropical season for many years. We are now well into the sixth week of dry weather with a rising barometer, and although we have often been told that numerous spots have considerably weakened the power of the sun, it is comforting to find that he is still capable of baking up our soft fruits and raising the temperature in wooded districts to 85° in the shade. Brick walls are now thoroughly heated through; closely glazed pits and houses containing the sun-loving natives of the south require slight shading. Melons set freely with the lights thrown completely off them for several hours during the hottest part of the day, and red spider where water is not freely and judiciously used is once more in the ascendant. Much as the Cucumber rejoices in tropical heat, it luxuriates in partial shade and atmospheric moisture, and in no position can these conditions be better produced than in pits or frames with the glass sloping to the north. Favoured by such brilliant weather all the year round, growers, whose frames so situated are producing sufficient fruit to meet the demand, should make the most of



the opportunity for clearing out their hot-water compartments as they become vacant, and thoroughly cleansing them preparatory to making a fresh start with winter plants. If this is not done at least once or perhaps twice a year, forcing houses in which heat is obtained from fire and fermenting materials combined soon become infested with troublesome pests which spring into new life when they are least wanted or expected, but by clearing out to the very bottom, scalding, limewashing, and painting, a very important point in successful culture will be secured. Where small compartments now occupied by Melons are devoted to Cucumbers in winter, the raising of young plants from this time forward should be regulated by the period at which they are likely to become vacant and ready for replanting. The improved forms of Telegraph are still the best for winter use, and the way in which they pass through our cold and sunless winters greatly depends upon the method of raising and preparing the plants. Shy-seeding kinds can be raised and perpetuated by the propagation of the points of the shoots, which should be potted rather firmly in small 3-inch pots and plunged in a sharp bottom heat under bell-glasses, but for producing clean handsome fruit many give preference to maiden plants raised from seed and grown on without a check with plenty of bottom heat from fermenting materials and abundance of light and fresh air. A manure frame or pit best answers the purpose at this season, as the plants can always be kept close to the glass and the humid warmth from decaying leaves and manure keeps them free from spider and thrips. Winter plants should never be allowed to become pot-bound, but should be shifted on from time to time as they require more root space; neither should the points be pinched out of the leaders before they are planted out in their winter quarters.

#### MELONS.

We are now planting our late batch of Melons in 12-inch pots to take the compartment occupied by Cucumbers which have been in bearing since Christmas. The pit is fitted with pipes for giving top and bottom heat later on, but for the present all the artificial heat that the plants will receive or require will be obtained from fermenting Oak leaves, which have been stored under cover since last harvest. These plants, plunged nearly close to each other, will be trained on the restrictive principle, and will be allowed to carry three fruits each. If the weather is unfavourable, as it may be after this long drought, the top and bottom pipes will be warmed when the fruit is setting, and again when it is ripening. Up to the first stage, solar heat will suffice, and possibly again after the Melons are well set and swelling freely, as the plants have plenty of time before them, and the bed will be renovated with a few fresh leaves when it is found that the bottom-heat is falling below 80°. The pits in which these Melons are grown are well ventilated behind the front pipes on a level with the surface of the bed, and the constant circulation of warm air so obtained keeps the lowest leaves fresh and healthy until the fruit is ripe. Where very late fruit is wanted, seeds of some good early sort may still be sown, that is, provided there is full convenience of heat, the pits are light and well ventilated, and the pots in which the plants are to be fruited are not over-large. If smaller pots than are often met with and poorer soil were used for Melons, we should hear and see less of that troublesome disease canker, which seems to be considerably on the increase. In-and-in crossing and breeding has not improved the constitution of the plant; high feeding often with rich solid manure in badly ventilated pits is objectionable, and the way in which the vines are sometimes allowed to hang and twist about does not mend matters. Add to these ills the earthing up of the stems, the destruction of many of the main leaves, one of the most fertile causes of canker, and conditions fatal to success, if not to the life of the plant, are ever present. The usual remedy for canker is a mixture of quicklime and sulphur, but, prevention being preferable to cure, it may be well to advise young beginners to try elevated planting either in pots or on hills, the use of good sound loam free from all animal manure, and last, but not least, steady top and bottom heat that will admit of a free circulation of air below as well as above the foliage. Stimulants are, of course, necessary, but these are not required until after the

fruit is set, when warm diluted liquid from the manure tank, soot or guano water may be used at every watering. Bone dust or Clay's fertiliser mixed with a little heavy loam and applied in small quantities at short intervals will be found an excellent top-dressing during the time the fruit is swelling. Good syringing at all times when the fruit is not setting or ripening is imperative, as the plants cannot be kept clean and healthy without their afternoon bath immediately after the house is closed. Some kinds of Melons are liable to scald if syringed on bright mornings, and for this reason it is well to avoid wetting the fruit or foliage, as atmospheric moisture in abundance can be obtained by thoroughly wetting the paths, walls, and surface of the bed.

#### STRAWBERRIES.

Growers who have again embarked in the 3-inch pot system and have been waiting for a change to cooler and moister weather, as being more favourable for potting up the stock for forcing, must not longer delay this operation, as it is important that the pots be well filled with roots before the growing season draws to a close. Plants, as a rule, will not be very large, but they will be good, and if carefully tended with water, hard, well-ripened crowns capable of throwing up fine flower-scapes will be secured for early forcing. Spider and mildew are unfortunately present in many open-air beds, and as neither of these pests can be tolerated in the forcing pit, stringent measures must be employed for stamping them out before they get established in the fruiting pot compost. The best of all preventives is an abundant supply of water to the roots and foliage of the parents as well as the runners, but when once established in the beds an insecticide of some kind must be brought into use. Sulphur is the best material that can be used, as neither parasite can stand against it; moreover, it is safe and easily applied in the following manner: To one pound of flowers of sulphur reduced to a paste in a tub add twenty gallons of water, stir occasionally, and when quite clear turn the young plants out of their pots, immerse them one by one and place them in a cool shady place to dry. When dry, pot up those intended for forcing and plant the others out in a moist border, where they can be shaded from bright sun and quickly watered. If the beds have been properly prepared in accordance with former directions, and the hose can be laid on every evening, permanent planting need not be deferred; but, lacking this important element, much labour will be saved by a few weeks' delay. When new beds are made in old gardens, the soil previously trenched and manured should be firmly rammed; then having drawn shallow drills lengthwise and the reverse 2 feet apart, make good-sized holes at each of the intersecting angles. Fill in with fresh, heavy maiden loam, ram well, and introduce the young plants. See that every ball is thoroughly moist at the time of planting. Mulch with old Mushroom manure, if at hand, and keep the ground well watered until the drought gives way to more genial growing weather. Plants that were layered at once into the fruiting pots or were potted up early in the season and have taken freely to the soil should not be kept in the shade of trees or buildings a day longer than is absolutely necessary. The best position for a summer station is quite out in the open, where, placed on a hard bottom free from worms, they can have full exposure to light and air. The earliest kinds, which are often grown in 5-inch or 6-inch pots, do best and suffer least from drought when pressed into a thick layer of loosely spread coal ashes, care being taken that the pots stand sufficiently far apart to admit of a free circulation of air and roots do not emerge from the apertures. The general stock of plants in 7-inch pots do equally well on a hard bottom, as they do not dry up so quickly, and the pots being larger they shelter each other from the fierce rays of the midday sun. Water is an important element, as the balls should never become dry from the day the plants are potted until the fruit is ripe. The best time to apply it is after the sun is off in the evening, when the plants may be well washed with the hose or garden engine, but morning watering should be confined to the roots only, as overhead syringing when the sun is rising and gaining strength would most likely injure the foliage.

When thoroughly established, all runners and weeds must be systematically removed, and later on the centre leaves may be pressed down with the hand to favour full exposure and perfect maturation of the crowns. If not already done, a sufficient number of the different kinds should be planted out in single or double rows, in near proximity to water, for giving a supply of early runners for next year's potting. Some growers prefer early forced plants for this purpose, but stock so obtained often inherits spider from the enervated parents, and is greatly inferior to vigorous runners from maiden plants of the preceding year.

#### PINES.

Aided by such brilliant weather, the first batch of suckers taken from early started Queens should now be sufficiently advanced to admit of their being shifted into larger pots. If the strongest and best were started in 8-inch pots and the second size in 6-inch pots, the first may be at once placed in the fruiting pots, which need not exceed 10 inches in diameter, as a plentiful supply of roots is of more importance than a large quantity of compost in which they will persist in growing when they ought to be ripe and resting. Assuming that the suckers have been grown in light compact pits, where the bottom heat from fermenting materials has ranged about 90°, the temperature of the bed in the succession house, to which they are now about to be transferred, should not be lower, and there should be full command of top-heat when this tropical weather begins to decline. Here they should be plunged to the rims, sparingly watered, but liberally supplied with atmospheric moisture, and lightly, but not systematically, shaded until they have taken to the new soil. When new growth, which, under these favourable conditions has hardly been arrested, has set in, more air and exposure to light will become necessary. The plants should be kept well up to the glass, and sufficiently wide apart to admit of the full and natural development of the foliage, as further disturbance will not benefit them if a sudden rise in the bottom heat does not render precautionary measures necessary. The second sized batch of plants which it is intended to keep steadily progressing throughout the autumn and winter may be transferred to 8-inch or 9-inch pots, and replunged in the pit in which they have been grown for the present. Strong successions that were shifted into 12-inch pots early in the season will now be growing fast, and having made an abundance of roots they must have sufficient water, tinged with guano or liquid manure, to keep them progressing. Good syringing during this hot weather will also greatly assist the plants, but this must not be carried to an extent that will favour soft growth or induce the formation of suckers.

*The fruiting house.*—The weather during the past month, although favourable to colour, finish, and flavour, has been unfavourable in another respect; it has shortened the season of the best of all summer Pines by forcing the general stock of Queens to early maturity. All private growers who have to provide a steady supply like to eke out their Queens, and much may be achieved by timely removal from the fruiting bed to cooler quarters as soon as there is the slightest indication of change of colour. A cool vinery from which the Grapes have been cut is perhaps the best place that can be selected, or, lacking this convenience, an airy Grape room will answer equally well. In seasons gone by, when these periods of great heat and drought were more frequent, it was not unusual to place the pots on the bench in the potting shed, and leave the door facing the north constantly open until the fruit was ripe. The modern system of growing large suckers into yearling fruited has, however, done away with retarding, as Cayennes are now in before Queens are out; but where the latter are in demand, the old method of keeping them back has not been superseded. The pots being full of roots, all plants swelling off fruit must now have liberal supplies of water as often as they require it, and they may be well syringed when the house is closed with sun heat, which should be sufficient to keep up the air temperature without the aid of fires. Ventilate very early, to prevent condensation of moisture and scalding, and run a very light shade



over the plants for a few hours during the hottest part of the day. W. COLEMAN.

*Eastnor Castle, Leicestershire.*

## PARKS AND PUBLIC GARDENS.

### HAMPSTEAD-HEATH.

A GARDEN PARTY was held the other day on Parliament-hill for the purpose of enabling visitors to see and appreciate the beautiful spot which the Metropolitan Board of Works has been asked to secure to the public as an open recreation ground in connection with Hampstead-heath. The site is over 260 acres in extent, and commands a view of great extent and variety. It has been ascertained that the owners of the land are willing to sell it for public purposes; but, if the purchase be not speedily completed, there is every reason to fear that it will soon fall into the hands of the builder, and that not only would the public be deprived of the enjoyment of this beautiful piece of open country, but Hampstead-heath would be robbed of much of the attractiveness which it now possesses from the close proximity of the hill and fields in question. Mr. Shaw-Lefevre said a few days ago he presented to the Metropolitan Board of Works a deputation which had been formed of many influential persons for the purpose of acquiring possession of the land on which they now stood, and of the other lands adjoining Hampstead-heath, for the purpose of adding the land to the heath or making it into a public park. They asked the Metropolitan Board of Works to exercise its powers by purchasing this land and dedicating it to the public. In presenting that deputation he felt it was impossible to do justice to the scheme, or to describe the beauty of the spot and the value of preserving it to the public, without their having an opportunity of seeing the place. It therefore occurred to him, after the deputation had waited on the Board, that the best thing that could be done was to invite the members of the Board, and as many other influential people from London as they could get, to come up to Parliament-hill and view that land which they considered ought to be bought by the Metropolitan Board of Works for the public. With that object the present gathering was held. On a fine day he believed that from the spot on which they then stood could be seen St. Paul's, Westminster Abbey, the Houses of Parliament, and other public buildings. On the other side they had Hampstead-heath and the beautiful wood known as Caen-wood. The land it was proposed to purchase consisted of 50 acres belonging to Sir Spencer Maryon Wilson, immediately adjacent to Hampstead-heath, and about 220 acres belonging to Lord Mansfield. Referring to the importance of Hampstead-heath as a place of public resort, he remarked that on last Easter Monday no fewer than 140,000 persons went to the heath to enjoy it for the day, and said that no one who had seen the heath on an occasion of that kind could come to any other conclusion than that it was very desirable to extend the space devoted to the use of the public if they could possibly do so. He said it was calculated that, if the Metropolitan Board of Works were able to buy this land at a reasonable price, a yearly addition to the rates of the metropolis of not more than a farthing in the pound, spread over fifty years, would amply pay for it. After referring to some interesting historical associations of the site, which includes a tumulus said to have been the burial-place of Boadicea, while Parliament-hill is believed to have derived its name from the fact that it was the place where the Saxons had their Witenagemote assemblies, he concluded by urging all present to use their influence with the members of the Metropolitan Board of Works and others to secure the purchase of this land, in order that it might be dedicated to the use of the public henceforward and for ever.

Sir James M'Carel-Hogg, M.P., chairman of the Metropolitan Board of Works, remarked that he occupied a difficult position in regard to this matter. The Metropolitan Board of Works had not been unmindful of the interests of the public in regard to open spaces; but they sometimes found a difficulty in raising the money to carry out the various improvements urged upon them. Unless the coal and wine duties, which did not press on the consumer in any

shape or form, were continued, the Board would be under the necessity a few years hence of placing 2½d. in the pound extra on the rates. The proposed purchase of this land had been referred to a committee, and if the Metropolitan Board should see its way to ask Parliament to enable them to raise money for that purpose, he hoped that those present would support the Board in its endeavour to provide open spaces in every part of the metropolis.

**Battersea Park.**—One of the finest features just now in this park are the Clematises in the sub-tropical garden, which are the admiration of every visitor. In a quiet recess there is a crescent-shaped mass of C. Jackmanni covered with a profusion of flowers. The plants are rambling over Pea sticks, and intermixed with them is the white Everlasting Pea (*Lathyrus*) and Canary Creeper (*Tropæolum*), both of which are charming contrasts to the rich purple of the Clematises. Were it not for a row of Scarlet Pelargoniums at the foot of the climbers the mass would be perfect. The scarlet is a harsh contrast to the purple. If an edging is wanted at all, a row of big-leaved Funkias, which are represented so grandly in this park, would make the best edging for such a grand mass of colour, and at the same time be permanent. This park is now looking at its best, and we think the adornment of it this year excellent, the leaf bedding being particularly fine, while the mixed beds are a great attraction, but would have been better if more attention had been paid to harmony of colour.

The tenth public garden and recreation ground, obtained and laid out for the use of the poor by the Metropolitan Public Gardens Association, was last week declared open to the public by Princess Frederica of Hanover. This recreation ground, which adjoins St. Paul's Chapel, Globe-street, Rotherhithe, has been tastefully laid out in flower beds and rockeries, and contains an ornamental fountain and a drinking fountain. A part of it has been fitted up as a gymnasium, and a number of comfortable seats are scattered about the ground. The entire expense connected with this garden, with the exception of that of the seats, has been guaranteed by the Earl of Leven and Melville. The seats have been provided by the Metropolitan Public Gardens Association. Another garden was opened on Monday in Avondale-square, Old Kent-road, by Mr. Ernest Hart. It consists of a small plot of ground less than half an acre in extent, surrounding the diminutive church of St. Philip, Camberwell. The expense of laying out this ground, about £80, will be borne by the association.

**Crocus obesus.**—Mr. Sabine, in a paper on spring-flowering Crocuses, read at one of the meetings of the Royal Horticultural Society in 1829, describes at some length *C. vernus obesus*, and in the same paper gives an account of the introduction of *Crocus pusillus*, sent by Professor Tenore, of Naples, to the gardens of the society in 1824. It flowered the following spring, and the description given of it agrees with the plant now under cultivation as *C. biflorus pusillus*. The "leaves are very narrow, rather spreading, and longer than the flower when it opens. The whole flower is very small; the tube is faintly marked with lilac lines; the petals are concave, the three outer white, marked with three lines, the middle one narrow without featherings, the outer one broader and neatly feathered towards the outer edges of the petals; the inner petals are ovate and pure white; the bottoms of the petals within are yellow. The stigmas are pale orange, longer than the anthers, which are yellow. A figure of *C. pusillus* has been published in Sweet's 'British Flower Garden,' tab. 106, from roots also derived from Professor Tenore." Mr. Sabine's paper is a very elaborate one, and is accompanied by a coloured plate containing nineteen species and varieties. He classes the Crocuses as follows: Spring Crocuses, with yellow flowers, nine of which he describes. Of spring Crocuses, with various coloured flowers (not yellow), having the mouths of the flower-tubes without hairs, he describes twenty-three. Of spring Crocuses, with various coloured flowers (not yellow), having the mouths of the flower-tubes hairy, he describes fifty-seven. Many of the Crocuses described by Sabine

are still in collections, and many more might be hunted up by an industrious amateur, and, judging by the descriptions given in Sabine's admirable paper, varieties of considerable beauty might be reinstated in our gardens. The eighty-nine sorts, and others only referred to in the paper, were at one time an interesting feature in the gardens of the Royal Horticultural Society. Now that new life seems to be infused into the executive of the society, it is but fair to expect that as it was in the past so it will be in the future, but with enhanced lustre, for in these old days of the society's history there were powerful men, but not much material; now the material is great, and all that is wanting is men and money.—P. B.

## INDOOR GARDEN.

### PARIS DAISIES FOR WINTER BLOOM.

Few things are better calculated to impart cheerfulness to a cool greenhouse in winter than the white and yellow Paris Daisies, but they need some little special preparation if they are to yield good blooms at that time; young thrifty plants are the best for that purpose, and they should now be shifted into 4½-inch and 6-inch pots, according to their size. It is absolutely necessary that their energies be concentrated on their winter's work, and this can only be effected by preventing them from flowering during the summer and autumn months. Give them a sunny position with a little shelter from winds, water them well, and pick off all buds as they appear until the end of September, when they may be allowed to take their own way. Then you will get good blooms to last all through the dark days of winter, and the scarcity of blooms at that time will cause you better to appreciate their beauty than in summer. I would emphasise the necessity for constant watchfulness in the matter of watering, the never-failing supply of moisture at the roots forming in their case the key-stone of success. Paris Daisies present no cultural difficulties, but I have remarked how soon neglectful watering when in a root-bound condition brings them into a stunted state, the removal from which causes the loss of valuable time. When the pots get full of roots it does not suffice to water morning and evening; in hot weather they should be looked to at mid-day, so that they never get quite dry; then they continue in a free, healthy, growing condition. *Etoile d'Or*, the yellow kind, is most valuable; it blooms in ordinary greenhouse temperature through the winter, culminating in a blaze of beauty early in spring, only requiring that the energies of the plants be occasionally roused by top-dressings of concentrated manure. Give this plenty of water and good food, and it never seems to tire of producing its pleasing primrose-coloured blooms. J. CORNHILL.

### HOW TO GATHER CAMELLIAS.

THE close sympathy that exists between roots and branches is apparent in different ways. If any considerable portion of the roots of a plant are removed, the branches show the weakening effect which it has on them by making correspondingly less growth until the mischief is repaired. If the branches are reduced, root action is paralysed till time has elapsed to enable the head of the plant to make good the injury sustained. If portions of shoots are annually removed, even if comparatively little is cut away, the growth of the plant is correspondingly weakened. In few things is this more clearly shown than in Camellias, that for a long series of years have had the extremities of their shoots cut with the flowers as gathered; the effect of this, where a considerable portion of the preceding year's wood has been constantly removed, may be often seen in the weak condition to which the plants become reduced. The difference between such plants and others where the modern method of gathering the flowers with no wood attached has been adopted is strikingly apparent. When Camellias are right at the roots and the treatment given is as it ought to be, they become almost as dense and full of leaves as Portugal Laurels; the shoots, instead of breaking only a single bud, as is usual in the case of plants that have the flowers gathered with wood attached to them, make growth from two or three of the back buds besides that at the extremity, the plants increasing in



size proportionately faster. What has been said applies principally to large old specimens, yet the advantages attending gathering the flowers without wood are still more apparent in small plants, which, if many of their shoots are partially removed in the way instanced, necessarily make little progress, and often get into a weakly state. T. B.

**Hybrid Streptocarpuses.**—I send you a series of flowers showing the result of cross-fertilisation with two species of *Streptocarpus*, viz., *S. Rexi*, commonly known as *S. floribundus*, and *S. parviflorus*, the pretty little white-flowered species recently introduced from South Africa, where the whole of the *Streptocarpuses* are found. *S. Rexi*, typical, bears single-flowered scapes, but there is a variety known as *biflorus* which produces two-flowered scapes; of this you will find flowers among those I send; they are labelled No. 1. By using the pollen from *S. parviflorus*, which produces as many as a dozen flowers on a scape, for the flowers of this twin-flowered kind the result was what is shown by the flowers labelled 2—namely, a strong flower-scape bearing from four to eight flowers, which are as large and scarcely at all different from the flowers of *S. Rexi*, this variety has been named *multiflorus*. By crossing this with its white-flowered parent, *S. parviflorus*, a smaller but more delicately coloured form was obtained, and one which is deserving of taking a prominent place among popular greenhouse plants, as both from its very free-flowering character and distinct colour, as well as its accommodating nature, it is just the sort of plant to please the millions. It is No. 4 of the flowers sent. Aiming after a large white-flowered form, we again crossed this last kind with *S. parviflorus* and obtained the flowers labelled No. 5. You will see that although there is no pure white flower amongst these, yet some of them are very pretty, the pale lavender or pure white ground being rendered prettier by the pencillings of a dark crimson or maroon. It is curious that whilst these repeated crossings have finally resulted in flowers almost similar in colour and form to those of *S. parviflorus*, yet the scape has reverted to the twin-flowered one of *S. Rexi biflorus*.—W.

#### THE LONDON FLOWER TRADE.\*

ONE of the most interesting sights in London is reserved for the delectation of the few who are sufficiently energetic to sally forth at the early hour of five a.m. on a spring morning and wend their way to the wholesale flower market at Covent Garden. Once admitted to those balmy precincts—misnamed Mudsalad Market—a casual visitor is immediately struck with the contrast between a shrewd, anxious crowd, through which he can hardly elbow his way, and the simple beauty of the wares displayed amid such incongruous surroundings. What a motley crowd it is! men and women, buyers and sellers, wholesale and retail, salesmen, shopkeepers, gardeners, flower girls, and porters, all shouting, pushing, and haggling for the fragile merchandise, handling it with as little care apparently as if made of iron, yet gently withal, so as to leave never a bruise upon the most delicate blossoms. The flowers are not exposed for sale, as in a shop window; any elaborate display is rendered impossible by the shortness of the time allotted and the narrow limits of space assigned to the stall-keepers, while difficulties arising from diversity of opinion as to *meum et tuum* are best avoided by leaving everything in baskets with lids closed and jealously watched contents.

The buyers, however, like hungry fish, need little tempting; they mean business, they know exactly what they want and where to look for it. Long experience has taught them whose bloom is the finest, whose bunches contain the best value for money, so that the stalls of some famous grower are often emptied before others, less favoured, have disposed of a moiety of their produce. The variety and profusion are amazing; it seems incredible that purchasers can be found for the thousands and tens of thousands of choice hothouse flowers, which must all change hands before nine o'clock, the hour for closing the market. In late spring especially the bulk of bloom is enormous, and yet, as a rule, very little remains unsold;

for the perishable nature of their produce compels growers to sell at almost any price that is offered rather than have it left upon their hands. Occasionally, however, an overwhelming glut takes place; and then it is no uncommon thing to meet clergymen and sisters of mercy returning from the market loaded with free gifts of flowers to deck their hospital wards or gladden the eyes of weary sufferers in dark East End courts and alleys. Every morning in summer from five to nine o'clock, and three times a week in winter, the market is open, and furnished with an apparently inexhaustible supply of flowers, brought up during the night in vans from nurseries ten or twelve miles distant. The industry is really much more extensive than is supposed; indeed, if in addition to flowers, fruit and vegetables be taken into account, the money annually turned over in Covent Garden would reach such a figure as to compare favourably with many more conspicuous and popular branches of commerce.

But market gardening still remains a sealed book, while the world is being ransacked to find employment for the increasing host of young gentlemen in need of business openings. They become farmers, brewers, contractors, dealers in horses, cattle, and corn—in the colonies even shepherds and cowboys—but hitherto their attention has rarely if ever been directed to market gardening. The present writer, who struck out this line after leaving the university, believes himself to be a solitary exception, and has failed to discover a single instance of a similar course being taken by others. It is hoped, therefore, that a plain, unvarnished account of a little-known business, resulting from nearly four years' practical experience, may prove useful to many who, with limited capital at their command, are idle because they have nothing to do, and may possibly be the means of suggesting a livelihood which, though far from *couleur de rose*, will certainly enable them to be more comfortable than cowboys.

**The cultivation of flowering plants** and shrubs is the most attractive branch of an industry which, under the comprehensive title of horticulture, may be understood to include also the production of fruit and vegetables; in small establishments the three divisions are, to a certain extent, combined, but where things are done on a large scale exclusive attention is usually concentrated upon one class of products. A somewhat similar distinction is to be observed in floriculture proper between cultivation under glass and out of doors. The establishments which make cut flowers a speciality are generally devoted to supplying the London market, and carry on a purely wholesale business, their gates being closed to the public as jealously as the doors of a cotton mill or iron foundry. Indeed, the public would find little to interest them in the survey of house after house filled with the same plants, arranged solely with a view to convenience, and display none of those artistic effects which dazzle the eye in the "show house" of a general nurseryman. But genuine connoisseurs will find plenty to admire in the evidence of care and good treatment exhibited by each individual among the many thousands of specimens; a high standard of excellence is reached by all alike; there are no weedy ones pushed back out of sight, no prize winners to be grouped on the front stages. Where all are so good, the selection of a best would be impossible. Everything is sacrificed to utility, to obtaining the largest quantity of first-rate flowers with the least expense; to that end the position, size, and shape of the hothouses are arranged; the heating apparatus in each is accurately calculated to produce the particular temperature best suited to its inmates; the tanks in every house, the low roofs and raised stages for bringing plants close to the light, the large panes of glass, fastened by copper clips to iron sash-bars to secure the maximum of sunshine in winter—everything you see has its purpose and makes some contribution to the sum-total of increased productiveness. Not a particle of ground is wasted; every vacant space is occupied by huge piles of flower-pots and heaps of silver sand, tan, cocoa-nut fibre, peat, leaf mould, and manures of every unsavoury description. Not a field in the neighbourhood is stripped of its turf, but hundreds of tons are carted to the nursery, and stacked up in every odd corner, for few

of the materials of production are so valuable as good fibrous loam from an old pasture.

A glance into one or two of the "houses" will manifest the expediency of bestowing so much care upon cultivation. Here are the *Gardenias*, in all some 50 plants, or rather shrubs, for none are less than 6 feet or 8 feet in diameter, and of corresponding height; they are planted out in a house of noble dimensions, each on a raised bed of peat, which suits their luxuriant habit far better than the confinement of pots or tubs, however capacious. Surely it would be impossible to find more healthy and vigorous specimens! How stout their stems, how firm those long green shoots, clad with bright glossy leaves and terminating with swelling flower-buds in every stage of development! Morning after morning a thousand fresh blossoms expand, shining forth like stars from the dark foliage, with a fragrance begotten of tropical climes. The rapidity with which the flowers are developed is most remarkable; it is a fact that sometimes, however exhaustive the morning picking may have been, it will be necessary to go over the same ground again twice, so as to secure a second and a third crop later in the day. Under the same roof as the *Gardenias*, but separated by a glass partition, are *Tuberoses*, of which about 10,000 are forced during the season. The available room is barely sufficient, so the pots have actually to touch one another, and every inferior specimen is promptly weeded out to make way for its successor, leaving a forest of perfectly strong healthy stems crowned with clusters of sweet snow-white blossom. As with the *Gardenias* so with *Tuberoses*, *Stephanotis*, *Roses*, and the rest of the floral aristocracy; only very early in the morning, before the daily picking has commenced, or late in the evening, when fresh blossoms have begun to expand, can the plants be seen in their full glory. During the day all the wealth of the garden is concentrated in the packing-shed; everything is picked and brought thither as soon as possible after dawn, for if once the bloom flags beneath the sun heat it can hardly be revived in time for the morrow's market. Moreover, prolonged freshness is secured by standing the flowers in water for some hours before they are dispatched. It is the greatest fallacy to suppose that any which have to be sent to a distance should be fresh picked from the plants; they will travel better and last longer if allowed to imbibe a sufficient supply of moisture before starting on their journey. How often would the partial or total destruction of a welcome gift be avoided by the observance of this simple precaution, combined with a little knowledge as to the proper method of packing flowers for transit. Gardeners seem to forget the rough treatment impartially accorded to all kinds of freight by railway servants and carriers, and imagine that enough has been done by inscribing the words "With great care" upon the labels. Ah! if only they could see the condition in which the fragile goods reach their destination, what a lesson they might learn! Very different is the style of packing adopted by the market grower, who knows full well that his business depends in no small measure upon securing for his wares absolute immunity from damage, and has achieved such success that consignments of cut flowers from the neighbourhood of London are opened daily in Manchester, Glasgow, and Dublin without so much as a single petal been having bruised in transit.

**Gumming flowers** is another simple but useful "trick of the trade." It is applied to *Pelargoniums*, *Azaleas*, and all flowers of which the petals have a tendency to fall off. A single drop of gum is inserted with the end of a sharp-pointed stick into the centre of each calyx, and by this means the conformity of the bloom may be preserved for two or three weeks. Although they bear no marks of the process, all the cut flowers and blooming plants of the kinds specified are thus treated before they are brought to market, the composition of the gum being such as to dry up and set immediately, becoming invisible even to the closest scrutiny. Necessarily devoid of artistic arrangement, a brilliant effect is nevertheless produced by the hundreds of varicoloured bunches which crowd the shelves of the packing shed on a spring afternoon; and plentiful testimony is here afforded as to the enormous quantity of flowers grown, of which but a faint idea could be gathered

\* From a paper in the *Nineteenth Century* by Edward A. Arnold.



from a walk through the hothouses stripped of their finery. Whether the contemplation of so much beauty in his daily work exercises any influence upon the character of the horticulturist is a question which cannot be decisively answered from the evidence afforded by a single industry; but the fact, apparently undisputed, that the murky and debased atmosphere of certain occupations reacts with brutalising and degrading force upon the luckless persons engaged in them makes it not unreasonable to assume the converse, and expect to find, in a vineyard where all is so fair and bright and beautiful, labourers endowed with a more than ordinary amount of intelligence and refinement. However this may be, there is at any rate no body of artisans more conspicuous for sobriety, diligence, and a genuine desire for self-improvement than the majority of those employed in horticulture. In fact, one of the most attractive features of the business is to be found in having to deal with such a respectable staff of workmen, instead of the rough "hands" who prove a constant source of annoyance and anxiety to their masters in many industries.

From a commercial standpoint, attention must be especially directed to the intense competition which prevails in this as in every other trade nowadays. The extraordinary retail prices which are asked and obtained by florists during the London season are of course no criterion of the grower's profits. With so perishable a stock in trade original cost bears no definite relation to the selling price; for instance, a profit of over 400 per cent. may frequently be made by the sale of Gardenias at 1s. each which have cost 2s. 6d. the dozen. But when the immense loss from waste is added to the ordinary risks of business, it is doubtful whether the florist is, in the long run, as well off as neighbouring grocers or ironmongers, who can afford to price their goods only 20 per cent. above the wholesale quotation and wait contentedly for an opportunity to sell. The prices in Covent Garden, which regulate those of the whole kingdom, are very low indeed. The large growers, if left to themselves, might be trusted to maintain prices at a fairly remunerative level, but the market is largely influenced by a body of small producers, men who are contented if they make a labourer's wage out of their one or two greenhouses, and are forced to sell at any knockdown price, in order to procure the bare necessities of life, for which, being without other resources, they depend almost entirely upon the proceeds of each day's sale. This form of competition, however, cannot permanently reduce prices below the cost of production; but a far more serious blow is dealt at the prosperity of professional growers by the unprincipled trading habitual to gentlemen's gardeners in the neighbourhood of large towns. Immense ranges of glass have, at one time or another, been erected in the precincts of nearly all large country seats, either to gratify some old freak of fashion or the hobby of a former proprietor. Far in excess of the present owner's requirements, unless, as rarely happens, he is devoted to a scientific study of horticulture, they generally constitute a species of white elephant, with which he would gladly dispense. But various difficulties present themselves as soon as any suggestion is made of cutting down the establishment, and in the end the advice of the head gardener is usually followed—a clever fellow who is not without an eye to the main chance in recommending his master to seek an equivalent for uncalled-for expenditure by the sale of superfluous produce in the town a few miles distant. And so things are allowed to remain as they were, with this excellent result, that not only do the gardens and hothouses, which suffice for a trade of no mean dimensions, henceforth pay their own expenses, but show a considerable surplus besides to swell the already handsome wages of the canny Scotch foreman. There is, however, one exception to the general satisfaction in the shape of the struggling local nurseryman, who soon finds ruin staring him in the face through being undersold in every department by this spurious, bounty-fed industry. What wonder if he is loud and bitter in execration of Dives for robbing, as he thinks, the poor man of his livelihood? Far removed from the calm atmosphere of political economy, the working classes can never rid themselves of a sense of unfairness and indignant revenge-

fulness at the sight of "the aristocracy" dipping its fingers into the chaldron of commerce. As a practical result of this system, in Manchester and Liverpool, to take two out of a number of similar instances, the price of cut flowers is permanently affected by the quantity daily brought in for sale from neighbouring country seats and disposed of at nominal rates. There is, indeed, one large town in the midlands where no florist's business has been able to survive the competition of a certain noble duke, whose representatives are even wont to hawk button-hole flowers about the streets.

But, much as we may deplore the suffocation of a thriving industry, it is impossible to deny the indefeasible right of these "good old English gentlemen" to turn their ancestral homes, if they so please, into sources of income; for, after all, the question of prestige concerns no one but themselves. They have, however, one distinctly unfair advantage in the race, if race it is to be. In the eyes of the law a private mansion is still supposed to be a "pleasure," where its owner can seek rest from the turmoil of business "*procul negotiis solutus omni fenore*." Thus it often happens that the park and gardens of some wealthy proprietor are, for rating purposes, assessed as pleasure grounds, at a mere nominal value, while an acre or two of land, with a few thousand feet of glass, rented by one of his tenants, will be found valued at £200 or more per annum as a "manufacturing establishment," though, if the truth were known, the landlord's business as well as his premises is far larger and more remunerative. In the reform of local government, of which so much is expected, a readjustment of the principles of assessment may perhaps put these unevenly matched competitors once more on a fair level.

Besides the rivalry in home trade, foreign importations of cut flowers reach formidable dimensions at certain seasons; almost daily, from Christmas to Easter, there are sales by auction in Covent Garden, at which Roses and Violets, Hyacinths, and Narcissi from the villages along the Riviera are poured into the market without stint; the quality is generally inferior, but just good enough to command a sale and oust much of the English-grown produce. If the ghost of Protection, which seems as though it cannot be permanently laid, ever assumes bodily shape and re-enters the "region of practical politics," it will find no unproductive luxury readier to hand and more suitable for taxation than these imported flowers, no industry more deserving of relief than English horticulture. For here is a case where self-protection, by the simple method of self-effacement in bad times, is impossible. Capital once invested in hothouses or bricks and mortar is sunk permanently, and cannot be reconverted except at a ruinous sacrifice; so that it behoves an intending investor to be specially wary about embarking upon an enterprise in which, whatever happens, he will be obliged to stick to the ship.

**Supervision.**—There is, moreover, one condition of success absolutely essential, and that is that personal supervision be constantly exercised and an active share taken in the management. The fate of various horticultural companies is a standing proof of the folly of those shareholders who thought that by sitting still and leaving others to work they could make fortunes in a business which not only involves extraordinary risks, but demands exceptional skill and experience at its head. So, too, in partnerships it will be found that only by the close and assiduous attention of all concerned can the formidable total of expenses be kept within bounds, the wastefulness of employes be curbed, and an effective control maintained over the financial position. So much has been already said about attendant risks and drawbacks, that the adoption of horticulture as a profession may seem a matter of doubtful expediency under any circumstances; there is, however, a brighter side, but irresponsible advocacy of novel occupations in terms of unqualified praise is far too common, and often gives rise to deceptive hopes, resulting in bitter disappointment. It seemed, therefore, important, above all things, to guard against any possible misapprehension, though claiming to pose as the discoverer of an Eldorado, where money could be easily and quickly made in the exercise of what many people consider their favourite pastime.

The prevalence of widely mistaken ideas on the subject is proved by rhapsodies on the charming and delightful nature of the profession, and estimates of fabulous profits supposed to accrue therefrom, which, though made in all good faith by his friends, sound like irony to one acquainted with the sober if not stern reality. A man who intends to make horticulture the business of his life must be prepared to treat it as such; if he is a mere dilettante, choosing the pursuit for no other reason than that he is fond of flowers, he will assuredly burn his fingers; but provided he is willing to concentrate all his energies and devote all his time to work, there is a fair prospect of reaping his reward more quickly and perhaps more plentifully than in a loftier profession. For the evils of overcrowding are at present reduced to a minimum by the absence of organisation among the competitors; in process of time small proprietors, depending for labour chiefly upon their own families, must be superseded by large establishments, just as the factory system has taken the place of handicrafts; but the idea is still in its infancy, and there is plenty of room for enterprise, with a market practically unlimited and only partially developed by local nurserymen. Operations on a fairly extensive scale can be commenced with a capital not exceeding two or three thousand pounds; this is no slight advantage, for, as a rule, the possessor of such a sum finds it utterly insufficient to purchase even a small share in any first-class business, and attractive only to adventurers in whose concerns he would be unwise to participate. Most of the capital at command may properly be laid out in providing the necessary buildings and stock in trade; the reserve fund required to meet outlay for wages and working expenses is exceptionally small, for Nature is a powerful auxiliary whose services cost nothing, and money is rapidly turned over in a business where the produce soon reaches maturity and is paid for as soon as sold.

**The prices realised** are subject to wide fluctuations, sometimes yielding large profits, and occasionally quite the reverse. At Christmas and Easter, when demand is always ahead of supply, the rates obtainable for all kinds of flowers ought to satisfy the most sanguine expectations. On the other hand, periods of stagnation occur in summer, during which hardly anything is remunerative and the produce is nearly all wasted or given away to charitable institutions. There is some consolation, however, in knowing that, at such periods, the expense of production is very limited, so that the waste does not involve such serious loss as would be incurred by a glut in the autumn or winter months. With moderate caution and foresight it should be quite possible to steer an even course between the two extremes, and maintain an average throughout the year fairly propitious to the grower; when the balance is struck, his receipts ought to be so far in excess of expenditure as to yield a dividend of 10 or 15 per cent. upon the capital employed. This is by no means an extravagant estimate; the results of a year's trading are often much more profitable; for instance, the writer knows one person who started in business about ten years ago, and, after barely clearing expenses at first, has gradually improved his position to such an extent that he is now making 25 per cent. per annum upon the whole of his capital. Of course it may be argued that the scope is limited, and that such remarkable success is only possible so long as the capital employed is insignificant. Be that as it may, it is emphatically as a field for enterprise on a moderate scale that horticulture is advocated; not in the light of a speculation for people with superfluous means, but as an opening for men who can command a few thousand pounds and yet cannot find work for their hands to do.

Before any decisive steps are taken towards entering a business of this kind, there is another matter which claims equal consideration with that of profit and loss. The question of social position is an important factor in the case, which ought not to be lightly disregarded. No doubt in London the "status" of business men is fully recognised, but much of the old exclusiveness still prevails in the country, where connection with trade is by no means a good passport into society. A man who settles in a fresh neighbourhood, without introductions and



with nothing but an unpretentious business to recommend him, will do wisely not to calculate upon being received with open arms at the outset; in the long run he will be sure to find his level, but it will require great tact, patience, and steadiness to live through an inevitable period of isolation with but little to relieve the monotony of work. Nevertheless, if a man is genuinely devoted to the pursuit, so that it can serve him at need both for business and pleasure; if he possesses that resolute determination to succeed which asserts itself in spite of difficulties, making the most of every opportunity and refusing to recognise an impossible—then there is little fear of his being disappointed with horticulture or regretting his choice of such a novel profession. He will appreciate the value of having secured a country life, amid the fragrance of flowers gathered from all quarters of the globe to bloom at command beneath an English sky; he will rejoice in a manly feeling of independence and freedom unknown to idle "men about town;" and he will have the satisfaction of believing that his work consists in ministering to one of the purest and most refined tastes of a civilised community—the newly-awakened love of flowers.

#### NOTES ON RECENT NUMBERS.

**Gooseberries on trellises** (p. 109).—This is undoubtedly the best way to grow them, and the advantages to be gained by so doing are pretty well apparent. Besides the small amount of space taken up and the facility with which they may be netted (as mentioned by "E. B."), the comfort and speed in gathering is a great recommendation, as also the fact that the crop never seems to fail, perhaps because they are so easily pruned, and, therefore, the wood gets more thoroughly ripened than in the ordinary "touch-me-not" bushes. We have our Currant trees trained in the same manner on to galvanised wire stretched along some plain Oak or Larch stumps pointed and driven into the ground. By some gardeners the galvanised wire is supposed to attract the lightning, and sometimes it does seem as if the foliage suffered from the contact, in which case it is easy enough to run a brush of paint along once or twice before the wires are covered. Whether or not the bare metal is capable of producing a series of electric shocks, or anything of the sort, on the plants, I cannot pretend to say; we seem to know so little of the natural electric currents, &c., of the earth, that it does not do to contradict such ideas too rashly. We used always to leave some Gooseberry bushes outside the garden walls for the bullfinches to amuse themselves with in the spring, and it generally had the desired effect of keeping them away from the others.

**Lilium philippinense** (p. 116).—It is pleasant to find this little beauty beginning to put in an appearance now and again both in print and in public. Though it has been hitherto one of the rarest of Lilies in this country, I do not think it will be allowed much longer to retain this character, and Mr. Ware will probably have a good run on his stock. The great big flower, which looks as if it were prepared to swallow itself, bulb and all, is so well poised on the stalk as not to appear so top-heavy as one would have expected. The varieties of the ordinary longiflorum seem to be multiplying *ad infinitum* if one is to judge by the number of names in the different catalogues, but it seems as if one and all, including the tall growers, are prepared when occasion offers to do duty for Harrisii, which we were told originally was never more than 20 inches high. The angle which the flower forms with the stem is a pretty constant feature in some sorts, though the position in which it is growing and the number of flowers have also some influence on its geometrical proportions.

**Arranging cut flowers** (p. 120) seems to be an art which some people never succeed in, and this not only among the less educated and refined, but also among those who ought to know better! Some cases strike one as being too hopeless to attempt to remedy, and though to many the recipes, such as those given by "J. D.," may afford a suggestive hint the same flowers put together by other "heavily-thumbed" hands would present a very different picture. For instance, "a bold pale Rose like La France, or a

moderate sized striped one like Village Maid, with a few Pinks cut with long stalks, and a bloom or two of Eschscholtzia and Grasses," might very possibly be rather dangerous material to arrange together for effect, but I do not for an instant mean to say that certain things ought not to be recommended for fear of their falling into unskilled hands. With regard to "J. D.'s" remark that Roses are unmanageable things to group cut as they usually are, there are few things more useful for using at the same time with the red and pink Hybrid Perpetuals than the ordinary garden forms of Honey-suckle, for they are usually in bloom at the same time and the two scents do not spoil each other. To the real "duffer" in arranging flowers two pieces of advice may be given, which, if followed, would render impossible some of the horrors of the smart drawing-room, viz., to cut all the flowers with good long stalks, and, unless pretty certain of the results, not to mix together different sorts of flowers of different colours; for example, instead of the combination quoted, to put the Roses by themselves, ditto the Eschscholtzias, and, lastly, the Pinks and Grass. It is good training in colour and design (if we may use the word here) to arrange vases, &c., especially at the dull times of the year, with such things as foliage and berries alone without any flowers, as it will tend to promote an appreciation of less gaudy and conspicuous effects, and, as Miss Broughton says, "Not only the main things of Nature, but all her odds and ends are exceedingly fair and daintily wrought."

Sussex.

C. R. S. D.

#### NOTES OF THE WEEK.

**Disa grandiflora**.—The flowers of this gorgeous Cape Orchid vary a good deal in point of colour, some forms being very much richer in tint than others. Mr. Kingsmill brings us two fine spikes of bloom, one being an intensely deep colour, the other pale. Mr. Kingsmill planted his Disas out in a sunk tub, so placed that the full sun did not shine upon them, and the result, he says, is highly satisfactory.

**Ruta patavina**.—This turns out to be a much better plant than was expected. It is really a beautiful little plant as we saw it at Kew the other day. It is dwarf and twiggy and carries a profusion of bright canary-yellow flowers about the size of a sixpenny-piece. It has small glaucous foliage which harmonises well with the flowers. It is a near relative of the common Rue, and has the same powerful odour.

**Wahlenbergia saxicola**.—Those who like to grow attractive alpine plants must steer clear of this one, which we notice one nurseryman advertises as a "most beautiful alpine with gentian-blue flowers." As a matter of fact, it is a weed with washy purplish blue flowers springing up sparingly from a dense carpet of foliage. It is allied to the common bedding Lobelia, though not half so beautiful if more rare and interesting.

**Carnation The Bride**.—This is unquestionably one of the best of all the pure white border Carnations, free in growth, a profuse bloomer, and without a trace of colour in the flowers, which are large and full and of good form. It is not much known, but those who grow it once commend it highly. At the Deepdene, Dorking, Mr. Burnett grows it largely and thinks it a first-rate sort. We saw last week one bed containing, we should say, hundreds of plants of it in full bloom.

**Carnation Rossignol**.—This is a strikingly beautiful variety. It is a yellow ground, the tint being inclined to pale honey colour, while the petals are striped and flaked with pink. The flowers are large and full. It is one of the prettiest Carnations we have seen, yet it seems to be but little known. Messrs. Robert Veitch & Son, of Exeter, send us blooms of it, and remark that it is a very free grower and an abundant flowerer.

**Show of Lilies**.—In the conservatory at the Horticultural gardens, South Kensington, there is just now a fine display of *Lilium auratum* and other flowers, exhibited by the New Plant and Bulb Company, Colchester, by whom it will, we understand, be maintained for some weeks to come.

**Carnation H. G. Smyth**.—This new variety will bear comparison with any we have yet seen for brilliancy of colour—a vivid scarlet. The flowers are large, full, and of good shape, and the pod does not split in any stage. The raiser, Mr. Smyth, of Goldsmith-street, Drury-lane, assures us that its vigorous growth and floriferousness are all that could be desired in a Carnation. It has, no doubt, a bright future before it, as did its companion Mary Morris, originated by the same raiser.

**Crown Daisies**.—Some varieties of *Chrysanthemum coronarium* from Messrs. Veitch, of Exeter, show how pretty some of the forms of this annual are. One has creamy white double flowers; another is a rich yellow. These are found particularly useful for cutting, lasting as they do for a long time in good condition in water. From the same nursery also come flowers of several forms of *C. carinatum*, which produce such a brilliant effect in sunshine. The variation of tint in these two is remarkable, some being a deep mahogany-red, others yellow, and one a pure white.

**Begonia corallina**.—The colour of the flowers of this Begonia is so pleasing, being a sort of cherry coral tint, that it is surprising it is not more largely grown than it is for cutting from just at this season, when flowers of that kind of colour are not plentiful. We were much struck with its beauty the other day in the gardens of the Deepdene, Dorking, where it is grown well. We also saw a very fine plant of *Epidendrum vitellinum majus*. It was a *bona-fide* specimen, carrying some half dozen spikes of a richer colour than usual and some were branched. It was grown in an ordinary greenhouse with other plants.

**Platycodon Mariesi**.—Some beautiful specimens of this new dwarf variety have been sent by Messrs. Robert Veitch & Son from their Exeter nursery, where they say the plant grows and flowers freely in their heavy soil, and the dry weather does not seem to affect it, as the main roots of the plant penetrate to a considerable depth. It has been in bloom for weeks, and will probably continue for some time to come. The plant ranges about 9 inches high, and each stem bears from six to nine large, deep purple-blue flowers, reminding one of a purple Clematis.

**White-flowered Orchis conopsea**.—By far the finest specimen of this rare Orchid that I have seen or heard of was sent me last week by Mr. Ramsbottom, from his estate in county Galway, Ireland. The whole plant measured 21 inches in length, with shining green lanceolate leaves, and bore a most magnificent spike of paper-white flowers. The flower-spike alone was 6 inches in length, remarkably compact, and deliciously fragrant. Half-a-dozen such flowers would grace a spare corner in any alpine garden. This variety, I may remark in passing, should not be confounded with the Continental Orchis or *Gymnadenia alba*, in which the labellum is upturned.—A. D. W.

**Ligularia macrophylla**.—Amongst late growing perennials this composite is at present very conspicuous. The flowers, which are bright golden yellow, are borne on tall lax panicles reaching quite 5 feet in height. The foliage, consisting of large radical leaves measuring from 10 inches to 12 inches across, is very ornamental, and of a bright glaucous tint. It requires a moist rich loam to grow it to perfection, and wants well protecting during the spring months from the attacks of slugs, which seem to be very partial to the succulent leaves, and soon disfigure them if not stopped. I find the best protection to be a thin hoop of zinc slightly sunk in the soil and encircling the whole plant.—J. W. ODELL, *Barrow Point, Pinner*.

**Mandevilla out of doors**.—It may interest readers of THE GARDEN to know that I have a plant of *Mandevilla suaveolens* flourishing here in the open air. I planted it about four years ago on a south wall, behind which is the kitchen flue, and it has been matted over every winter, but this is the first year in which it has produced any flowers. This house is situated on the southern slope of the Chiltern Hills, about 700 feet above the level of the sea, and



the climate is extremely cold in winter. There is therefore apparently no reason why it should not flourish out of doors at a lower level in any part of Southern England, and prove a valuable addition to our horticultural treasures, it being not less remarkable for its rich clusters of pure white flowers than for the delicious fragrance which is implied by its specific name.—R. ASTLEY, *Chequers Court, Tring*.

**Campanula celtidifolia.**—Since we saw this Campanula in perfection of growth and bloom in Mr. Wilson's garden at Wisley we have formed a very high opinion of it as a garden plant; we had never before seen it half so fine. The stems were about 5 feet high, and were carrying myriads of flowers from almost the bottom to the top. The plant could not have been less than 4 feet or 5 feet through. The colour, a fine bright blue-purple, had a fine effect on the hillside in company with other plants. The virgin soil and the sunny well-drained spot had, no doubt, done a great deal to make it so fine. We shall henceforward rank this as one of the finest of perennial Bellflowers. There is a pale form of it called *lactiflora*, which is even more delicate in colour and quite as effective.

**Amorpha fruticosa.**—This is a quick-growing plant, forming a loose open bush, with ascending branches, clothed with light pinnate foliage. It is in flower just now about London. The flowers are borne in densely packed terminal spikes, and though individually small are of such a beautiful purple tint as to arrest attention, while the bright yellow anthers that protrude from the mouth of the flower are like spots of gold on an imperial purple ground. *A. fruticosa* is the Bastard Indigo of the United States, and is of the easiest possible culture in this country. At Kew, on a light sandy soil in a hot situation, it both grows and flowers admirably and is quite hardy. Propagation is easily effected either by means of rooted suckers or by root cuttings, which, if cut into lengths of a few inches and inserted in a bed of sandy soil, quickly push up shoots.

**Chinese Honeysuckle.**—This shrub, *Lonicera sinensis*, is at the present time one of the chief points of interest in the arboretum at Kew. It is the most beautiful Honeysuckle we have seen, such a profuse bloomer and so vigorous. The plant at Kew covers an upright support, and the clusters of flower terminating the slender shoots hang on all sides in graceful profusion. The newly opened flowers are pure white, but fade away to various shades of yellow and buff, and this change of colour renders it interesting and pretty. The flowers are about the same size as those of the common kind, but are of a different shape. Nurserymen ought to get it and propagate it largely, for if once known it is bound to become popular. *L. flexuosa* is another beautiful Honeysuckle with deep red flowers, produced a week or two earlier. For adorning a buttressed wall, balustrading of a terrace or trellis, what could be finer at this season than these Honeysuckles?

**Carnation The Governor.**—I see in last week's GARDEN that a certificate has been awarded by the Royal Horticultural Society to Messrs. Cannell for their *Carnation The Governor*. Now, this *Carnation* was originally brought out by Messrs. Cross and Steer, of Salisbury, and was named *The Governor* by them after the then governor of Salisbury county gaol, from whom they got the first plant, I believe. I have bought plants of this *Carnation* every year for the last four or five years from Messrs. Cross and Steer, and I have seen them show dozens of its flowers at the flower shows at Southampton. Mr. Cross, indeed, used to show it at all the large shows in the south of England. I have no personal interest in the plant whatever, but I think it only fair to the family of the late Mr. Cross and to the firm of Cross and Steer that these facts should be publicly known.—QUIEN SABE.

[In our report we did not state that this *Carnation* was raised by Messrs. Cannell, but merely that a certificate was awarded to fine specimens of it shown by them.—ED.]

**Clematis Jackmanni.**—One of the most striking effects we ever remember seeing produced by this lovely climber and its varieties may now be seen in Messrs. Lee's nursery, near the Isleworth Railway

Station. On each side of the walks which run the length and breadth of the nursery are upright pillars placed a few yards apart, connected at top by drooping chains. These pillars and chains are just now one dense mass of flowers, deep purple, pale mauve, and reddish purple, with every intermediate gradation of shade. The effect of the whole is charming, every plant being just in perfection, having been planted some three or four years. The majority of the specimens are of the ordinary form of *Jackmanni*, but much finer in colour is one called *superba*, the flowers of which are several shades deeper and richer than those of the type. One of the loveliest pale sorts is *Lady Caroline Nevill*, which has larger flowers than usual, broader petals, and of a delicate mauve. Among the reddish purples one called *Madame Desgrange* we considered the finest. It is a most profuse bloomer, and the colour is superb. This is the finest sight in the way of *Clematises* about London, and anyone in the neighbourhood should see it during the next week or two.

**Pompone Zinnias.**—We have received from Messrs. Vilmorin, of Paris, some dozens of flowers representing a new strain of *Zinnias*, which they call *Pompone-flowered*. The flowers are by far the finest we have yet seen, so perfect in form and so varied in colour, and very distinct from the coarse-flowered sorts generally grown. The florets are piled in a symmetrical smooth cone perfect to the very tip. The colours are indescribable, being so subtle in gradation of tints. They range from pure white, through creams and buffs to a clear chrome yellow. Then, again, there is a series of tints ranging from the softest pinks to the deepest crimsons and fiery coppers and reds, and some are curiously two-coloured, owing to the florets being pale when first expanded, and afterwards changing to a deeper hue. Such a strain of *Zinnias* as this must, indeed, produce a fine effect in the garden, particularly if it is possible to separate the colours so as to have masses of one kind, such, for example, as yellows, buffs, and whites, and pinks running into deep crimsons. *Zinnias* of all kinds are so important in the garden, particularly in late summer and early autumn, that we welcome this new strain. We should like to add a word with regard to the fine condition in which these *Zinnias* reached us from Paris. Had they just been gathered in the garden they could not have been fresher. They were packed in a shallow box, so arranged that it accommodated a good bed of damp Moss in which the blooms were stuck, and under the lid were placed several sheets of damp tissue paper which prevented evaporation. We could wish that flowers always reached us in such perfect condition after a long journey.

**Carnations and Picotees at Oxford.**—Truly a feast of *Carnations* and *Picotees* was provided by Mr. E. S. Dodwell on the 4th inst. at his residence, Stanley-road, Oxford. He has a marvellous garden of *Carnations* and *Picotees*, and if some who think that florists coddle their flowers and manipulate them until all natural likeness has gone out of them were to take a walk round this garden they would see hundreds of plants growing in the open ground producing flowers of large size, great beauty and richness of colour. The named varieties of *Carnations* and *Picotees* are as hardy and will bear as much rough usage as ordinary seedling plants. Growers came both from the north and south, and brought with them some of the most beautiful blooms I have seen for years—large in size, full in substance, and richly coloured. If anything surprised me, it was the brilliance seen in the scarlet bizzarses and the scarlet flakes; one could have supposed that the hot, dry weather would have taken all the colour out of them. The competition was very good in all the classes, and it must be admitted that this first exhibition of the Oxford Union *Carnation* and *Picotee* Society proved a great success. In the classes for single blooms a large number of flowers were staged. The best scarlet bizzarses were Fred, Robert Lord, and Rayner Johnson; the best crimson bizzarses Master Fred, Walter Ware, and James Merryweather; the best pink and purple bizzarses Sarah Payne, Faust, and Miss Henderson; the best purple flakes Dr. Foster, Mr. F. Whitbourn, and President of Corpus; the best scarlet flakes Sportsman and Tom Lord; the best

rose flakes John Keet, Lovely Ann, and Crista-galli. In the classes for single blooms of *Picotees* a goodly number of flowers were staged. The best heavy red-edged *Picotees* were Dr. Epps, Emma and William Brazil; the best light red Thomas Williams and Mrs. Bower; the best heavy purple Mrs. Niven, Polly, and Zerlina; the best light purple seedling Mr. J. P. Sharp; the best heavy rose Mrs. Sharp and Edith Dombrain; and the best light purple Liddington's Favourite. The premier *Carnation* was George's S. B., one of Mr. Dodwell's, shown by Mr. Rowan; the premier *Picotee* Nellie, a beautiful light rose, raised by the late George Rudd, and also shown by Mr. Rowan; the premier fancy or self was Dodwell's Iluson Morris, very fine. First-class certificates were awarded to heavy-rose-edged *Picotee* Mrs. Sharp, raised by Mr. J. P. Sharp, a beautiful flower; and to fancy *Picotee* Ada, raised by Mr. J. A. Wallington, yellow ground, edged pink, mauve and rose, extra fine.—R. D.

#### MARKET GARDEN NOTES.

THE superabundance of green crops in recent years has doubtless proved such a drag in the market, that the pushing market gardener appears to be relinquishing their cultivation, and turning attention to something that will realise better prices and more abundantly repay his outlay. In my own neighbourhood, west of London, Rhubarb is much more largely grown than it was a few years ago. The two sorts are Early Red and the Victoria, the second to succeed the first, and both good useful kinds. One of the neighbouring market gardeners has a piece of early land protected from the north and east by tall trees. In this sheltered and warm spot he has planted his first Rhubarb, and in early spring, or shall I say late winter, as soon as the buds show signs of bursting, a layer of long stable manure is placed over the Rhubarb ground, which, as the leaves make an upward growth, is carried up with them, and so forms a screen from the early frosts and cold winds. Lettuce is a leading feature in our western market gardens, and large quantities are grown; the seeds are sown in August and September in frames, and as soon as large enough the plants are put out in richly manured ground. The first crop is marketed in May and early in June, according to the season, the successional crop a few weeks later and before the spring sown crops are ready. The sort is that known as the Fulham White Cos, a good hardy selection of the type of the Paris White Cos, and one that does not bolt quickly to seed. Stocks for bunching have become largely grown of late, but instead of using only the Cape or Queen types, intermediate, purple, scarlet, and white are now largely grown. As I write I can look upon an acre and a half of these—a strain of very fine quality with but few single flowers among the fine double forms.

As soon as the early crop of Lettuce comes off, then out go the Leeks. These are becoming much more extensively grown than formerly. The ground is richly manured and ploughed, and when thoroughly harrowed the plants are dibbled out. These are said to be a remunerative crop. The ground that grew Radishes is now planted with Vegetable Marrows. The weather is much against the growth of these, being so drying by day and cold at night. Mr. Watkinson, of Gunnersbury, who grows Vegetable Marrows largely, raises his plants early in the year in heat; the plants are then placed out in cold frames, which are kept covered up when required, and by the time danger from frost has passed the plants are extending beyond the limits of the frames. They are then entirely removed, and a good coating of long manure is spread all over the ground between the plants. This prevents the fruits from becoming splashed by rain, and also serves the useful purpose of keeping the soil cool and moist. A supply of Marrows can thus be got into the market early and when prices are remunerative.

The culture of Mushrooms in the open air has greatly extended of late, and they can be had in this way for a considerable period. Parsley for the past two or three years at least has proved a very uncertain crop in the western market gardens; a kind of disease attacked it, and many of the plants withered away. R. D.



## BETCHWORTH PARK.

IN the midst of that beautiful stretch of country lying between Reigate and Dorking is Betchworth Park, containing the picturesque ruins of what was once an important baronial residence known as Betchworth or Beechworth Castle. Throughout the whole county of Surrey there is not to be found a more typical example of true English park scenery than that to be seen at Betchworth. The noble trees which give to it its greatest charm would be difficult to match elsewhere, and they are dispersed in a most picturesque manner. The tree growth in every part of the park is wonderfully fine, the glory of the place being its sweet Chestnuts, than which England might be searched in vain for finer examples. In the earliest historic accounts of Betchworth these Chestnuts are always mentioned as being famous for their fine growth, and the majority of them, it is said, and they number some hundreds, were planted at the time when the old castle was built, *i.e.*, about the fifteenth century. This part of Surrey seems to be highly favourable for all manner of tree growth; the soil, a stiffish loam, rests on the red sandstone which crops up between the intervening chalk ridges above Reigate on the north and the South Downs. This formation is capable of growing the finest Chestnut, Oak, Beech, Sycamore, and Lime to be found anywhere, and the numerous exotic trees and less common native trees which are still to be found near the castle ruins at Betchworth point to the fact that no better locality for an arboretum could be found. The other day, when rambling through the park, I was curious to know the girth of some of the finest Chestnuts, so I measured one of the largest, which appeared to me to be identically the same as that illustrated on the opposite page. The circumference of this tree at breast-high was over 25 feet. All the trees run about this size in the trunk, but they are not remarkable for extreme height; on the contrary, their comparative dwarfness and wide-spreading limbs are strikingly conspicuous. The majority seem to have seen the best of their days and are on the decline. So, if old records can be relied on, that they were planted about 1490, we may put down the average life of this Chestnut on this formation at about 300 years, for it is evident that a good many of the trees will in a short time be in a decrepit condition—ruins like the castle, which they adorned in their heyday of youth. There is a long row of gigantic trees in what is called the outer park—that is, the portion of it nearest Dorking—separated by the public road. These were planted about twenty paces asunder, and probably at one time there was a corresponding row to complete the avenue. These huge trees are all showing signs of decay, some being quite hollow. All possess the characteristic growth of the Chestnut, the twisting bark and horizontal limbs, but none here are of the towering height which one sees in other parts of the south, such as at Hainaker and Thoresby, for instance.

THE AVENUE OF LIMES, which runs from the public road up to what was once the courtyard of the castle, is probably unsurpassed in this country for height, uniform size, and vigour. This avenue is about 300 yards in length, and runs in a perfectly straight line. There are four rows, two on either side. The distance between the inner rows is 40 feet, between the outer rows 20 feet, and the same distance asunder. The trees are planted alternately in the row, and they average about 3 feet in diameter. As the innermost rows of trees meet overhead, the gloomy shade they produce imparts a sense of grandeur, and the exact uniformity of the distances between them adds to the impression of sublimity. One feels, on walking through such a cool avenue as this on a broiling July day, that it is a pity fashion has decreed that avenues should not now be planted, particularly such avenues of Limes as this in long straight lines. There is much to be said in favour of avenues as well as against them, and it will not be surprising to many if the fashion for planting them does not revive. The end of this grand avenue brings us to

THE CASTLE RUINS, deserted and crumbling away, but picturesquely masked with Ivy and other climbers, and smothered on all sides by tree growth, which has obtained the upper hand of the ruins so much, that seedlings of Sycamores and other trees come up by the thousand from what were once the floors of the halls, and lusty young trees, a yard or more in girth, spring up from the cellar floors below. So completely are the ruins embowered in greenery, that one has to get quite close to them before they can be seen. The site of the castle is the best probably that could have been found in the neighbourhood. It stands on a high ridge overlooking a broad, flat valley. Away in the distance are the lofty dark hills running from Reigate to Boxhill, which are so beautifully chequered with a natural growth of Yew and Box. Between the castle and the hills are cornfields and grazing land, while at the very foot of the castle ridge the river Mole, thickly fringed with a growth of Alders, winds its sluggish course through the rich meadows of the valley. The view from the terrace before the plantations of trees became so dense must have been very fine. In the opposite direction to the south and west lies the broad expanse of park, which extends nearly to Dorking, where it joins the Deepdene Park and Chart Park, which together with Betchworth belong to the Deepdene estate, having been added to it many years ago.

Besides the Chestnuts and the Limes in Betchworth Park one may see grand specimens of exotic trees, and I was not a little surprised to find close to the ruins a very fine Snowdrop tree (*Halesia tetraptera*). It is a low, wide-spreading tree in the fullest vigour, and at the present time is densely hung with its peculiar four-winged seed vessels. In flower the tree must have been a beautiful sight. Near it is a Catalpa, with a bole 6 feet in circumference and a spread

of limb of about 30 feet or 40 feet. It is a vigorous tree just bursting into profuse bloom. There is also a handsome Tulip tree and the finest *Pinus Pinaster* I ever saw. Its trunk, as straight as a ship's mast, has a girth of 11 feet, and it is of great height and has a broad bushy head. The Field Maple (*Acer campestre*), too, is of extraordinary size here, some of the trunks having a diameter of 3 feet and of towering height. Other trees of unusual size are the Birch, Cherry, Sycamore, Hawthorn, Cockspur Thorn, Beech, Purple Beech, Elms, Scotch Firs, Ash (particularly fine), and some magnificent Yews; in fact, the whole ruin on the terrace front is hemmed in by Yews which have insinuated themselves firmly in the ponderous retaining wall on the river side of the castle. One of the most curious Yews I have seen is fenced round. It consists of a number of stems springing from one base, which is in the form of a triangle. It is a huge specimen, and must have existed quite as long as the old castle itself.

All about this neighbourhood one may meet with magnificent tree growth, and particularly in the adjoining Deepdene and Chart Parks. In the Chart Park there are two of the finest Cedars probably in this country. One has a girth of 23 feet, the other 19 feet. The smallest in girth is an extremely grand tree with ponderous limbs spreading out in all directions. Tree culture has been fostered on the Deepdene estate for generations past. When the place belonged in early times to a son of one of the Dukes of Norfolk much was done in the way of tree-planting, and this accounts for the numbers of fine exotic trees which one sees here. Gigantic Tulip trees, Planes, Cedars, Cypresses, Acacias, Liquidambars, and others stretch their great limbs across the fair lawns of the Deepdene, and these, mingled with the modern trees that were planted in the time of the late Mr. Hope produce a home landscape that could scarcely be surpassed in this country. But the noble trees in the Deepdene and the Chart Parks deserve a chapter to themselves. As to the garden of the Deepdene, it has never looked more beautiful than at present, for though the house is tenantless, the gardens are still maintained in the same high degree of keeping as in the time of Mrs. Hope. On the lawns just now may be seen some pretty pictures—Honeysuckles overrunning Yews and flowering in the very greatest profusion; the terrace wall is garlanded with climbing Roses, including the Macartney, which this year is flowering profusely; but the brightness of the shrubberies is due to the *Spiræas*, which are very beautiful, particularly *S. Lindleyana*, with its snow-white feathery plumes. Other *Spiræas* in bloom are *S. ariaefolia*, the rosy *S. Nobleana*, *Douglasi*, and *Fortunei*, and brighter than all, in the twilight, are the bold masses of the variegated *Negundo*, which is used with the best effect here, simply planted in one or two bold groups, and not dotted all about the place, as is commonly done. W. G.



# FLOWER GARDEN.

## RANUNCULUS BUCHANANI AT HOME.

FEW can visit the alpine district of Otago without being struck with the loveliness of this plant, which beauty comes very near the Mountain or Shepherd's Lily (*R. Lyalli*). *R. Buchananii* has not the curious cup-shaped or peltate leaves of *R. Lyalli*, its foliage being of the ordinary *Ranunculus* type; the radical leaves are reniform in outline and more or less cut into linear or cuneate lobes, while those on the stem are similar, but sessile. To see this plant at its best one must be prepared for some tough mountain work; it is found growing luxuriantly among rough shingle near the snow-line. The visitor to the

glacier near its summit. And a list of the principal alpine plants scattered profusely in the basin below this glacier will show how rich our alpine flora is.

Just below the glacier is a large steeply sloping hollow, the bottom of which is covered with loose shingle, giving often a very uncomfortable foothold. This hollow seems barren indeed on coming suddenly into it from the thick Beech forest through which for hours we have been climbing over a yielding mossy carpet. But it is only at first sight that it

dark centres. Now we are surrounded by many alpine plants in full bloom; among them *Ranunculus Buchananii*, which, at a height of 6000 feet, may be found with flower-stems from 2 feet to 3 feet high rising from among abundant radical foliage. Some of these plants are found with as many as fifty blooms, each from  $2\frac{1}{2}$  inches to 3 inches wide, and of pure snowy whiteness, and differing from *R. Lyalli* in having from eighteen to twenty linear oblong petals. Sometimes the plants are isolated, at others clustered together on ledges in large patches. To see this plant in full splendour is recompense enough for one's climb, but it is not alone. Beside it

and equally plentiful are many herbaceous *Senecios* with large yellow blossoms, also a fine species of *Celmisia* with large silvery white leaves and very large Gowan-like flowers. Among smaller, but not less beautiful plants, too, are the Forget-me-nots, *Exarthenas*, and *Ourisias*, some of our finest alpine plants.

We are now up on the tongues of land that penetrate the snow near the glacier, and these beautiful flowers are dotted about here and there and making a lovelier display than in many a garden. True, we have not such a variety of colours as might be had in a garden, especially the red and the blue or other bright colours in mass, but the pure white and the gay yellows seemed while we were among them to leave nothing more to be desired. It

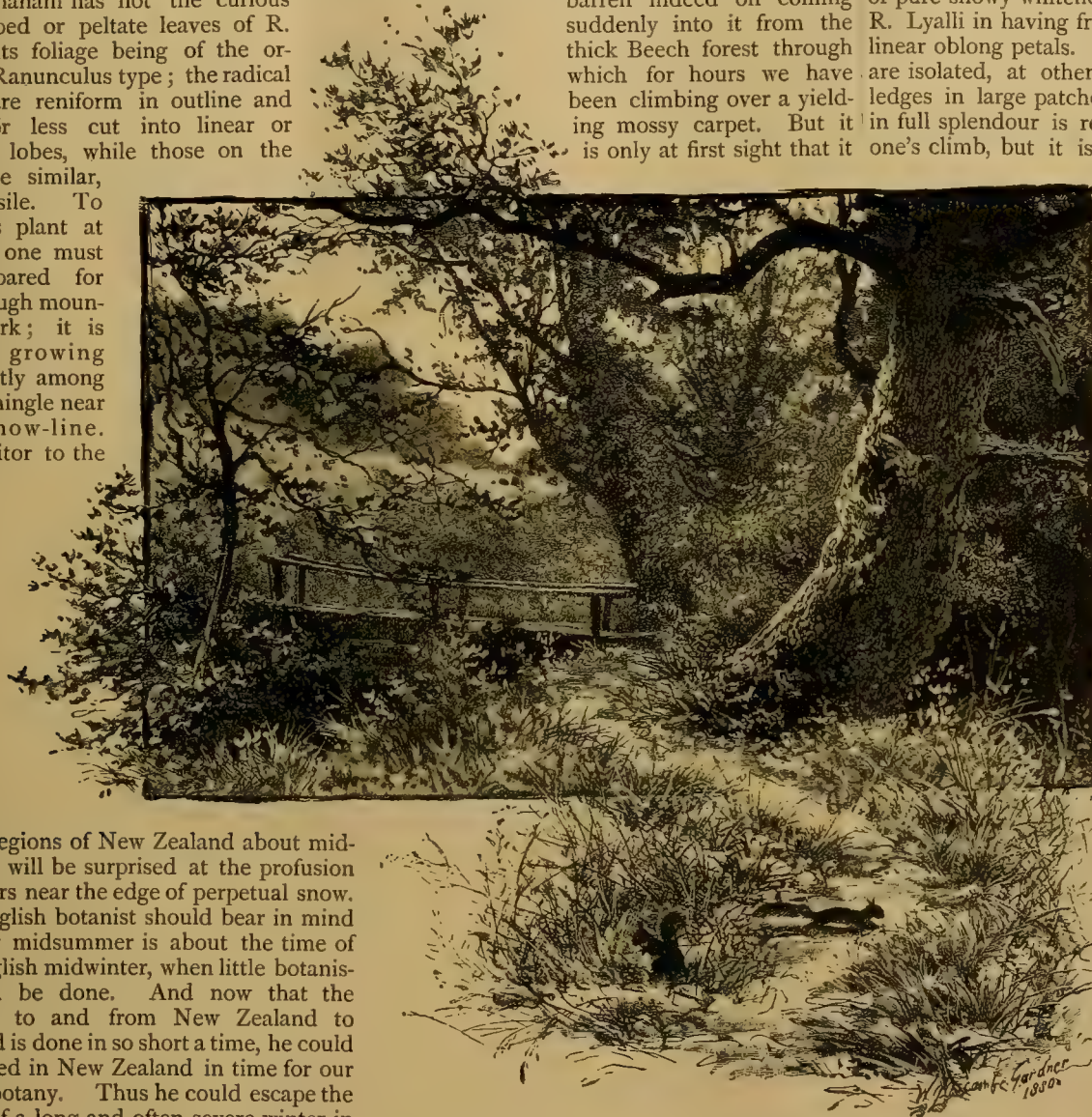
alpine regions of New Zealand about midsummer will be surprised at the profusion of flowers near the edge of perpetual snow. The English botanist should bear in mind that our midsummer is about the time of the English midwinter, when little botanising can be done. And now that the passage to and from New Zealand to England is done in so short a time, he could be landed in New Zealand in time for our alpine botany. Thus he could escape the rigour of a long and often severe winter in England, and keep in the sunshine of summer and flowers the whole year round.

Our flowers, too, are not only numerous, but very gay, making the mountain-side bright with clusters of blossoms, chiefly white or some of the many shades of yellow. Most people unacquainted with our mountains think of the region just below the snow-line as dreary and barren, but it is far indeed from being so. At the head of Lake Wakatipu, one of our noblest lakes, there are clusters of snow-capped mountains, on which at all times of the year lie snow and ice. The giant among these heights is Earnslaw, which is far out of the way of the ordinary tourist, but nearer the head of the lake is Mt. Bonland, which has a small

seems a desert, for on closer inspection we see on the edge of it, among the dwarf and straggling Beech, *Plagianthus Lyalli*, one of our Ribbonwoods, whose flowers closely resemble those of the Mock Orange, except that they are whiter and perhaps a little larger. More in the open we have a *Senecio*, a fine shrub with large clusters of bright yellow Daisy-like flowers, accompanied with *Olearia Haasti*, a beautiful-foliaged plant with yellowish white flowers, and various others belonging to this family. Climbing higher, we come to the flower that tourists so eagerly look for and prize—the New Zealand Edelweiss, a *Gnaphalium* with white woolly blossoms with

might be thought that up here a few yards from the snow there would not at any rate be butterflies to enliven our mountain garden, but hovering over these white and yellow flowers are many of that strange black mountain butterfly (*Perconodaimon Pluto*), in expanse of wing as large as most of the English *Fritillaries*, and its bronzy black or brown seems a wonderful contrast to the white flowers among which it moves. Overhead a large parrot-like bird (*Nestor notabilis*) is uttering its harsh, discordant cries, complaining, doubtless, of our intrusion upon its wonted solitude.

In connection with *Ranunculus Buchananii*



The road through Betchworth Park, Surrey



there is a curious fact, for the knowledge of which I am indebted to the able and painstaking botanist whose name the plant bears. He tells me that often this plant may be found growing under the snow, reaching even under such circumstances a stage in which the flower-buds are developed. While the whole plant is white, as is always the case with plants grown in darkness, the roots of this plant are thick and fusiform, and probably the nourishment stored up in them is sufficient to sustain the plant for a considerable time under trying conditions. In severe seasons it is no uncommon thing for this plant and its neighbours to be covered over with snow. A. C. P.

#### PROPAGATING PANSIES.

MR. MURPHY (p. 59) does well to direct attention to the necessity of continued propagation in the case of the choice kinds of these charming hardy flowers. Many fail to realise that in the southern counties, at least, no dependence can be placed on plants' remaining in health, or even alive, over the first year. Small growers buy a collection of good kinds, and expect them to last like the more enduring kinds of hardy plants, and oftentimes, in losing them in or after the flowering time, become discouraged and give up their culture, which is a pity, for few things are capable of giving so much pleasure as Pansies when well grown. The fault lies in waiting until the plants are in full bloom before taking cuttings, as many varieties cease at that time to produce the right kind of wood for that purpose. Just when throwing up in spring there is an abundance of free succulent shoots, one or two of which may then be taken off without perceptibly impairing the effectiveness of the plant. Taken then, they strike more readily than later on, and they have time to make good specimens, producing a few good late, and therefore welcome, blooms, and withal retaining the freshness of youth for the following spring. An important point in Pansy culture is that the plants get good root-hold before winter; then they become thoroughly established by the time they commence to bloom the following year, and are less likely to severely feel the strain that the heat of summer entails upon them. A not less important matter is a deeply-stirred and well pulverised soil in which the roots can find refuge against the desiccating influence of a parching sun. Given these congenial conditions, with a mulch of some light material, and no one, even on porous soils, need despair of securing fine flowers and continuity of bloom. BYFLEET.

#### Self-coloured Carnations from seed.—

Although something like certainty in the colours of seedling Carnations is a consummation devoutly to be wished, it is not so easy a matter to arrive at. The perpetual flowering kinds produce a great quantity of unisexual flowers, and when these are seed-bearing the resulting plants are almost certain to be hybrids, for it is a peculiarity of these plants that the pollen-bearing and seed-bearing flowers are not produced at the same time on a plant, but succeed each other. I noticed, however, in growing them from seed that the central flower of each stem was generally bisexual. The styles of the pistils on my unisexual flowers were very large, quite as wide as the flower in some cases.—J. D.

**Renovating hardy plant borders.**—Mr. Wood's instructions as to the replanting of hardy plant borders are so exhaustive and explicit, that little can be added to them. There is just one small matter I should like to note, and that is, that wherever possible plants requiring about the same treatment should be planted together, and where they cannot have separate beds, they should be planted in masses and clumps. This simplifies matters much, and enables plants which require division and renewal of the soil to be moved without disturbing other things. For instance, Delphiniums and Rockets

require moving in November, when many spring flowers are rooting freely; but if they are separated from these by late summer and autumn-flowering plants, which will at that time be quite dormant, the necessary operations can be carried out without disturbing the spring flowers at all. The plants, which will keep on from year to year, are mostly woodland plants, which in their native state live on the annual top-dressing of leaf mould which they receive.—J. D.

#### THE MULLEINS, OR VERBASCUMS.

THE keeping of these noble garden plants true to name and uncrossed, which invariably results in inferior strains, is a matter that has attracted much attention of late, the conclusion arrived at in almost every case being about the same; *i.e.*, if it is particularly desired that they should be kept true, the further apart the different species or forms are the better, and the less chance is there of foreign pollen being carried to a favourite strain. A well-known cultivator of hardy plants has banished all the Mulleins, with the



The Woolly Mullein (*Verbascum Thapsus*).

exception of *Verbascum Thapsus*, from her garden. This plan will no doubt meet with approval, not only because this species is amongst the easiest to grow, but also because the greater majority of *Verbascums*, for garden purposes at least, may be included under this species. Where variety is desirable, a few of the most distinct sorts may be grown, but at opposite ends of the garden, or the seedlings will hardly ever be found true to name. *V. Thapsus*, as may be seen by the annexed illustration, is a grand plant when isolated in irregular patches in a semi-natural way. When once fairly established it grows freely, and if the ground be kept free from rank weeds, an ample supply of plants may be had without trouble. It is also used with good effect in mixed shrubberies, and likewise as a backing to the mixed border. The only other Mullein of any value is *V. olympicum*, which, though a much handsomer plant when in bloom than *V. Thapsus*, is seldom found in that condition, at least in the neighbourhood of London. The crown of most of the plants, from the peculiar cup-shape of the outer leaves, gets exposed to fogs and stag-

nant moisture, which invariably destroy it, the result being an increased number of shoots, which are, however, weak, and not more than 2 feet high, instead of the 10 feet and 12 feet attained by plants that have been safely wintered. The flowers are yellow and larger than those of *V. Thapsus*; in the latter the flowers are of a golden yellow and extremely handsome. Others are *V. phoeniceum*, *Chaixi*, the varieties of *nigrum*, *pyramdatum*, and *ferrugineum*. K.

#### LONG-LASTING ANNUALS.

By means of annuals alone a garden may be effectively embellished from spring till autumn passes away. Thus we commence with hardy kinds, which, being sown in autumn, bloom in spring, lasting into the summer months, and which are succeeded by sowings made from March to May, and by tender kinds raised under handlights or in warmth according to the convenience of the grower. *Phlox Drummondii grandiflora* is a host in itself; the colours range from pure white running through pink, lilac, purple, and crimson to a glowing scarlet. Well grown, it blooms from August to mid-October, and few things excel the bright varieties in brilliancy. For 2s. 6d. a small garden may be a mass of colour for several months, but this annual wants generous culture, *viz.*, deeply stirred soil and plenty of rotten manure in it. Then what can be finer than a bed of *Linums*? and we have nothing which better resists the extremes of heat, drought, and moisture than French and African Marigolds, the brightness of which outlives the autumn sun. Tricolor *Marguerites* or Crown Daisies seem to have the power to flower for an indefinite period, and such kinds as *Dorrette*, *Lord Beaconsfield*, *The Sultan*, and *Burridgeanum* are amongst the most charming of garden flowers.

Another most excellent annual is the old, but little known *Sanvitalia procumbens*. It is the best yellow-flowered edging plant I know of, forming dense patches of verdure 6 inches in height, and covering itself from July till hard frosts come with golden yellow, black-centred button-like blooms, which are persistent and weather-proof in a most remarkable degree. I cannot too strongly recommend this for bedding-out purposes, it is so effective, and very suitable for edgings and small beds. *Saponaria calabrica* and its white variety last a long time in bloom, and we must not forget the dwarf *Nasturtiums*, so fine for hot, dry, poor soils; also *Portulacas*, very useful in the same way. *Zinnias* we must not omit; they produce an almost unapproachable effect, especially when massed, and as they exhibit considerable variety of colour a large bed presents a gay and interesting appearance. And here I may remark that two errors are frequently committed in the culture of this annual. The seed comes up best in warmth, and this induces many to sow it quite early in the spring. The young plants are put into small pots and become root-bound and often in a measure stunted by the time they come into the open ground. Then, again, they are frequently set out too early by a fortnight, and get so chilled that some time elapses ere they can start into free growth. I will close the list with Indian and Japan Pinks, which, although of biennial nature in warm soils, are generally regarded as annuals. They produce single and double flowers, whose tints are both delicate and brilliant. Sown in warmth or under a handlight they come into flower in July, and if sown in the open ground early in April, they bloom in autumn. If there exists the convenience of a warm house or mild hotbed, the seeds of any of the above may be sown the latter end of March, hardening off and pricking out into boxes or pans, or, better still, into a frame when large enough to handle. If there is not this convenience, sow under handlights about the middle of April, which will give good plants if not so large as from earlier sowings. With good management really fine displays can be made from July onwards by means of annuals alone. When looking through French provincial gardens I have often been surprised to see how gay they were when



all the glass accommodation consisted of a small orangery and some frames, but French gardeners in general seem to appreciate annuals more than we do and to know how to make the most of them. There is seldom the glass accommodation for wintering any great quantity of tender bedding plants; consequently the showiest and most continuous flowering annuals are largely employed.

J. C. B.

#### CAMPANULA G. F. WILSON.

I AM obliged to Mr. Wilson for his kind answer in THE GARDEN (p. 70) to my question concerning the nomenclature of this plant. I am glad to know that it was named by Mr. Anderson-Henry himself, and I am glad that he has perpetuated in it so worthy a name, for it is a plant which no one who possesses will willingly let die. But still my difficulty remains unsolved. How comes it that I received three years ago a plant which is identical with it under the name *C. Balfouri*, at a time when, I believe, *Campanula G. F. Wilson* was not in the trade? Of course, it is possible that the plant which I got as *C. Balfouri* is wrong, and that I was simply the fortunate possessor of *G. F. Wilson* three years before it was made public. Any of your readers who grow *C. Balfouri* will oblige by giving an accurate description of it, and thus throw needful light on the question of identity or dissimilarity.

As regards the parentage of *Campanula G. F. Wilson*, Mr. Anderson-Henry's statement is deserving of all respect. But it is notoriously difficult to cross-breed *Campanulas*, as impregnation takes place, as a rule, before the flower is expanded. I do not say that artificial impregnation is impossible, but that it is very difficult. And I am bound to say that I fail to find in *G. F. Wilson* a trace of family likeness to *C. pulla*, one of its reputed parents. The flower is a very open bowl, like *C. turbinata*, and erect or semi-erect, not a long perfect bell, and invariably drooping, as *C. pulla*. The foliage is hairy, as in *C. turbinata*; not smooth and shiny, as in *C. pulla*. The flower-stems are very short and fragile, barely elevated above the foliage, while in *C. pulla* they are from 6 inches to 8 inches long, and bear from five to eight leaves along the stem. The colour of the outside of the flower is certainly more violet than any form of *C. turbinata* with which I am acquainted, but the inside shades away quite light towards the bottom, as all the *turbinatas* do, and does not preserve the uniform deep violet as does *C. pulla*. But whatever be its name and pedigree, it is a decided acquisition to a family in which I take a lively interest.

While I am on the subject of *C. pulla* I am happy to be able to differ emphatically from the remark on p. 85 that "at the best of times it has always a sickly, yellow appearance." Planted on well-drained rockwork, in limestone grit, it never fails with me to be as green as a Leek and spreads rapidly into large patches. I rejoice that it succeeds so well, as I look on it as quite the gem of the family, and I am aware that it is as capricious as it is beautiful.

I hope that some one better qualified than I am will give a reliable and detailed description of *C. Balfouri*, and, if it is identical with *G. F. Wilson*, to say when it was introduced, by whom, and from where.

FREDERICK TYMONS.

**Pinks from cuttings.**—One of the sweetest of Pinks is the common white one which is grown in great quantities for market. It will, however, I apprehend, soon be supplanted by a new one sent out a year or two back, as its blooms are not only larger and fuller, but last longer in perfection than those of the old white. The kind to which I allude is Mrs. Sinkins, which in form and substance is more like a Carnation than a Pink. It has fine stout stems that hold the blossoms erect. Another fine sort is Lord Lyons, regular in outline and beautifully marked, and the same may also be said of Garibaldi and Derby Day from the same raiser. At one time Anne Boleyn was much cultivated, and a first-rate Pink it still is for forcing. It is apt to burst its pod in opening, but to this others are also liable, and the defect may be prevented by means of a tie of soft worsted when the blooms are beginning to expand. Those who do not possess Mrs. Sinkins should not fail to get a plant or two; this variety is cheap now, and may be increased

readily from cuttings, which strike freely at this season, either under hand-lights or bell-glasses in heat, or even with the same cover over them out on a border. Take off the young shoots and trim away part of the lower leaves, when the base should be cut with a keen-edged knife just below a joint. Thus prepared they will be ready for inserting. If placed in pots let them be well drained, which may be done by inverting a pot of small size over the hole at the bottom and filling up around it with finely broken crocks; over the latter place a little Moss, then sharp soil, finishing off with sand on the top, in which the cuttings should be dibbled. After watering give another sprinkle to make the sand firm about the cuttings. When struck, give them air till they will stand without flagging. Then they may at once be separated and planted out in a prepared bed, or dotted about here and there in the borders to grow on for flowering in the positions in which they are placed or for lifting and forcing in pots.—S. D.

#### ANNUAL LUPINES.

THESE, like *Aquilegias*, *Verbascums*, and similar plants, may be had in abundance by simply growing them together in masses. In a large bed where most of the varieties in cultivation are grown innumerable variety in the way of colour and form may be had in the



One of the annual Lupines (*Lupinus subramosus*).

course of a few years. Even the old *L. arboreus*, which ought to be yellow, seems to be influenced by the bright and varied colours of the others, and produces some tinged pink and others blue. The polypyllus group in the same way varies to a great extent, even in the same plant. Some few, however, of the annual kinds, when received straight from their native localities, are really handsome plants, amongst which may be mentioned *subramosus*, represented in the accompanying illustration. It produces large spikes of the most beautiful ultramarine-blue flowers imaginable; *nanus*, which grows about a foot high, has purplish blue and white flowers; *albo-coccineus* (1½ feet high) rose-blush, deep red, and white; *digitatus*, deep blue and white, an extremely fine variety; *guatemalensis*, white and purplish red (2 feet); *albo-violaceus*, violet and white (2 feet); *canaliculatus*, pale purplish white and blue (2½ feet); *venustus*, lighter coloured than the above and with larger leaves; *mutabilis*, handsome large foliage, pink and white flowers, very fine (2 feet); *Dunnetti*, pink and white, dwarfer,

and with smaller leaves than *mutabilis*. There are also, though rare in a true state, *Hartwegi*, *Cruikshanksi*, *Menziesi*, &c. All the Lupines are easy plants to cultivate. They grow well in ordinary garden loam, and succeed even in town gardens. They ripen seed plentifully, and if sown in the open early in April the young plants will commence to yield flowers from the beginning of June until August or September. They are natives chiefly of Mexico.

K.

#### NOTES ON HARDY PLANTS.

**IRIS KÆMPFERI.**—Of my own experience I cannot say how this grand *Iris* succeeds touching or near water, as my little place is just the opposite of boggy. I wish to say, however, that, well as it may grow near water, it does very well indeed in a dry border fully exposed, and in soil of a free, loamy character. No one should hesitate to cultivate it on account of the absence of water or bog; its glorious flowers are too great a treat, both as regards form and colour, to deny oneself of them, even supposing they are not so freely produced as they would be under more moist conditions. I have fancied that, after all, plants in this climate, in moderately holding soil, do as well, on the whole, as in moist quarters. As already said, I have not tried both plans, but I have heard of more losses in winter of water-side specimens than ever I heard of on drier ground; whilst our muggy winters may be too trying for the former, I claim for the latter that they are as hardy as the hardest kinds of germanica. The wet situations are, doubtless, favourable in summer, but I think they are responsible for the extra winter losses. I have never found imported roots to do nearly so well as home-raised ones. That a species may be hardy and even robust, but that a plant of that species can prove delicate in our climate from the different conditions under which it was bred is a fact which we require to recognise practically; we cannot always raise what we want at home, but we could do more in that direction than we do to the subsequent ease of the plant's culture. It is anent this fact that such hints as the one contained in Mr. Davies' note on *Lilium auratum* (p. 86) fit so precisely. The many flowers we can manage under hardy conditions when the roots are imported do not, to my mind, establish the rule, but, on the contrary, we may fairly suppose that the more fickle subjects have not been fully tested if not raised at home.

**PHLOX PILOSA.**—I imagine this would be a favourite if it were better known; its delicate beauty is quite captivating. The slender stems, 10 inches or 12 inches high and almost fleecy, are topped with branching clusters of soft rosy flowers; it sways with every breeze, but never breaks. On the higher parts of rockwork it is a characteristic plant; there is a sort of transparency and animation about it which can hardly fail to attract notice. It is, moreover, both in form and stature as well as in its period of bloom the connecting link between the early-flowering prostrate section and the tall late-flowering herbaceous sorts. It is useful because it thrives so well on the drier parts of rockwork in full sun, and its hardiness is beyond doubt. A good depth of soil should be provided for it, for its long stringy roots go a good way down, where they can do so; it is impatient of dampness, a condition not likely to be encountered if set as above indicated. It differs from the ovate-leaved section of about its own stature in having much less and lanceolate foliage, and a more slender and erect habit. Of all the *Phloxes* I know it most nearly resembles *divaricata* in all but habit.

**AQUILEGIA PYRENAICA** is a gem of the first order. To describe it as a miniature form of *corulea* is no mean praise; it seems, however, to be a morsel of which slugs are most fond. I have latterly grown it in pots, and no more suitable treatment, I think, could well be given it. Peat, loam, and grit over good drainage are material it thrives in, and if the pots are plunged in sand in full sunshine it not only gets some protection from slugs, but flowers and increases fairly well. By the way, it forms offsets, which are more



readily slipped off than is the case with most Columbinæ.

**ERODIUM MACRODENUM.**—This very dwarf singular flowered and prettily cut-leaved Heron's-bill is sure to please, not only those who are prepossessed in favour of alpine plants, but everybody, for who does not admire neatness, sweetness, and beauty, especially when such qualities are combined in one plant, as they are here? A mature specimen does not exceed a height of 8 inches. It reminds one of the finer cut-leaved scented Geraniums, minus a stem, all the foliage being radical. We often see it asked: "What alpine are best suited for pot culture?" Let such querists make a note of this for one, and it need hardly be said that what answers this purpose could not fail to please on open rockwork. It has long and silky roots, enjoys full sunshine, but provision, in the way of a good depth of loam, should be made, and the surrounding surface ought to be level or dipped, so as to collect a little moisture; it will live in very dry soil, but the lower leaves soon turn brown, and plants grown dry compare badly with the Fern-like tufts in more moist situations. By root division I could never get nearly such vigorous plants as from seed, which, fortunately, is ripening nicely in this sunny weather.

**IANTHE BUGULIFOLIA, or CELSIA BUGULIFOLIA,** can scarcely be said to be beautiful, but it is not ugly either. Possibly it might be to some eyes, and even then it could not be said to be conspicuously so. The facts are—it is very dwarf, the flat, gloomy-looking leaves are few, and the greeny yellow and brown flowers, as curious in their shape as hues, are seen to be remarkable when closely examined. They have the wool-like tufts of the Celsias, the habit of a Verbascum, and Bugloss-like leaves; all go to form the queer combination seen in this species. All the features have not been hinted at, and they are scarcely capable of an intelligible description. The plant has a sluggish habit, but seems hardy enough; it is now in flower on a raised bed, somewhat dry, where it gets the sun the whole day. Loam sandy, but enriched.

**PENTSTEMON LEWISII.**—Who can tell me how to get this dwarf shrubby species to flower? I have grown it eight years in various soils and aspects, in pots and in the open; also (though it has never shown a lack of hardiness) it has been tried in cold frames, but flowers never appear. I have it now under test in three ways: 1, sun all day, raised bed of sandy loam; 2, south-east aspect in moist vegetable mould; 3, in a pot plunged in sand where it gets plenty of sunshine, having also shelter from cold winds. As yet there are no signs of bloom, and I do not see the usual Roman figures in Messrs. Backhouse's list to indicate its period. I suppose they must flower it, otherwise it would not appear in their list year after year described as a "good border or rock plant."

J. W.

**Lilium auratum.**—If the samples of this Lily which were so abundantly shown at South Kensington the other day represent the best forms now in cultivation, I cannot but think that since its first introduction there has been material deterioration in the size and quality of the blooms and habit of growth generally. Perhaps distance lends enchantment to the view, or the lapse of years causes that which is remote to loom large in the vision; in any case, I do think the flowers of this fine Japan Lily have been shorn of much of that notable size and quality once so evident. Not a few of the flowers seen at South Kensington were thin and poor; indeed, the growth, too, was weak. Perhaps these features were the product of newly imported bulbs; still not a bloom was seen that seemed to bring back the grand flowers of other years. I have this year been blooming for the third season a bulb the produce of seed sown some time since. It started two years ago with three blooms on one stem; last year it gave seven blooms on two stems, and this season it has carried twelve blooms on three stems. But then they were fine blooms compared with what I have recently seen elsewhere. The larger petals of the flowers measured each some 7½ inches in length and 3 inches broad and very richly

coloured. Do home-raised seedlings as a rule give finer blooms, or are they the product of good cultivation? For three years, at least, my bulb has never been dry; it has been shifted into a larger pot in the autumn, and the soil in which it grows is chiefly stiff loam. It would be interesting to learn whether planted-out bulbs give finer blooms than do those in pots.—A. D.

#### BORDER CARNATIONS.

I AM entirely in accord with the spirit of the article (p. 107) upon the so-called "Carnation revival." It is a mistake to say that the great love for these flowers which has of late grown up is due to the existence of any florist's society. It seems pretty evident that such a body is essential to keep in existence the practice of growing Carnations and Picotees under glass and in pots, but the few who adopt that method of culture in the south seem to be getting fewer yearly. Without doubt these flakes, bizarres, and edged flowers are very beautiful, and those who have special fondness for them doubtless find in such costly and troublesome culture ample reward. If, however, some grow the plants thus less for love than to obtain pecuniary reward at exhibitions, it is obvious that these societies so much boasted of are rendering no service to horticulture. Happily, very many of these choice show kinds, as they are usually designated, will do well in the open ground. Ample evidence of that fact has been shown in the Royal Horticultural Gardens at Chiswick, where in several beds the plants have flowered beautifully; although some have shown that they lack robustness, others, and perhaps the majority, have done well.

It has probably been overlooked in summing up the causes of what is termed a Carnation revival that the introduction into our gardens from the Continent of many beautiful double varieties most easily raised from seed has given unwonted stimulus to Carnation culture. It is true that these foreign forms have not such high class quality as is found in our best home-raised flowers; on the other hand, we find seed of the former to be very cheap and productive of quite 80 per cent. of good double flowers in many colours and markings. These seedling Carnations are now found in our markets in great abundance, and one good result flowing from their introduction is that growers of those atrocious frauds, "Jacks," or seedling single kinds now find it more profitable to grow these Continental doubles, because so large a proportion of the plants give double flowers, and those who have purchased once, instead of being disgusted with their plants, gladly purchase again. Very few plants give more bloom that may be made useful in various ways when cut or sweeter perfumed than that found in seedling Carnations. If the free introduction of these commoner double forms had simply resulted in satisfying a popular taste for garden flowers, something would have been gained; but when, as is doubtless the case, a strong taste for the finer flowered forms of home growth is by them created, it is evident that much of the revival of love for border Carnations is due to foreign raisers. These Continental strains can hardly be perpetuated in any other way than by seed, as in most cases the plants literally bloom themselves to death. Still farther, very few merit propagation when so easily procured otherwise. On the other hand, there is hardly a variety raised from our home strains that does not only give grass, but also merit increase by means of layers. Happily, increase in that way is simple and easy, and the art of layering is so easily learned, that it is within the reach of all who grow a few plants not only to acquire it, but to practise it. Our best garden kinds seed sparingly; as a rule they do so most freely in hot, dry seasons; therefore there should be some good seed obtained from them this year. I refer, of course, to seed obtained from flowers grown under ordinary conditions, and not those the organs of which have been artificially fertilised. One of my best seeders, though still producing very few pods, is that beautiful white Clove Susan Askey. From it I have now blooming a seedling, which I think materially exceeds it for size and density, and is more nearly a Clove than is the parent. Of course any very great improvement cannot well be looked for amongst garden Cloves, as those we have are both so fine and so varied in colour. Still, some will now and then

display themselves, and such forms, if allied to stoutness and readiness to produce grass amply repay for the trouble of raising seedlings. Single flowers are rare in a batch of seedlings from a good home strain, and the average quality is always higher than is found in the Continental forms.

It would be an immense gain if we could induce Carnations to bloom freely on shorter and stiffer stems. No doubt the absolute necessity for support being given to the flower-stems is a drawback, and detracts somewhat from that usefulness which is found in the free-blooming dwarf, but still short-lived Pink. A race of Carnations that would bloom freely on stout stems, 15 inches in height and needing no support, would, indeed, be valuable. Some dwarf kinds that have been introduced have not been long lived, because they were of Continental extraction and possessed that unhappy feature of being non-productive of grass. It is doubtful whether any more desirable position can be found in a garden for Carnations than close by the edges of walks where they can be staked, tied, admired, and finally layered without having to unduly tread the soil. Certainly it cannot be admitted that good or effective masses of colour can be got from Carnations and grown in masses the plants are incapable of receiving that attention which is so necessary. If the flower-stems must be tied up, and some support is indispensable if the plants are grown in rows beside the walks, they could enjoy the support of impromptu wire trellises to which the flower-stalks could be tied. These would enable what is always a troublesome job to be done quickly, and could be removed after the blooming season was over. A. D.

#### GARDEN FLORA.

##### PLATE 504.

##### THE CHINESE PRIMROSE

(WITH COLOURED FIGURES OF SOME NEW SINGLE FORMS.\*)

SOME sixty years have elapsed since the Chinese Primrose was introduced to this country, and later on came the double rose and double white varieties. The single flowers have become so much improved during the last quarter of a century, that old types have ceased to exist, except that occasionally a seedling or two will revert to the small-flowered, loose-petalled, smooth-edged type of two generations ago, thus serving to illustrate how great has been the improvement effected in the case of this charming flower. As soon as it was discovered that the Chinese Primrose could be raised from seed, flowers better than their predecessors began to make their appearance; they became larger, stouter in texture, deeper in colour, and altogether of better quality, but additions in the way of varieties came forth slowly. For a time large, stout, finely-fringed flowers of the single purple and white varieties were thought to be almost the *ne plus ultra* of improvement; then it appears to have occurred to some one to artificially fertilise flowers of these two kinds, and thus was commenced that expansion in the way of varieties that is one of the remarkable features of the day as regards the Chinese Primrose. At first this work was confined to a few; then many directed their attention to it, and a period of great activity followed that has continued to the present day, and has resulted in the production of a large number of very fine and distinct types.

\* Drawn in Messrs. Cannell's nursery, Swanley, March 10. White is The Queen; the other, Swanley Red.





NEW FORMS OF SINGLE CHINESE PRIMULAS.







It is a singular fact that, whereas in almost every other flower which has been improved by cultivation, the improvement has been mainly directed towards securing smoothness of surface and margin, but in the case of the Chinese Primrose it has been the reverse, for the improved varieties of this flower have fringed edges. The Fern-leaf type of foliage is undoubtedly the result of a natural sport, which when once obtained has been carefully preserved. The origin of the double flowers may be briefly traced. In the process of cultivation it was found that the largest and stoutest flowers of the white and flesh-coloured varieties were observed, in some instances, to possess the germ of a second row of fimbriated-edged petals. From blooms of this character, fertilised with the pollen of others of a like character, have been developed double blossoms of large size and great substance, produced by plants of short, stiff, and vigorous habit; but inasmuch as, unlike the single varieties, they do not produce seeds, they have to be increased by means of cuttings. The earliest really double form was one named *atro-rosea plena*, an improvement upon the original double-flowered types; this was shown by Mr. C. Turner. Then followed two semi-double varieties named *nivea plena* and *rubella plena*, shown by Mr. W. Bull. Later on Messrs. Windebank & Kingsbury, of Southampton, produced several very fine double types and a race of Chinese Primroses that produced a considerable percentage of double flowers. The production of double forms may be said to have culminated, at least for the present, in the fine kinds raised by Mr. Gilbert, of Burghley.

The annexed illustration represents new forms of single Chinese Primulas. Of these there are now a large number, new varieties being constantly produced. The flowers are massive, and the crimson shades singularly deep and brilliant. There are shades of red, rose, carmine, down to the most delicate pink. There are also shades of purple, mauve, and lilac; and within the last few years flowers of a distinctly blue shade have been produced. There are, moreover, pure white and creamy white forms. Some of the latter are delicately tinted with pink, rose, and mauve; some are charmingly flaked and striped. There appears, indeed, to be no end to the production of new types, and on the Continent, as in this country, raisers are both actively and successfully working with this flower. Strains of seed of high-class quality are readily procurable; there is, therefore, no excuse for growing inferior forms.

Chinese Primroses are easily raised from seed, and a succession of flowering plants may readily be had. An early sowing may be made in May and June. Some seeds germinate more quickly than others, and that very circumstance tends to secure a succession of blooms, but it is well to make a further sowing in July. The following instructions, laid down by good raisers and growers of this Primrose, may be followed implicitly: "Provide clean pots well drained,

and place a little dry sifted moss over the crocks. Any fairly good soil will be suitable, but that consisting of equal parts of sound fibrous loam and leaf-mould, with a small addition of silver sand, is best. Press this firmly into the pots to within half an inch of the top, water before sowing, and sprinkle sufficient sand over the surface to cover the soil. On this sow evenly and thinly, for it is well known that the finest new Primula seeds come up irregularly, and a thin sowing admits of the removal of plants that may be ready for pricking off without disturbing the remainder. Cover the seeds with just enough fine soil to hide the sand and gently press the surface. Place the pots in a sheltered part of the greenhouse protected from draughts and direct sunlight; a small glazed frame is very useful for this purpose. While the seed is germinating the temperature should not rise above 70° or fall below 50°. As soon as the plants are large enough, prick them off round the rims of small pots; these do best when placed in a propagating box. Water with care, and shade from the sun if necessary. When established, give air, which should be daily increased until the plants will bear placing on the greenhouse stage. Transfer singly to 2½-inch pots, and subsequently shift into larger sizes as may be necessary, but never do this until the pots are well filled with roots, and always put the plants in firmly up to the collar. During July, August, and up to the middle of September they should be freely exposed to the air in any convenient position where shelter can be given during unfavourable weather." The aim should be to give the plants a robust constitution from the first, for it is only plants in this condition that will bloom satisfactorily, and plants treated to a long period of growth before flowering generally bloom best, and so they should never be forced. The seeds may be raised in heat, but in growing the plants on into size they should be kept as hardy as possible until cold and damp weather sets in; then a little fire heat can be given them with advantage. Treated in this way, excellent plants can be had by the following winter and spring in 5-inch and 7-inch pots.

In some parts of the country Chinese Primroses are grown for exhibition, and in such cases we have seen them large, vigorous, and splendidly flowered. It is customary to sow the seeds from which the exhibition Primulas are produced in May. It is only a strain famous for size, substance, and colouring of the flowers that should be selected for this purpose; but the greater the size and substance of the blossoms, the longer is the time required to bring them to perfection, and a generous compost is essential. The latter should consist of two parts well decayed and sweetened leaf-mould and one of rich fibrous turf, with a good sprinkling of coarse sand added. When placed in the pots in which they are to be exhibited, a sixth part of decayed cow manure reduced to a mould and a slight sprinkling of guano may be added. There must be good drainage, as a soddened soil is fatal to

the well-being of the plants. The latter are generally kept in a warm temperature until established in 3-inch pots; then they are removed to a greenhouse and exposed to light and air, and when hardened off and the pots full of roots they are shifted into 5-inch or 7-inch pots, according to their size, potting rather deeply and just leaving the centre of the plant free of soil. This is regarded as a very important point, as Primulas push out roots almost up to the heart of the plant. Potting should be done moderately firm. When finally established in their blooming pots, a little weak manure water will be found beneficial; also a slight sprinkling with a syringe during the hot days of July and August.

The cultivation of the double varieties is somewhat circumscribed, owing to the difficulties attendant on the propagation of the plants. Some grow the old double white for the sake of the freedom with which it blooms and its useful white flowers, and a few cultivate it largely for market. One of the best methods of propagating double Primulas is that adopted by Mr. W. Elphinstone, of Shipley Hall, near Derby, by means of which he produces plants of great size and well flowered. Propagation in the case of the double varieties should commence as soon as the plants have done blooming. They should be gradually dried off; that is to say, water should be withheld, and some finely powdered charcoal laid upon the surface. Then the side shoots should be cut half through with a sharp knife on the upper side, so that the half-divided shoots may fall down without becoming severed from the plant, and the charcoal beneath reduces the risk of decomposition. Here they are allowed to remain for a few days; then they are placed in a temperature of something like 55° to 60°. When they push forth roots at the half-severed part they are taken off, potted, and plunged in a strong bottom heat. Then follows the usual hardening-off process, after which they are grown on into size, kept cool, and generously treated, and by the autumn they become grand specimens. It is not merely the ordinary double white with which Mr. Elphinstone is so successful; on the contrary, the fine varieties produced by Mr. Gilbert are similarly treated, and with the same successful results. Those who grow largely the double white variety take off the side shoots, place them singly in small pots, plunge them in bottom heat until they make roots, and then harden them off and grow them on as required.

R. DEAN.

**Wallflowers.** — To what cause the mortality amongst these is to be attributed I am at a loss to say, but certainly death reigns amongst seedling Wallflowers in this locality to such an unwonted degree, that plants are dying wholesale long before they have matured their seed. I have never seen the disease, if it be such, assume such a virulent form as this year. Ordinarily, we have seen without concern portions of plants, and occasionally entire plants, dying after the seed-pods were formed, but this year the case is so far altered, that a live plant seems to be the exception. Drought can hardly be the cause, for the Wallflower



seems to have a decided preference for that. Had we been troubled with an excessively wet summer, there might have been found some excuse, but that has been absolutely wanting. With not a few plants the mortality extends to the seed stems only and the plants remain alive, but in the majority of cases the plants are withered and dead. The disease is not confined to one sort, although the dwarf Belvoir Yellow, which is always the latest to bloom, is least affected; still it does seem as if that suffered the more the seed approached to maturity. In one case some plants of the dark red kind left in the seed-bed have stood very well, whilst a big patch of plants put out last summer, and which bloomed most profusely in the spring, is nearly all dead. It would be interesting to learn whether this, too, is the work of some vile fungus. No doubt the scientific committee would assert as much, and tell us the name of this destructive parasite. That information would be, I fear, but poor satisfaction. I have some belief that the late spring frosts and low temperature which prevailed when the plants were in full bloom have something to do with the destruction, but may be wrong. In any case I hope the mischief is only of a temporary kind. —A. D.

**Campanula Tymonsi.**—Mr. Brockbank on p. 115 says that this plant and *C. Hendersoni* are identical, and asks for an explanation. The history of the plant is briefly this: It came as a chance seedling in a broad edging of *Gentianella*, close to a large clump of *C. turbinata*, and in the immediate neighbourhood of a colony of *C. pyramidalis*. It was so good a thing, that I left it where it grew for two or three years, until one day Mr. T. Smith, then of Messrs. Rodger, McClelland, of Newry, was visiting my garden, and, spying the plant, he exclaimed: "Hallo! what is this?" On examining it carefully in flower, foliage, habit, and root, he came to the conclusion that it was a natural cross between *turbinata* and *pyramidalis*. He asked me for it, and there and then I lifted it and gave it to him. He considered it distinct, and not unnaturally gave it my name. Whether it is identical with *C. Hendersoni* I will not undertake to say one way or the other; but if it is, it is of interest as a natural reproduction of the same variety in widely separate localities. What adds to the strangeness of the matter is the fact that plants almost or entirely identical with the one I gave Mr. Smith have come up in four or five places in my garden, but always close to a clump of *C. turbinata*. What the parentage of *C. Tymonsi* may be I know not, but I pledge my word that its origin was as I have stated. I am wholly irresponsible for its name and perfectly indifferent to its retention. If it and *C. Hendersoni* are identical, then the latter should be the only name, inasmuch as it had priority. —FREDERICK TYMONS.

**Seedling herbaceous Phloxes.**—A batch of these Phloxes blooming in August raised from seed sown last November shows that a fine display of very beautiful flowers can thus be obtained from seedling plants in nine months. I fear that drought if much longer continued may materially affect the bloom of the later plants, for my batch of several hundreds is too remote from water to be assisted. In any case the result is the same, and the trusses of bloom are as fine and the plants as strong as could have been obtained by the best method of propagation; then there is the charm of novelty and variety incidental to seedling raising, for from a number of plants in variety of colours growing together many new forms it is certain will come; indeed, few may exactly resemble the original parent. Generally the plants are blooming at from 18 inches to 20 inches in height, also an excellent result due somewhat to natural habit and something to full exposure to the sun in the open field. If, as seems the case, seed will only germinate if sown immediately it is saved and ripened, it renders Phlox seed a difficult article of commerce, unless those ordering will request that it be sent the moment it is ready. I sowed last November in an open frame and the seed germinated in three weeks. Lights were laid over the plants for the winter to protect them from heavy rains, and in March the plants were strong enough to dibble out. In really good holding soil and where well manured, no doubt the results would have been more brilliant

than I can report of, as my soil is very dry and far from being rich; still that the plants should have done so well and bloomed so beautifully shows that these seedling herbaceous Phloxes are very accommodating. I hope I may get some good seed again from these, as the parent plants are literally burnt up and cannot in the exceeding drought expand blooms. Dividing and replanting them last winter seem to have checked them too much. —A. D.

**The Carnation revival.**—There is force in the statement (p. 107) that the value of the Carnation "is far from being known as it will be," notwithstanding the degree of perfection to which our friends the florists think they have brought it. When, a few weeks back, Mr. Douglas gave us a portrait of a typical border Carnation, with its one main bud at the apex of the shoot and a few smaller ones below



Flowering and fruiting twigs of the Sugar Maple.

that, as representing a "cultivated" plant from a layer, I thought he viewed the subject from a rather narrow standpoint. Did I wish to choose an example I would choose it from a batch of seedlings flowering the second year, as I am convinced it is among these that the really best examples of Carnation growth are to be found. Their vigour and floriferousness surpass the best examples from cuttings to an extent that only those who have compared the two can credit. I venture to predict that seedlings will largely replace plants from layers and named sorts, and to the advantage of cultivators, and I shall be disappointed if single Carnations do not soon become as popular as single Dahlias. Some of the latter in every batch of seedlings are gems in their way. I have a beautiful rosy crimson variety before me now, with petals over an inch broad each way and delightfully scented—a most telling flower for any purpose. How many such the florist has consigned to destruction in his time as unworthy of notice is probably incalculable. A little more selection only, and we shall, probably, soon see flowers to marvel at. On seedling plants here now blooming the second year the flowers are practically uncountable, and present the most extraordinary sight in that way, in Carnations, I have ever seen. —J. S. W.

## TREES AND SHRUBS.

### THE SUGAR MAPLE.

(*ACER SACCHARINUM*.)

At first sight the Sugar Maple resembles closely in general aspect the Norway Maple (*Acer platanoides*), but differs a good deal in the floral characters and those of the fruit. In the first named the foliage is distinctly glaucous beneath, whereas in the latter it is green; the former has flowers destitute of petals, whereas the Norway Maple has well-developed petals. The wings of the fruit of *A. saccharinum* are narrower and not nearly so divergent as are those of the Old World species, to which it bears the greatest resemblance.

\* *Acer saccharinum*, Wang. & Grey, "Manual of the Botany of the Northern United States," p. 119. *A. saccharophorum*, Koch, "Hortus dendrologicus," p. 80. *A. nigrum*, Koch, "Dendrologie," erster Theil, 532.

The Sugar Maple is one of the noblest of American trees both on account of the beauty of its form and foliage and the value of its wood. Professor C. S. Sargent, in his "Catalogue of the Forest Trees of North America," gives its geographical distribution as follows: "Northern New Brunswick to the western shores of Lake Superior; southward through the Northern States and along the Alleghany Mountains to Georgia; west to Minnesota, Eastern Nebraska, and Arkansas. Most common at the north." The wood is hard, close-grained, smooth, compact, susceptible of a fine polish, and is ex-

tensively used for flooring, cabinet-work, and turnery (preferred for shoe lasts). Two accidental forms, "curled Maple" and "bird's-eye Maple" are highly valued for inlaying and cabinet work. It attains a height of



A young Sugar Maple.

60 feet or 80 feet, with a trunk 2 feet to 4 feet in diameter. The ashes are rich in alkali, yielding large quantities of potash. In the Northern States and Canada large quantities of sugar and syrup are annually obtained from this species, which in fact is the principal source of Maple sugar. The sap is collected in spring by tapping the trees to a depth of about half an inch with an auger and inserting a spout; the juice is then



boiled down to a syrup, clarified, drained, and crystallised. Good Sugar Maples yield each about an average of four pounds of sugar in a season. Baron la Houtau gives the following account of the sap of the Sugar Maple when used as a drink: "The tree yields a sap which has a much pleasanter taste than the best lemonade or Cherry water, and makes the wholesomest drink in the world. This liquor is drawn by cutting the tree 2 inches deep in the wood, the cut being made sloping to the length of 10 inches or 12 inches; at the lower end of this gash a knife is thrust into the tree slopingly, so that the water runs along the cut, as through a gutter, and falls upon the knife, under which a vessel is placed to receive it. Some trees will yield five or six bottles of this water in a day; and some inhabitants of Canada might, in one day, draw twenty hogsheads if they would thus cut all the Maple trees in their plantations. The gash does no harm to the tree" (see Martyn's edition of "Miller's Gardener's Dictionary").

The Sugar Maple thrives in a deep free rich soil, and is worthy the attention of landscape gardeners and planters as an ornamental deciduous tree of the first rank. In the Northern United States and Canada it is, in addition to "Sugar Maple," known under the name of "Hard Maple" and "Rock Maple." It appears to have been first cultivated in this country about 1735, and is one of the very numerous plants for introducing which Aiton gives the credit to Peter Collinson, a famous gardener and patron of horticulture. The Black Sugar Maple (*A. saccharinum* var. *nigrum*) does not differ very markedly from the type with which it grows intermixed; it has leaves which are scarcely paler beneath—that is to say, the colour of the under surface is hardly different from that of the upper—but are often minutely downy, the lobes wider, and the sinus at the base often closed. The wood, too, is said to be darker in colour. Like the type, this is best propagated by means of imported seeds.

GEORGE NICHOLSON.

Royal Gardens, Kew.

**A seaside tree.**—Those who are making inquiries respecting the best trees for seaside planting should make note of the Red Cedar (*Juniperus virginiana*), which stands the salt spray and keen sea air better than most other trees.—G.

**Zenobia speciosa.**—This is one of the many North American plants belonging to the Ericaceæ commonly met with in gardens, and, like most of its class, very floriferous. It is a deciduous shrub, which grows about 3 feet or 4 feet in height, and bears pure white bell-shaped Lily of the Valley-like flowers in great profusion during the summer months. As often seen, however, it has a stunted and unhappy appearance, owing to being planted in too dry a situation. In its native country it inhabits swampy districts; therefore it does best with us in damp, shaded parts of the American garden, conditions under which the Clethras and others of its more immediate allies succeed. A very distinct variety of this *Zenobia* is that called *Z. s. pulverulenta*, a plant covered all over with a white meal, and its flowers are larger and opener than those of the typical form. The *Zenobias* form pretty objects for conservatory decoration when forced into flower in the spring; the

pure white blossoms have a very chaste appearance, and the distinct hue of the variety *pulverulenta* shows up conspicuously amongst its green-leaved associates.—W.

**Thuja Standishi.**—By some authorities the species of *Thuja* are limited to three, of which this is one, the other two being both North American, viz., *T. gigantea* and *occidentalis*. The general appearance of this plant reminds one in some respects of the American *Arbor-vitæ*, yet it bears a still stronger resemblance to the Japanese *Thujopsis dolabrata*. So much indeed does it resemble this latter, that it is quite as frequently met with under the generic name of *Thujopsis* as under that of *Thuja*. It is a free-growing kind, more sparsely branched than *T. occidentalis*, but with stouter and more drooping branchlets than is to be met with in the ordinary form of that species. The colour of the plant when growing is of a pale yellowish green, which during the winter where exposed becomes slightly bronzed. With regard to the leading shoot, there is no difficulty, as often happens with *Thujopsis dolabrata*, in getting it to form a leader, as in this kind it is very vigorous. It was introduced by Fortune from Japan, and named in honour of Mr. Standish, of Ascot, to whom we owe the distribution of many of Fortune's valuable discoveries.—T.

### A RARE MEXICAN SHRUB.

(*LINDLEYA MESPILOIDES*.)

THE only species of the genus *Lindleya* was discovered at the beginning of the present century in the mountains of Mexico by Humboldt, and in 1823 was named after Dr. Lindley. It appears to have been introduced to cultivation by Hartweg when collecting for the Horticultural Society of London. It is an ever-green tree, with simple stalked, crenulate, coriaceous leaves, not unlike those of the Burning Bush (*Cratægus Pyracantha*) in shape and texture, but with flowers somewhat resembling those of the common *Philadelphus*, or, as implied by its specific name, the Medlar. The botanical characteristics are summed up by Dr. Lindley as follows: "Carpels joining together at the very base into a solid pistil, although their upper halves, as well as the styles, are entirely distinct. And so in like manner, when the fruit is ripe, it becomes a hard capsule, the thick bony lobes of which separate freely at the upper half, but not at the lower, without violence." In the *Botanical Register* for 1844 a good coloured drawing of the plant is given, and the following assertion respecting it is hazarded: "In our gardens the plant seems likely to prove about as hardy as an Escallonia, but not more so. Its fine ever-green foliage and large sweet flowers render it very desirable that it should bear our climate." A search through British garden literature has proved unavailing. I have practically met with no references to the species later than the volume of the *Botanical Register* for 1844, from which the foregoing quotations have been made. Dr. Lindley states that *Lindleya* grafts readily on the common Thorn and the larger kinds of *Cotoneaster*, and Hartweg, who found the plant in Humboldt's locality, between La Puente de la Madre de Dios and the village of Magdalena, at an elevation of nearly 7000 feet above sea level, describes it as a slender-growing Evergreen 12 feet to 15 feet high, and says it always prefers a dry, chalky soil. Some ten years after the figure above men-

tioned it is recorded in the *Revue Horticole* that the plant had succumbed in Paris to the winter of 1853-4, and it is recommended for conservatory cultivation. It was also grown in some of the Continental nurseries many years after its introduction to Britain; so it is to be hoped that if it has quite disappeared from English gardens, this note and the accompanying figure will call attention to the merit of the plant, and that any one pos-



Flowers of *Lindleya mespiloides*.

sessing it will write as much to the editor of THE GARDEN. In the *Revue Horticole* the flowers are said to be inodorous, but the tickets of some of the wild specimens in the Kew herbarium distinctly state them to be scented, and Dr. Lindley says, "as sweet-scented as the Hawthorn bloom." There are, no doubt, many spots in Britain where this pretty shrub would succeed perfectly in the open air.

G. NICHOLSON.

**Juniperus rigida.**—The name of this Juniper refers to the stiff sharp-pointed leaves, and has nothing to do with the habit of the plant, which is entirely devoid of any stiffness or formality. It forms a low tree, broad at the base, and gradually narrowing towards the summit, the branches being slender and ascending, but the branchlets and the whole of the young shoots are strictly pendulous, so as to form a specimen of pleasing and graceful outline, at times somewhat irregular in shape by reason of some of the branches growing with far more freedom than others. The leaves are about half an inch long, very narrow, stiff, and terminated by a sharp point, so that the plant is almost as difficult to handle as a Furze bush. The colour of the young foliage is light green, but when mature it deepens in tint, though it never assumes a dark tone. In the winter the plant becomes slightly tinted with brown. A distinctive characteristic of this Juniper is that each leaf is marked on the upper side by a conspicuous glaucous furrow. It is a native of Japan, and, being perfectly hardy in this country, is well suited for planting as a lawn tree or in similar situations. Here, in a light sandy soil on gravel, but so situated that it is not roasted up during summer, this Juniper succeeds perfectly.—W. T.



**Rhodotypos kerrioides.**—There is such a striking resemblance between this and the old Japanese *Kerria* (*K. japonica*), that it is difficult at first sight to distinguish the one from the other when not in flower. The *Rhodotypos* is a handsome shrub of slender growth, having opposite leaves with much wrinkled surfaces and large pure white flowers. It appears as yet to be very little known in cultivation, but it is a shrub that certainly deserves a place in every garden, as it is a beautiful object in summer when in flower. In a light warm soil in the neighbourhood of London it grows about 4 feet or 5 feet high and is perfectly hardy, having been fully exposed to the rigour of the last two winters. The *Rhodotypos* is a common object of culture in Japan, but it does not appear to have been found in a wild state. Siebold, who first brought it into notice, believes it to be a native of the island of Kiusiu. It is now in bloom.—W. G.

**Lonicera Standishi and fragrantissima.**

—With these two winter-flowering Honeysuckles a good deal of confusion exists, both names being often used indiscriminately; indeed, one is frequently quoted as a synonym of the other, though in reality they are separated by several well-marked characteristics. *L. Standishi* is quite of shrub-like habit, forming a somewhat erect growing bush, clothed with ovate-lanceolate leaves, hairy on both surfaces when young, but when mature almost smooth on the upper side, though beneath the hairs are still retained. The foliage of this is deciduous. The flowers are white, borne during the winter months, and are deliciously fragrant. Though it will cover a considerable space if trained to a wall, this Honeysuckle is, strictly speaking, simply a shrub, while, on the other hand, *Lonicera fragrantissima* is more or less of a climbing habit. Besides this it differs from the first-named in the leaves being broadly ovate, quite smooth on both surfaces, and retained on the plants to a greater or lesser extent throughout the winter, so much so that unless in the case of very severe weather it can be regarded as an Evergreen. This is also very fragrant, so much so that the specific name is derived from that circumstance, and it commences to flower soon after Christmas.—W.

**Eucalyptus globulus.**—With reference to the hardness of various *Eucalypti*, as mentioned on page 62, I have had a Blue Gum or *Eucalyptus globulus* in my garden here for three years. It was originally put out for summer effect, but is now about 18 feet high, and is growing freely, while it is at the moment showing a number of flower-buds, so I imagine it will flower. The tree has never been protected in any way, but a belt of trees, &c., sheltered it a little at first, though it is now above them all and has put on its second form of leaves. The first leaves are silvery, and lie horizontally; the second form hangs perpendicularly, and has lost the silvery bloom. Sir John Lubbock holds that this change in the way the leaves hang is a protection against the fiery sun

of Australia. Does the Blue Gum often flower in this country? My soil is deep yellow loam resting on gravel, and the height is 50 feet above the sea in a valley rather exposed to late frosts.—BEXLEY.

**The Feathery Tamarix** (*T. plumosa*).—In a note respecting this shrub, M. Carrière says, "Nothing can be more graceful than this species, which is still rare in spite of the readiness with which it can be propagated. Its numerous slender branchlets, of a glaucous green hue, bear a certain resemblance to the curled plumes of the ostrich (or the white stork), whence its popular name of Marabout. It flowers in August, about the same time as *T. indica*. The flowers, which are disposed in dense erect panicles, have an airy lightness which adds

produced in great abundance, and, expanding somewhat late in the season, escape late spring frosts, which not infrequently produce such havoc with other fruit crops.

**Ilex crenata.**—This and its variegated variety are two pretty dwarf shrubs, the former bearing pointed leaves of about half an inch in length and of a dark green hue, while the latter has leaves variously mottled and marbled with yellow. Forming a compact bush of from 1 foot to 2 feet high, this *Holly* is well adapted for small places, and in the neighbourhood of London severe winters have in no way injured it.—A.

**Weeping Willows in America.**—An American correspondent writes: "The Weeping Willow

(*S. babylonica*) is in England a far handsomer tree than it is with us—at least in the Middle and Northern States. It is not quite hardy in this climate (New York)—not perhaps owing to the severity and extremes of weather alone, but because it is often weakened by various insects or their larvæ, that infest and sometimes girdle the stem. Thus, if not killed outright, it is often so injured by the frosts of winter as to present anything but a pleasing appearance the following summer. Hence we seldom see it in its full size and beauty; besides, it is not, like the *S. laurifolia*, at home in sandy, dry situations. In view of this, as also of the

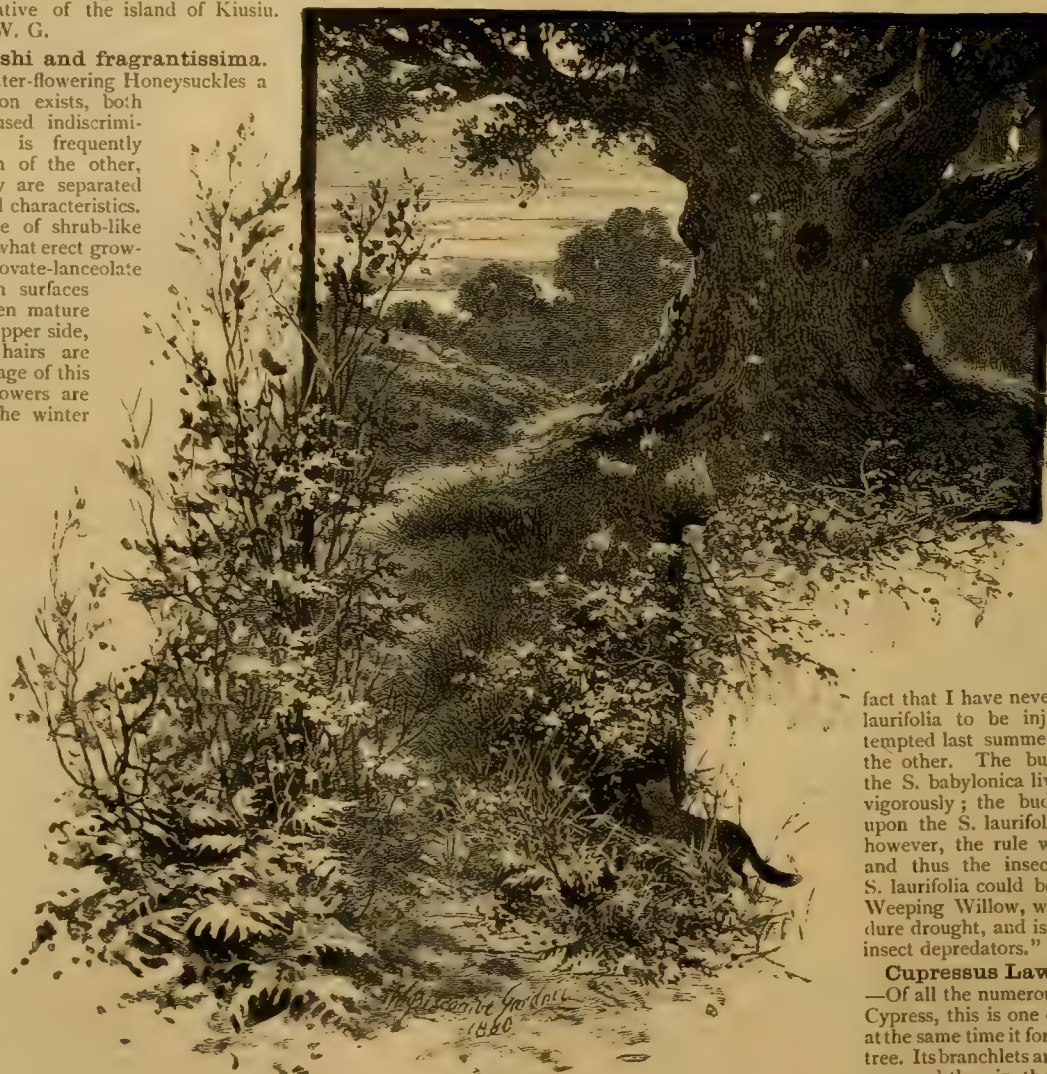
fact that I have never known the stems of *S. laurifolia* to be injured by insects, I attempted last summer to bud the one upon the other. The bud of *S. laurifolia* upon the *S. babylonica* lived, and is now growing vigorously; the bud of the *S. babylonica* upon the *S. laurifolia* perished. Doubtless, however, the rule would work both ways, and thus the insect and drought-resisting *S. laurifolia* could be made the stock of the Weeping Willow, which cannot so well endure drought, and is so often at the mercy of insect depredators."

**Cupressus Lawsoniana intertexta.**

—Of all the numerous varieties of Lawson's Cypress, this is one of the most distinct, and at the same time it forms a very handsome lawn tree. Its branchlets are stouter and less densely arranged than in the other varieties, so that they have a more open appearance, while the habit of the plant is loose and graceful. For planting as a single specimen it is well suited, but it does not appear likely to ever attain anything like the dimensions of the common type. It is of a peculiar glaucous tint.—W.

**Berberis stenophylla.**—This is a handsome plant whether laden with fruit in autumn or clothed with golden blossoms in spring. Unfortunately, the fruiting seems to be the exception, as, in general, fertilisation does not seem to take place very readily, though in some instances the berries are borne in great profusion.—A.

**The Tartarian Maple** (*Acer tataricum*).—This forms a tree from 20 feet to 30 feet high, with numerous branches disposed in a compact head sometimes 20 feet through, and densely covered with leaves of a lively green. It is a native of Tartary and the south



One of the Chestnuts in Betchworth Park, Surrey. See p. 146.

much to the elegance of the foliage, isolated on a lawn or in a large park. *T. plumosa* forms a compact mass of the most pleasing appearance, and is quite as hardy as *T. indica*, and is propagated and treated in precisely the same manner."

**Medlars as lawn trees.**—The Medlar is deserving of more attention than is generally bestowed upon it on account of its great beauty when in bloom, which is such as to entitle it to be considered as an ornamental standard tree upon lawns. Medlars (*Mespilus germanica*) will succeed in almost any kind of soil, being of a free, drooping, and somewhat irregular style of growth; but by attention in the way of pruning during their early stages they may readily be made to assume any form desired. The flowers, which are large and showy, are generally



of European Russia, particularly along the Volga and its tributary streams. The Tartarian Maple grows freely in any good soil, but prefers one that is rather moist. It was first introduced in 1579. The leaves are heart-shaped and somewhat pointed, but sometimes those on young plants and on the stronger shoots are visibly three-lobed; they are of a bright green above, irregularly serrated on the edges, and distinguished by a peculiar veiny appearance on the upper side, particularly when young, but when matured they are smooth on both surfaces, and just before they fall are of a reddish yellow or brown colour. The flowers are of a pale yellowish green, sometimes tinged with red, and are produced in erect, compound, crowded racemes in May. The fruit or keys when young are covered with a short down and are slightly tinged with red, but when ripe in August quite smooth and of a brown colour, with small thinish carpels and large parallel wings but slightly separated. This is a very desirable Maple for planting in the shrubberies, on account of its coming into leaf so early in the spring. The length of a full-sized leaf is  $5\frac{1}{2}$  inches, including the footstalk, which is about  $1\frac{1}{2}$  inches long, and the breadth  $2\frac{1}{2}$  inches.

**Ozothamnus rosmarinifolius.**—Though not so well known as its relative, the New Zealand *Olearia Haasti*, and scarcely so showy when in bloom, this Australian composite is a pretty little flowering shrub, and one that lasts a long time in bloom. It forms a dense twiggy bush with narrow leaves a good deal resembling those of Rosemary and has small white Aster-like blossoms, borne in such profusion, that the whole plant is when in bloom quite a mass of white. It is at all events fairly hardy in this country and does pretty well even in hot and sandy soils, but, of course, is seen to the greatest advantage under more favourable conditions. It blooms about June and July, and though it does not ripen seed here, can be propagated readily enough from cuttings taken during the summer months just as the current season's shoots acquire somewhat of a woody texture. The cuttings must be made entirely of the young shoots and the leaves at the base having been removed, they should be dibbled into pots of light sandy soil pressed down firmly. After all is finished and a good watering given the cuttings must be placed in a close frame and kept well shaded from sunshine till rooted.—ALPHA.

**Darwin's Barberry in fruit.**—We are accustomed to disregard this Barberry feature when the flowering season is over, yet when the blossoms are succeeded by a good crop of berries, though not so showy at a distance, it is scarcely less attractive on near inspection than when in bloom. There is a bush of *Berberis Darwini* in the collection of Barberries at Kew, which is more heavily laden with fruit than we ever remember meeting with before, the whole bush being a mass of bluish purple berries covered with a glaucous bloom. It is more than probable, however, that before long the birds will rob the plant to a considerable extent of its beauty.—T.

**Spiræa splendens.**—A *Spiræa* to be found in various nurseries under the above name appears to be a form of *S. chamædrifolia*. It is, however, sufficiently distinct for garden purposes from any of the recognised varieties, owing to the bright colour of the blossoms. It is one of the most select among this beautiful class of shrubs, and continues to flower for a long time. The habit of the plant is that of a dense bush about a yard high with terminal clusters of flowers. The blossoms are borne in dense flattened heads, and their colour is rich reddish pink something like the deepest tinted forms of *S. callosa*, but in other respects the whole habit of the plant is entirely different. This *Spiræa* has been in bloom here in Surrey for a long time, and there are still several heads of flower yet to expand. Like all of its class, it is seen to the greatest advantage when treated liberally rather than when crowded up with other shrubs. While on the subject a word may well be spared the large-growing *S. aræfolia*, with its plume-like panicles of creamy white blossoms that make such a goodly show soon after midsummer.—A.

**Variegated Privet.**—Among bright-leaved shrubs the golden Oval-leaved Privet is now one of the most conspicuous, and in the event of a mild season it will retain the foliage during the whole of

the winter, while should the weather be severe, it is then sub-evergreen in character. The foliage of this Privet is deeply margined with bright gold, so deep, indeed, that in most cases the green portion of the leaf is limited to a very small blotch in the centre. The plant, too, is rather less vigorous than the type, yet it soon forms a very effective bush under favourable conditions. Altogether it is the most showy of variegated Privets, of which there are several, notably two or three forms of the common Privet and a couple of the Japanese, one being margined with white, and the other in addition is suffused with red.—ALPHA.

**The dwarf Rock Holly.**—Permit me to recommend this miniature and very peculiar-looking plant (*Ilex crenata*) and its variegated variety to lovers of dwarf rock shrubs. It is so very neat and dwarf in habit, and so very unlike a Holly!—IRIS.

**Variegated Elder.**—In the public gardens at Brussels this and the golden-leaved variety are used with the happiest effect on the margins of shrubberies. Equally interesting, too, are some fine specimens of a variegated form of *Acer platanoides*, known in Belgian and German gardens as *A. platanoides Leopoldi*.—L. K.

## FRUIT CROPS.

### SUPPLEMENTARY ENGLISH.

**Hutton Hall, Guisborough.**—Fruit crops in this part of Cleveland are very uneven. On the whole there is a good crop of Apples, the following sorts of which are bearing heavily, viz., Keswick Codlin, Lord Suffield, Cockpit, New Hawthornden, Warner's King, Cellini, Echlinville Seedling, Nancy Jackson (a local sort much esteemed by market gardeners and farmers), Cox's Orange Pippin, Devonshire Quarrenden, Emperor Napoleon, Stamford Pippin, and Worcester Pearmain. On the other hand, Blenheim Orange, Green Balsam, Dumelow's Seedling, Galloway Pippin, Tower of Glamis, Bedfordshire Foundling, and some other well known and popular varieties are almost a complete failure. Of Pears we have a very poor crop; the cold, sunless, wet weather which we had in May literally starved the crop off the trees. A few of the hardier sorts, such as Green Chisel, Hesse, and Jargonelle, are bearing fair crops. Plums with us shared the same fate as Pears; with the exception of Victoria they are a failure. Morello Cherries are abundant and clean; other sorts are a poor crop. Apricots are an extra fine crop, Moor Park, Large Early, and Breda being especially good. Peaches and Nectarines are but little grown out of doors, this district being too cold and exposed for them. Raspberries, Strawberries, and bush fruits are bearing excellent crops.—JAMES MCINDOE.

**Sedbury Park, Richmond.**—Fruit crops here are generally pretty good. Our garden lies high, but sheltered by forest trees; soil stiff, subsoil yellow clay and very cold. Gooseberries good; only failed once during the last twenty years; very thin in the valley. Red Currants good, never fail; Black sorts promised well, but the dry spring has nearly spoiled them; the foliage is falling fast, and the fruit is still green. Strawberries never fail, but they are extra good this year. Raspberries the same. Of Apples the following kinds are good, viz., Keswick, Manks, and Carlisle Codlins, Lord Suffield, Adam's Pearmain, King of the Pippins, Yorkshire Greening, and Greenup's Pippin. These with me do well as a rule; all other sorts are unreliable. Apricots are very good. Pears after blossoming grandly are thin, except Hesse, and this, I believe, is the prevailing order of things through a wide area. Plums are thin all round. Damsons thin, the second time only during the last twenty years. Cherries bad and the trees dying.—T. R. JOWSEY.

**Castle Howard.**—Apricots here are a very heavy crop and the trees are healthy. We use no protection when they are in flower. Moor Park, Shipley, and Breda are the best varieties here. Apples are an abundant crop; most of the trees here were formerly pyramids, and were much cankered; now we allow them to grow naturally, and they are generally more healthy. Lord Suffield, Keswick Codlin Dutch

Codlin, Warner's King, Blenheim Orange, Wellington, Mère de Ménage, Cockpit, and Yorkshire Greening are our best kitchen Apples; and Ribston Pippin, Margil, Worcester Pearmain, Scarlet Pearmain, King of the Pippins, Lewis's Incomparable our most reliable dessert Apples. Pears are a full crop, and the trees are very healthy; Jargonelle, Ambrosia, Hesse, Louise Bonne of Jersey, Marie Louise, Beurré Diel, Seckle, Crassane, and Winter Nelis are our best dessert Pears. Of Peaches, few are grown outside; indoors we have a full crop. Plums are a very light crop, even on walls. Our best sorts are—Green Gage and Coe's Golden Drop for dessert; and Victoria, Orleans, Washington, Red and White Magnum Bonum, and Damsons are most suitable for kitchen use. Of Filberts we have a very thin crop; we find some of Webb's varieties to be best adapted to our northern climate. Gooseberries are a moderate crop; the trees were much injured by bullfinches; Warrington, Whitesmith, and White Eagle are our best kinds. Black Currants are a fair crop with us, but in many instances very light. Red and White Currants are a full crop, but much affected with blight. Raspberries are a heavy crop, Carter's being the best and most reliable. Strawberries are a good crop, but late; Garibaldi, President, and Keen's Seedling are the kinds we grow.—A. HOSSACK.

**Ferniehurst, Shipley.**—Apples here are below the average. Apricots, Peaches, and Nectarines are not much grown in this neighbourhood, but where grown they are almost a failure. Currants of all sorts are good crops. Cherries quite an average crop, especially May Duke and Morellos. Gooseberries are a fair average crop. Plums and Damsons almost a total failure. Pears much under the average, except Jargonelles, which are good in places. Raspberries and Strawberries are grand crops, but late and small from want of rain.—F. NEWMAN.

**Holgate, York.**—Fruit crops, taken as a whole, are below the average. Plums, Pears, and Cherries suffered most from the sharp weather in April. With the exception of Victorias, Plums are in general light, which will be the more felt, as, next to the Apple, the Plum is the most valuable fruit which we have. Coe's Golden Drop, though an old sort, should be in every collection; it is a great bearer and keeps late in the season. As there are now a great variety of free-bearing sorts of all descriptions of fruit, I would strongly recommend intending planters to avoid making the great mistake of planting delicate and shy-bearing sorts. Pears have suffered much, and are in general scarce. Some varieties stand the weather better than others. Free-bearing sorts should be invariably planted. Cherries promised to be most abundant, but they are light. Apricots and Peaches are in general good. They came early into blossom, when the weather was mild, and having the protection of a wall have not sustained any injury. Apples, being late, are in general plentiful, and the crop will be good, but small. Gooseberries are in general good and free from insects. Currants are a moderate crop. Raspberries are good and plentiful. Strawberries are excellent and very abundant.—M. SAUL.

**Stourton Hall, Horncastle.**—The fruit crop here is light. Apples are about an average crop; Pears plentiful, both early and late sorts; Plums scarce. All that we have of the latter are on north aspects. Cherries are scarce, but at best this is not a Cherry district. Of Peaches we have none in the open. Apricots, slightly protected, set freely and are swelling well. Small fruits are fairly good.—JOHN REID.

**Harewood House, Leeds.**—Our Apple crop in this neighbourhood is much under the average; only a few varieties are carrying a sprinkling of fruit, such as Stirling Castle, Fearn's Pippin, Warner's Seedling, Syke House, Cockpit, Cellini, Echlinville Seedling, Manks and Keswick Codlins, Lord Suffield, and Lord Burghley. Of Pears we have a good crop both on walls and standards, consisting of Jargonelle, Marie Louise, Louise Bonne of Jersey, Bergamot, and several other varieties. Cherries are plentiful; Plums a failure; Apricots a good average crop; Gooseberries and Raspberries heavy crops; Currants light; Strawberries a very heavy crop and fruit good in quality.—JAMES FOWLER.



**Thorpe Perrow, Bedale.**—The Apple crop appears to be good everywhere in this district, especially local sorts. The Yorkshire Cockpit is everywhere loaded. This Apple is hardy, a good bearer, and good in every way; also a good keeper. An Apple called Flowery Town is very common with farmers. It is a good bearer and comes into use early for pies. Keswicks are abundant, and much liked by the cottagers. One of the best Apples for late use in the north of Yorkshire is the Dutch Mignonne, worked on the Paradise stock. With me, it is a bad bearer on the Crab stock. Pears on walls are abundant, both early and late sorts; those out in the open are partial, while some of the common sorts escaped the frost and are plentiful. Plums are a partial crop in the open, and some trees on walls are good; Victoria and Kirke's are among our favourites. Rivers' Early Prolific is a good useful sort for early work and a good bearer. Apricots in some places are good, especially on cottage walls, on which they are much grown. The owners often sell the fruit for 2s. per dozen. Here some trees are good, others bad. They have never got over the wet and severe winters which we experienced some time ago. Peaches and Nectarines are not much grown, but here and there in good warm places some fruit may be found. The trees suffered from frost in May. Bush fruit is plentiful, but in many places quite spoiled by fly. Strawberries are good, but light, owing to the drought. Cherries are only moderate, except Morellos. The early sorts fell off after they appeared to be safe, perhaps from excessive drought. Nuts in many places are good. Here they are moderate.—WILLIAM CULVERWELL.

**Wentworth Woodhouse, Rotherham.**—Apples generally set well, and are a very good crop. The varieties that do best here, and that can almost always be relied on for a crop, are Lord Suffield, Hawthornden, Cockpit, Keswick Codlin, Costard, Greenup's Pippin, Chester Pearmain, Yorkshire Greening, Golden Reinette, Sturmer Pippin, Devonshire Quarrenden, Transparent Codlin, and Greeve's Pippin. Pears are a fair crop on walls, but on standards almost a failure; our best sorts are Marie Louise, Glou Morceau, Beurré Diel, Easter Beurré, Williams' Bon Chrétien, and Beurré Clairgeau. Plums are a complete failure. Cherries, with the exception of Morellos, have also failed. Apricots are very scarce. Strawberries are a grand crop; Vicomtesse Héricart de Thury, British Queen, James Veitch, Black Prince, Sir Harry, and President are our standard kinds on which we rely for our principal crops. Black, Red, and White Currants are very thin. Gooseberries and Raspberries plentiful and fine. Nuts (Filbert and Hazel) are not half a crop. Peaches, Nectarines, and Figs are plentiful in wall cases; none are grown here out of doors.

POTATO crops in this district never looked better both in gardens and fields, and not a trace of disease is to be seen. The principal sorts grown are Veitch's Improved Ashleaf, Magnum Bonum, and the Scotch Champion.—GEORGE F. GLEN.

**Wortley Hall, Sheffield.**—The spring was cold and backward this season, which, by preventing the blossom appearing too early, saved it from late frosts, and hence fruit crops in the district are promising. There are good crops of Pears, Apples, Cherries, and all small fruits are good. Plums indifferent.

POTATOES are not so forward, nor so healthy as last year, but vegetable crops generally look well, though late. Rainfall considerably under the average. On the morning of June 27 the thermometer marked 34° in the garden and 32° in the valley—the lowest temperature ever recorded here so late in the season.—J. SIMPSON.

**Thirkley Park, Thirsk.**—Here everything, with the exception of Apricots, is below the average of the last two years, although in early spring very promising. Apples will be a fairly good crop. Plums far below the average. The Victoria, Damson, and Orleans do best with us as a rule. Apricots are beyond the average and good. Peaches and Nectarines are only moderate. Strawberries are good; Duke of Edinburgh, Keen's Seedling, and James Veitch do best. Black and Red Currants are fair

crops. Gooseberries are almost a failure; we have abundance of trees, but the frosts almost stripped them. Cherries are below the average. Of Raspberries we have but few. On the whole the fruit crop in this district is not nearly as good as last year.—H. BRUNTON.

**The Gardens, Thornbury, Sheffield.**—Fruit crops in this district are hardly equal to the average of ordinary seasons. Apples generally are thin. Of Pears we have very few. Plums on standards none, but Victoria and Jefferson are bearing heavy crops on the walls. Gooseberries, Currants, Raspberries, and Strawberries are most abundant. Peaches and Nectarines are not grown in this district in the open air. The Apples which succeed the best with us are Emperor Alexander, a very handsome autumn Apple; Normanton Wonder (Dumelow's Seedling), a heavy cropper and generally to be depended on, one of the best for winter use; and Cox's Pomona, rather above medium size, a first-rate and handsome Apple for culinary purposes. The Irish Peach succeeds fairly well in this district, and is one of our earliest Apples. Keswick Codlin, a free bearer, is an excellent early Apple for kitchen use, though now surpassed by Lord Suffield, which is a firmer Apple, more briskly flavoured, and a more abundant bearer. Lincolnshire Holland Pippin is one of our best midsummer Apples and a reliable cropper. Northern Greening, as is well known, is a first-rate Apple for spring use. To the above we may add Court of Wick, Cellini, and King of the Pippins, all good croppers, and remarkable for their fine aromatic flavour. If I had only space for two trees, and required their fruit for kitchen use purposes, I should grow Lord Suffield for an early crop and Normanton Wonder, or Dumelow's Seedling, for late use. Of Pears, Jargonelle is the surest cropper in this district. It is grown in almost every cottage garden in the neighbourhood. The next in hardiness and general usefulness is Louise Bonne of Jersey, though it does not attain so large a size, nor is its flavour quite so good as when grown in a warmer climate. To these may be added Beurré Diel, Citron des Carmes (a good early Pear, though liable to crack), Conseiller de la Cour, Doyenné du Comice, Doyenné d'Été, Marie Louise, Seckle, Thompson's, Williams' Bon Chrétien, Winter Nelis, Beurré Bosc, Colmar d'Été, Beurré Goubault, Gratioli of Jersey, Napoleon, and Forelle. We have a large unheated house devoted to Peaches, Nectarines, Plums, and Pears. The latter are well established, and bear good crops of fruit generally. It has been asserted that Pears ripened under glass never possess any flavour; this is a mistake. In our case we give plenty of water at the roots, abundance of air, and well syringe several times a week. Thus treated, the fruits attain about twice the size the same sorts do in the open air, and the flavour is perfect. In fact, we cannot obtain such good examples from Jersey. The sorts which we grow under glass are Williams' Bon Chrétien, Louise Bonne of Jersey, Doyenné du Comice, Josephine de Malines, and Beurré Diel. Cherry crops are a complete failure this season; the White Heart is the only variety worth attempting to grow. Of Plums for outdoor purposes, Victoria is the most certain, and the next in order of merit is Jefferson. In ordinary years these may be relied on to give satisfactory returns.—Q. READ.

**Stokesley, North Yorks.**—I have but a poor account to give of fruit crops in Cleveland. At the beginning of May we had some sharp frosts sufficient to do injury to tender Plums. With the frosts commenced cold, bleak winds, which continued to the end of the month. The cold was too severe for the sap to rise to sustain the blossom, and when the weather changed about the beginning of June there were no showers to freshen the trees. The result is a light or inferior crop on trees and fruit bushes. Gooseberries are a very unequal crop; on exposed ground they are thin. Black and Red Currants are also a light crop. Raspberries are a fair crop. Strawberries are generally a good crop; as far as I have seen, President and Dr. Hogg are the varieties most grown and esteemed for market purposes in Cleveland; some fine samples of James Veitch have appeared this season in Stockton market. Of Plums

there are very few to be seen; in some very favourable positions a few trees bear fair crops; the only Plums worth planting in this district, with view of getting an average crop, are Victoria, Pond's Seedling, Diamond, and Kirke's in favourable positions. Apples are generally a light crop, and still continue to drop. The Cockpit is the only variety that shows a fair crop; this is an invaluable variety for this part of the country; it is as hardy as a Crab, and the habit of the tree equally good; the fruit is of good quality for cooking, and keeps well; this variety rarely fails to yield a crop. Lord Suffield, as usual, has a crop, not heavy, but of good size. Keswick Codlin is bearing a light crop. Of other Apples worth growing in this district, the following have light crops, viz., Tower of Glamis, Hawthornden (old), Cellini, Dumelow's Seedling, Blenheim Orange, and Manks Codlin, a most valuable sort in exposed situations; Irish Peach, Oslin, and Quarrenden ripen well here. Of Pears I have little to say. Except a few well-known hardy varieties, it is rare to see Pears on trees here. Although there are many good trees of Jargonelle, it is rare to see a quarter of a crop on any tree. Occasionally on a wall may be seen a light crop of Louise Bonne of Jersey or Beurré Diel, but not of good quality. The only varieties of hardy useful Pears to be seen bearing average crops of saleable fruits in this district are Hesse, Windsor, Green Chisel, Yat, and Passans de Portugal for early use in a sheltered situation. Of Cherries few are grown here, and we have no crop this year. Damsons may be set aside; they bloom, but produce no fruit. Apricots are more encouraging; on healthy trees there is a light crop and the trees are doing well. Let us hope that our seasons will continue favourable, so that Cleveland villages may again be famous for Apricots. At Yarm a great number of small landowners are congregated. The town is situated in a low-lying, sheltered position by the Tees, and fruit trees and bushes are planted on every available space. At this season of the year the town seems smothered with fruit trees. The finest samples of hardy fruit I have seen in this country were grown at Yarm. Profitable fruit culture has gone from Yarm, as it has from over this district; but the well established fruit trees at Yarm most still bring considerable profit to the owners, far more than anything else that could be put into the ground.—CHARLES McDONALD.

**Ripley Castle, Leeds.**—Apricots in this district are a plentiful crop, especially where protection has been afforded. Peaches have also set well even without protection. Plums and Pears are almost a failure. The Victoria Plum is the only one that is bearing a crop. The best bearing Pears here are Louise Bonne of Jersey, Hacon's Incomparable, Williams' Bon Chrétien, and Winter Nelis. Apples are an abundant crop, both kitchen and dessert kinds. The most constant bearers are Lord Suffield, Hawthornden, Keswick Codlin, Orange Pippin, Beauty of Kent, Kerry Pippin, Green Walnut, and Improved Cockpit. Dessert Cherries are a poor crop; Morellos an average crop. Gooseberries and Black, Red, and White Currants are abundant. Raspberries are plentiful, and also Strawberries. Hazel Nuts are showing well for a crop.—J. STEEDMAN.

**Cantley Hall, Doncaster.**—Fruit crops in this district are on the whole good, especially Apples and Pears. Many Apples have dropped, but there will be plenty left. The soil is a light sandy loam on yellow sand and very poor. Apricots are a good crop on young trees, old ones very slight and losing many of their branches. Of dessert Cherries we have a very small crop; Morellos are a good crop, but suffering very much from black fly, as are also the sweet ones. Gooseberries are a good crop, also Black, White, and Red Currants. Peaches and Nectarines good, both in and out-of-doors. Victoria Plums are light, other sorts good. Raspberries are a heavy crop, and so are Strawberries. Filberts are good, but of Walnuts we have none.—JOHN MCCLELLAND.

**Studley Royal, Ripon.**—Of Apples we have a fair average amount. Early varieties are a heavy crop, late ones much thinner. The long-continued cold winds and frosts caused many fruits to drop. Of Pears we have an abundant crop; some of the trees are literally covered with fruit, especially the autumn varieties on walls. Bush trees on Quince stocks have



not done well for some years, and we are removing them and filling their places with Apples. Plums are only a partial crop; such varieties as Victoria and Jefferson on walls have a fair crop. Of Peaches we do not grow many out of doors, though the few trees we have are well covered with fruit. Under glass we have a heavy crop of good fruit. Apricots are thin this year, but they do well with us as a rule. Of Cherries, crops of Morello are good; sweet Cherries do not do well with us, and this year are a thin crop. Strawberries are plentiful and very fine, the dry weather not being felt much on our heavy soil. Gooseberries were much thinned by a hailstorm in spring, and Currants had most of the fruit cut off the strings by hail soon after they were set; they are, in consequence, a light crop. Raspberries are plentiful, and so are Nuts.

POTATOES, though late, are likely to be very good and free from disease. Early Potatoes were cut down by frost, and were not ready for use here till the second week in July.—JOHN CLARK.

**Mentmore, Bucks.**—Apples here are a good average crop; some varieties are fruiting much freer than others. Our best this year are Irish Peach, Mr. Gladstone, Oslin, Lamb Abbey Pearmain, Bess Pool, Yellow Ingestrie, Lane's Prince Albert, Keswick Codlin, Scarlet Nonpareil, Cockle Pippin, Lady Henniker, Stamford Pippin, Margaret, Cellini, Cox's Orange Pippin, Paradise Pippin, Galloway Pippin, Lemon Pippin, and Cox's Pomona. Pears are much below the average. The following are bearing moderate crops, viz., Winter Nelis, Clapp's Favourite, Bergamote d'Esperen, Doyenné de Merode, Beurré Giffard, Beurré Bachelier, &c. Small fruits of all kinds are grand crops and the bushes healthy and free from blight of any kind. Gooseberries are a good crop; Warrington is still the best sort for late use; Heason's Prolific is also good as a mid-season sweet red variety of healthy growth; a good large white variety is Breton. Filberts are the best crop we have had for many years. Walnuts are also a particularly heavy crop. Strawberries have suffered from the continued dry, hot weather which we have had. Our best to stand the drought is Duke of Edinburgh, Lucas, Elton Pine, and Sir Joseph Paxton; the last still maintains its position as a really first-class Strawberry. Our best Raspberry this season has been Baumforth's Seedling.—J. SMITH.

**Dunorlan, Tunbridge Wells.**—We are sadly troubled by late spring frosts, being on a south-east slope about 200 feet above the sea level; a lake of 6 acres lies about 300 yards towards the south, but it is nearly 100 feet below the gardens, and our drainage is good; consequently the atmosphere is dry in winter. It is, however, several years since we had a full crop of all kinds of fruit; two years ago we had good good crops of all but Apples. Last year there was an average crop of most kinds of Pears, particularly Marie Louise, Crassane, Pitmaston Duchess (a grand Pear), Beurré Diel, B. Clairgeau, Gratioli, Knight's Monarch, Comte de Lamy, Huyshe's Victoria, and Zephirin Grégoire. This season we have only a short crop; the best are Beurré Diel, B. Clairgeau, B. de Capiaumont, Beurré Hardy, Comte de Lamy, Doyenné d'Été, Gratioli, Knight's Monarch, Van de Weyer Bates, Williams' Bon Chrétien, and Zephirin Grégoire. Apples this year are almost a failure; they flowered well, but the frosts cut off the bloom. Apricots do not do well in this neighbourhood; the trees soon die; where they do best is on heavy soil. Cherries, with the exception of the Morello, do not do well here; the crop this season is below the average. Plums are a failure; in good seasons most of the ordinarily cultivated sorts do well; the Wyedale is a very desirable variety, which hangs on the trees much longer than any others; Damsons do not do well here. It is eleven years since we had a good crop of Peaches and Nectarines on the open wall, although we covered them every spring while in bloom and for some time afterwards. The wood was not properly ripened in the autumn; the aspect is south-west; we have now covered nearly all the wall with glass. I may remark that we do not see Lord Napier Nectarine as often as we ought to do; it is the earliest I know and certainly the best for quality, size, and productiveness. I have gathered this season from one tree between June 20 and July 10 more

than twenty-three dozen. As an exhibition variety no other can compete with it. Nuts are a heavy crop, and the clusters the largest I ever saw. Strawberries are a heavy crop. How very much the sorts vary in different localities! British Queen and all the Pines are a failure here. I have tried about thirty sorts, but have reduced them to about seven. I consider Vicomtesse Héricart de Thury, Sir J. Paxton, Sir C. Napier, and Loxford Hall Seedling (a grand late variety) to be the best for our garden. Small fruits always do well with us; we have good crops this season. Raspberries are a good crop; everyone ought to grow Baumforth Seedling; I consider it the best of all for earliness, size, quality, and productiveness.—D. WALKER.

**Bearwood, Wokingham.**—All kinds of fruits hereabouts are fairly good. Most kinds of Apples are good; Pears also are excellent on walls, all kinds are very fine. Plums on standards are thin, but I never had them so good on walls. Peaches and Nectarines are very thin here. The severe weather in the early part of May injured the bloom. Apricots are a good average crop; Cherries the same; Raspberries good; Gooseberries and Currants thin in places; Strawberries the same; Nuts are a heavy crop. Having of rainfall an under average throughout the winter, we are beginning to suffer from drought.

THE POTATO CROP promises well. Early kinds have been very good. We found some little disease last month, but the dry weather seems to have stamped it out.—JAMES TEGG.

**The Bungalow, Horsham.**—Fruit prospects in this neighbourhood, considering the very unfavourable weather we had in May, are as satisfactory on the whole as could be expected, as, with few exceptions, the crops are a good average. Strawberries are above an average crop. Raspberries a very heavy crop. Black Currants are almost a failure; Red and White under the average. Gooseberries, with a few exceptions, are a very heavy crop. Plums and Damsons are much below the average. Dessert Cherries are good crops. Of Morellos we had a good set, but they dropped off in the stoning process. Peaches, Nectarines, and Apricots are not much grown in this locality in the open. The season for ripening the wood of late years has been too short. Pears are above the average in some districts. Apples are also above the average, and very good. Nuts are a large crop. All fruits do well here with the exception of those mentioned. All fruit trees would be greatly benefited by a good downpour of rain, as they are suffering very much from all kinds of insect pests, doubtless the result of drought.—T. WORSFOLD.

**Cobham Park, Surrey.**—Apples are a very heavy crop here. The sorts which we grow are Lord Suffolk, Keswick Codlin, Dumelow's Seedling, Cox's Orange Pippin, Alexander, French Crab, Cockle Pippin, King Pippin, and Wellington. Even some old cankered Ribston Pippins are bearing a full crop. Blenheim Orange, which is one of the best either for table or baking, is producing a very thin crop. Pears on east aspect walls, consisting of Dunmore, Glou Moreceau, Winter Nelis, Marie Louise, and Knight's Monarch, are all bearing full crops; Jargonelle, Williams' Bon Chrétien, and Louise Bonne of Jersey are a failure. On a west aspect we have Uvedale's St. Germain, Crassane, and Van Mons Léon Leclerc in grand condition; Brockworth, Beurré Superfin, and Pitmaston Duchess on the same aspect are failures. Pears on standards in the orchard are very thin; all the early sorts were a mass of bloom, but it was killed by sharp frosts. Of Peaches and Nectarines on open walls we have hardly any, although protected with woollen netting. The fruit set well, but when about the size of large Peas dropped off. We have plenty of Plums on walls, such as Coe's Golden Drop, Jefferson's Green Gage, Autumn Gage, and Orleans. Orchard Plums and Damsons are thin. Cherries on north and east walls, consisting of Morello, Elton, and Bigarreau Napoleon, are good crops. Dutch Medlars and Quince are set well. Of Nuts, Cobs, and Filberts there are abundant crops, and plenty of small fruit, such as Gooseberries, Currants, and Raspberries. Strawberries have been plentiful, but the season has been short through want of rain.

POTATOES.—We are now lifting the Ashleaf Kidney for seed; they are quite ripe, but rather small. Late Potatoes are looking very strong and vigorous, and promise to be a good crop.—T. H. BOWLER.

**Whitton, Middlesex.**—The fruit crop in this district is likely to prove the heaviest we have had since 1875, and although the dry weather has caused a great many of some sorts to drop, yet there is abundance left. The leading sorts of Apples grown here are Early Julien, Manks Codlin, Keswick Codlin, and King of the Pippins. Indeed, it would be difficult to say which of the four is the most productive. Ingestrie is also grown in many gardens and is a great favourite, although it does not crop so heavily or come so clean as it does on light warm land. All cooking Apples do much better here than table Apples, yet the old Ribston Pippin does fairly well. Blenheim Orange, Wellington, and Cox's Orange Pippin crop only occasionally. The most productive in this garden are a few seedlings bearing large cooking Apples. Of Plums, Victoria, Gisborne, Chapman's Prince of Wales, and Pond's Seedling are the four sorts mostly grown. The former bears off the palm for cropping. Early Orleans and the Gages have cropped so light for years, that few growers think of planting them; a variety known as Dovebank has been very productive and remunerative. It has a peculiarity of cropping heavily when other Plums are light. It is one of those that ought to be gathered before it is quite ripe, as it is apt to crack in wet weather. Amongst Pears, Hesse comes first as regards quantity grown, a sure proof that it is the most productive. Williams' Bon Chrétien, Calebasse, Beurré de Capiaumont, and Duck's Egg are also largely grown and are fair average croppers. Marie Louise and Jargonelle seem to have lost all idea of showing us what their fruit is like. Strawberries, Gooseberries, and Raspberries are an abundant crop; Red and White Currants about the average; Black Currants rather light.—J. WALKER.

**Bedfont, Hounslow.**—Throughout this part of Middlesex, in spite of the great spring promise, it is certain that, with the exception of Plums, there is no special cause for exultation over fruit crops. Apples are a fair crop, but far from being a heavy one. The long drought following upon a comparatively dry winter has told upon the roots of all trees, and Apples are suffering with the rest; hence fruits have fallen very much or are small. A thorough soaking may benefit late kinds and Pears, too, of which fruit there is also a fair crop, but chiefly of common hardy kinds, such as Hesse, Williams' Bon Chrétien, Swan's Egg, and Beurré de Capiaumont. On finer kinds the crop is thin. Plums are heavy, Victorias, Prince of Wales, and Gisborne's having to be supported. Rain is much needed to cleanse the trees and swell the fruit. Cherries of all kinds have been but a moderate crop, even the usually prolific Morello having this year suffered unusually from spring frosts when in bloom. Strawberries were very good at first, though much of the early bloom was injured. The season, however, for want of rain was a comparatively short one. Raspberries are a fine crop on holding soils, but where drought prevails are giving out. A good rainfall may greatly help the late fruit. Bush fruits have been very plentiful generally, though thin in places. Black Currants are thin on the bunches, but berries are good. Growers are pretty well satisfied with the season's crops, but look anxiously for rain that they may be fully matured.—A. D.

**High Grove, Pinner.**—Fruit crops in this neighbourhood vary very much, owing to the sharp frosts which we had in May having in some instances done much injury. Apples and Pears are good crops; Plums partial; Apricots scarce, not many grown in this neighbourhood; Cherries good; Raspberries and Red Currants also good; Black Currants below the average; Gooseberries a poor crop, having been thinned by frost; Peaches and Nectarines fair crops; Nuts plentiful; Walnuts cut off in many places by late frosts. Soil about 18 inches deep, consisting of turfy loam; subsoil, London clay. Strawberries promised to be an excellent crop, but the hot weather by day and cold at night greatly reduced it. We are sadly in want of rain. Aphides are commencing to injure everything both inside and out, and we find it a great deal of trouble to keep them in check.



POTATOES look promising; no signs of disease at present, but the tubers are very small, owing to the dry season which we have had.—G. BRUSH.

**Aldermaston Court, Reading.**—Notwithstanding several sharp spring frosts, which threatened to commit great havoc among fruit trees, there is every likelihood of realising a fine crop of most kinds this season. Small fruits are abundant. We have just secured the finest lot of Strawberries I ever remember gathering, and in flavour all that could be desired. They consist mostly of Sir Charles Napier and Sir Joseph Paxton, both excellent sorts. Currants are also plentiful, but red ones are more blighted than I have known them for many years. Especially is this the case on the hottest side of the garden; in more cooler parts they are almost free from blight. Gooseberries are abundant and fine. Raspberries were showing well, but now on our comparatively light soil, resting as it does on a gravelly sub-soil, they are suffering much from want of rain. Apricots are a full average crop and the trees are looking well. Moor Park, Blenheim, and St. Ambrose especially are bearing fine crops. Most kinds of Plums are bearing heavy crops. In some situations the trees are rather blighted. The following sorts are looking well, viz., Early Favourite, Golden Drop, Orleans, Green Gage, Pond's Seedling, and Washington. Pears, speaking generally, are good, although standards in exposed situations suffered considerably from spring frosts. The following kinds are bearing well, viz., Louise Bonne of Jersey, Passe Colmar, Citron des Carmes, Thompson's, Marie Louise, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Diel, Beurré Bachelier, and Bishop's Thumb. Others might be mentioned, but these are good reliable sorts that generally bear well. Apples, too, are a good general average crop. The following dessert kinds are well suited to this county, viz., Cox's Orange Pippin, King of the Pippins, Ribston Pippin, Pitmaston Russet, Lemon Pippin, and Blenheim Orange. A few good culinary sorts might also here be mentioned, such as Alfriston, Cox's Pomona, Keswick Codlin, Stirling Castle, and Wellington. Cherries, especially White Hearts, are very good, but Early Duke and Morellos are not so satisfactory, being very blighted. We have immense crops of Walnuts and Filberts; the latter especially are quite wonderful. I do not think I have ever seen such crops. Figs are also bearing well this season, which they have not done for some years past. —ALEXANDER GALT.

**Petworth, Sussex.**—Apples here are abundant, but they do not promise to be good, and the trees are much blighted. Kinds that do well are Cox's Orange Pippin and Pomona, King of the Pippins, Wellington, Scarlet Nonpareil, Lord Suffield, Dutch Mignonne, Cellini, Rymer, Warner's King, Echlinville Seedling, and Blenheim Orange. Many other sorts also succeed well here. Pears are very abundant, and promise to be the best crop we have had for these past ten years. Kinds that do well here are Bon Chrétien, Pitmaston Duchess, Durandau, Marie Louise, Jargonelle, Souvenir du Congrès, Winter Nelis, Passe Crassane, Fondante d'Automne, Beurré d'Amanlis, Beurré Rance, and Madame Treyve. Many other sorts also do well in gardens here. Plums are plentiful here and in some other gardens, but thin in many places. I have had to thin nearly all my trees. Our best sorts are Victoria, Green Gage, Kirke's, Jefferson's, Cox's Emperor, Prince Englebert, Pond's Seedling, Transparent Gage, and Red Magnum Bonum. Damsons promise to be a good crop. Peaches and Nectarines look well under glass copings; on open walls have suffered from aphides and curl. Apricots promise to be good, but the trees in general lose many of their branches yearly. Very few good sound Apricot trees are to be met with hereabouts. Cherries are a very abundant crop; the black fly has attacked many of the trees and spoiled a quantity of fruit, but still there is plenty of good Cherries in places. Our best sorts are May Duke, Late Duke, Black Bigarreau, Knight's Black, Elton, Duke Bigarreau, Napoleon Bigarreau, and Governor Wood. Strawberries have been very good and finely flavoured. We have had to water freely, or the crop would have been a short one. Our best sorts are Garibaldi, President, Sir Joseph Paxton, Sir Charles Napier, Loxford Hall,

Frogmore Late Pine, and Elton. Nuts are plentiful—the best crop I have seen for these past ten years. Gooseberries are very fine and plentiful. Currants of all sorts are heavy crops, but dirty and poor in most places. Raspberries are very firm and plentiful.—GEORGE M. BREESE.

**Harefield Grove, Uxbridge.**—Our plantations of fruit trees are young. They consist of 1000 standard, 5000 pyramid, and 300 espalier Apples, Pears, and Plums, and 500 bush and 500 standard Damsons, and 5000 bush Filberts, 50,000 bush fruit, a good breadth of Strawberries and Raspberries. Of Apples, the standards, planted three years ago, carry a heavy crop of good fruit of nearly all kinds; of pyramids and bushes, nearly all kinds are a failure. Full crops remain of Worcester Pearmain, Lane's Prince Albert, Dumelow's Seedling, and Lord Suffield. A few trees of Cornish Gillyflower carry grand crops; also Irish Peach. Echlinville have dropped nearly all their fruit, and now they have made by far the best trees of any kind. Maltster is especially good on standards, also Orange Pippin. Keswick Codlins are full of fruit. Bush, pyramid, and standard Pears are a failure, except Louise Bonne of Jersey. We have full crops of these on every tree. Plums are a total failure, and of Damsons we have but very few, except on young trees planted about February. Nuts and Filberts are very heavy crops. Gooseberries and Black, White, and Red Currants are poor crops, being nearly all killed on May 10 and 18, when so severe was the frost here that nearly all one house of young Vines, planted in March and just started, was killed; no fire-heat could be used, as the pipes were not connected. Strawberries and Raspberries with us are heavy crops. Can anyone furnish any information respecting large Blackberries? I have planted 1000, but it was late. I may mention that about 5000 Gooseberries and Currants, both in and laid in till February, have borne very heavy crops of fine fruit. Apricots, what few trees we have, are heavily laden with fine fruit. Peaches and Nectarines outside we have none.

POTATOES are being sadly affected by the dry weather, otherwise they are good, and no disease is as yet visible.—J. GOUGH.

**Holly Lodge, Highgate.**—Apples are abundant. Although the foliage is suffering from red spider and some of the fruits are falling, there seems a chance of a full crop, as many of the trees are too thick, and the thinning will be advantageous; the sorts most relied on are Keswick Codlin and Hawthornden for early use; Beauty of Kent for the main crop; and Wellingtons and Northern Greenings for late use. Pears a heavy crop in the case of some trees; but of late years they have not been so good in quality, and their keeping quality seems impaired owing chiefly, I think, to our proximity to the London atmosphere. On the whole Apples do much better than Pears. Soil strong clay. Gooseberries are a heavy crop. Currants thin. Raspberries abundant and good, also Strawberries. Plums and Damsons are average crops. Peaches, Nectarines, and Cherries on walls are rather above the average. With us the foliage of the stone fruits suffered in spring from cold followed by insects, and I notice that much of the fruit in this neighbourhood is looking somewhat unkindly and not likely to swell up to a good finish.—J. WILLARD.

**Strathfieldsaye, Winchfield.**—Fruit crops in this garden and neighbourhood look well; there are, however, exceptions, as in the case of Plums and Cherries, both having suffered from late frosts. Apples abound everywhere, although now dropping more freely than usual. For such a season as this all varieties bear freely, but I find Keswick Codlin, Cellini, King of the Pippins, Northern Greening, Deux Ans, Court Pendu Plat, and Duchess of Oldenburg the most to be relied upon in all seasons. Pears are fairly plentiful, Marie Louise, Beurré Hardy, Knight's Monarch, Duchesse d'Angoulême, Fondante d'Automne, and Chaumontel do best on our stiff clay. Peaches are an abundant crop, though exposed to 14° of frost when in full bloom, with only a covering of light canvas; Dr. Hogg and Royal George are still among the very best. Apricots are a fair crop where protected. Strawberries are a grand

crop, but will only have a short season unless we have rain very soon. Gooseberries are thin from the effects of sharp frosts when in flower. Currants have suffered from the same cause. Raspberries are plentiful. Filberts and Walnuts we do not grow.—J. BELL.

**Park Place, Henley-on-Thames.**—Apples are a moderate crop, although they promised well; Pears good on walls, especially on cordons, on standards variable; Plums good on walls; Peaches and Nectarines good, but much subject to blister; Apricots good; Cherries plentiful; bush fruits of all kinds abundant; Strawberries good, but suffered much from drought; Nuts and Walnuts good.—GEORGE STANTON.

**Tring Park, Tring.**—This is not a very good fruit neighbourhood and our own garden trees are mostly all young. Our soil is not very suitable for Apples and Pears, though we have a good number of them. We find amongst Apples that Keswick Codlin, Lord Suffield, Blenheim Orange, King of the Pippins, Winter Pearmain, Cox's Orange Pippin, and Worcester Pearmain are the most reliable. Beurré Diel is the best amongst Pears, and for the last seven seasons on a south wall has had fair crops; other kinds are bearing this year for the first time, and of these I cannot yet say much. Plums on walls we have but few; the late frosts destroyed the bloom. Of Morello Cherries we have a good lot. They do well here; other kinds have not yet had a fair trial. Walnuts very good. Bush fruits all do well and bear good crops, especially Gooseberries, which are over-abundant. As to Strawberries, we find on our light soil that President, Keen's Seedling, Vicomtesse Héricart de Thury, Lucas, and Sir Joseph Paxton all do well; British Queen, La Grosse Sucrée, and many others we have tried do not succeed with us. I may add that of Apricots, Peaches, and Nectarines we have none.—E. HILL.

**Wierton, Maidstone.**—In the gardens here Apricots, Peaches, Nectarines, and Figs are a full and heavy crop, requiring much thinning. Hardy Grapes promise to be a fine crop. Plums are very thin in general. Cherries the same. Pears are not a full crop; certain kinds, however, such as Jargonelle, Marie Louise, Seckle, Broom Park, Knight's Monarch, Emile d'Heyst, &c., have required thinning. Black Currants are light, Red and White a full crop. Most kinds of Gooseberries are a heavy crop, especially all the Lancashire varieties; these are fine sorts for marketing in a green state. Raspberries are a full crop, but want rain. Strawberries of all kinds the same. Of Apples some sorts are very light, others heavily laden; not a full crop; Cellini and Cheshunt Pippins want much thinning. Orchards and plantations in this neighbourhood are very uneven in amount of crop. Nuts are a full heavy crop generally. Cherries thin and small. Gooseberries a heavy crop. Red Currants a full crop; Black very poor, some pieces not worth picking. Apples are light, the best being Summer Pippin, King of Pippins, Keswick, Graham's Russet, Stone's or Loddington, and a few others; while some kinds are bare and the foliage is unhealthy. Plums are not a full crop, but some kinds are heavily laden, these being Royal Dauphin, Bush Plum, Prince of Wales, Diamond, La Delicieuse, and Cluster Damson. Although we have not full crops of all kinds, still a great quantity of fruit will be sent to market this season.—W. DIVERS.

**Wythenshawe, Cheshire.**—Owing to the unusually dry and warm weather which we experienced during last summer and autumn, nearly all kinds of fruit trees were particularly well set with flower buds; on several trees which had been transplanted or root-pruned, last year's wood not only produced terminal flower-buds, but also several lower down the shoot—a rather uncommon occurrence. In this neighbourhood, we had a very cold, late spring, vegetation having made very little progress from the middle of February to April 17, when we had the first really fine warm day of the season, the thermometer registering 70° in the shade. There is an old Cheshire saying that a late spring is always a sure one, which I am sorry to report has not been verified this year. Fruit trees never looked more promising



nor were the prospects of a heavy crop of fruit ever better than they were this year up to May 7, when when we had 5° of frost followed by snow showers, thunder, and lightning, which destroyed a large quantity of Pear and Plum bloom then fully expanded, but owing to the flowers being dry there was not so much damage done as on May 14, when we again had 5° of frost, and the flowers and atmosphere were saturated with rain, the result of which was most disastrous to nearly all sorts of fruit trees. Plums are a complete failure, which is frequently the case in this neighbourhood; it is five years since we had a crop of this fruit. Red and Black Currants are a thin crop, about three-fourths of the bloom having been destroyed by frost; the fruit which is now ripening has grown to an immense size. Of the two varieties of Black Currants which we grow, viz., Lee's Prolific and Black Naples, the former suffered much less injury than the latter, and as it is also a better cropping variety and bears larger fruit, we intend to discard Black Naples. Gooseberries are a light crop, more than one-half having been destroyed. We grow Crown Bob, Warrington Red, and Red Champagne for our main supply; we also grow a number of Lancashire prize varieties, but all have suffered alike. Dessert Cherries, consisting of May Duke and Bigarreau on a south wall, are a good crop; Morellos on a north aspect and on east walls and also on standard trees are a very thin crop. Apricots, Peaches, and Nectarines we have ceased to grow out-of-doors, owing to the uncertainty of obtaining a crop even when protected in spring with thick shading.—W. NEILD.

**Ramsey Abbey, Hunts.**—Apricots, Peaches, and Nectarines are fair average crops. As regards the Apricot, the Moor Park, notwithstanding its greater tendency to lose its branches than some other kinds, is by far the best and most profitable variety. Plums, with the exception of the Victoria and Goliath and some young trees of the Prune Damson, are thin. The Green Gage on north walls is prolific, but as a standard it does not succeed in this district. A few good Peaches are Dymond, Crawford's Early, Alexandra Noblesse, Barrington, Golden Eagle, and Princess of Wales. Nectarines, Lord Napier, Pine-apple, Pitmaston Orange, Victoria, and Violette Hâtive. Apples are a very good crop, almost too heavy in many instances; but the present drought is causing the small ones to fall, and the thinning will do no harm. All the Codlins bear well here; also Alfriston, Beauty of Kent, Wellington, Hawthornden, Irish Peach, Kentish Fillbasket, Lord Suffield, Norfolk Beaufin, Cox's Orange Pippin, Fearn's Pippin, King of the Pippins, Red Quarrenden, Waltham Abbey Seedling, Northern Greening, and Adam's Pearmain. For the most part Pears are a good crop. I know a tree of the old Lammas Pear on which the crop is estimated at thirty bushels, and I think it is the handsomest Pear tree I ever saw, and of immense size; but the fruit is not valuable unless used immediately. In the present case the fruit will be sold. Pears do not succeed well on the Quince here in a general way, the land is too dry. The Pear stock succeeds best. Figs and Grapes are very abundant, and the bright sunny weather is just suiting them. Bush fruits and Raspberries are very full crops. Gooseberries especially are in excess of requirements. Strawberries have also been successful, especially where water could be given. Cherries have been a good crop, and Nuts look promising. Taken all round, the fruit crops are above an average.—E. HOBDAV.

**Clarendon Park, South Wilts.**—Fruit crops in this district on the whole must be considered fairly good, although some kinds are somewhat under the average. Apples, especially trees which bore light crops last year, give promise of abundant crops. Amongst kinds looking extra well may be mentioned Lord Suffield, New Hawthornden, Dutch Codlin, Cox's Pippin, Ribston Pippin, and Blenheim Orange, although many others might be enumerated. Pears, too, must be considered a good average crop on walls and espalier trees, and among these may be mentioned Marie Louise d'Uccle, Marie Louise, Williams' Bon Chrétien, Beurré de Capiaumont, Knight's Monarch, Winter Nelis, Ne Plus Meuris, Glou Moreceau, and others. Apricots are very thin where

not protected, as are also Peaches and Nectarines, but some of the kinds of Plums on walls are a heavy crop, especially such varieties as Orleans and Victorias. There is also a fair sprinkling of Green Gages and of Golden Drop. Some kinds of Plums on standard trees are also bearing good crops, but, judging from present appearances, they do not promise to finish well, as the trees are sadly afflicted with aphides owing to the lack of cleansing rains. Cherries may also be reckoned a good crop, and have done fairly well where blight has not affected them too much. Some standard trees I saw the other day at the Palace Gardens, Salisbury, were quite pictures. Morello Cherries on walls have suffered lately through drought, and the crop will not be so good as was anticipated a short time back, although there will be an average crop. Gooseberries with us are under the average, a circumstance which I attribute in a great measure to the heavy crops which the bushes were allowed to carry last year and the dry weather during that time, and, secondly, through the sparrows attacking the young buds in spring, and not from ungenial weather. Black Currants are very abundant, and Red and White ones about an average crop; but Strawberries are decidedly under the average, in the first place through frosty nights blackening and rendering the first blooms abortive, and subsequently the dry weather preventing the fruit from swelling to its full size. Raspberries promise to be an abundant crop, but must necessarily be small where not artificially watered. Walnuts will be a more abundant crop here than we have had for several years, a remark which also applies to Filberts, but Cobs are almost a failure.

POTATOES are good, but small, and are fast ripening.—C. WARDEN.

**Combe Abbey, Coventry.**—Apricots are rather more than an average crop for this neighbourhood. A Cherry orchard at Brandon, 2½ miles from here, is bearing a good average crop. Our Apples, with the exception of Lord Suffield and Cellini, may be said to be a failure, and in neighbouring farmers' orchards they are singularly partial. The soil here is strong, being on the red clay formation. In Coventry Park Gardens, however, the Apple crop is a full average. The soil there is light and sandy, lying directly on the new red sandstone system. Varieties which are most plentiful are Early Margaret, Devonshire Quarrenden, and Blenheim Orange. The least successful variety is Normanton Wonder, known about London as the Wellington. In Coventry Park Pears are also a good average crop; of these, the varieties most plentiful are Beurré de Capiaumont, Williams' Bon Chrétien, and Louise Bonne of Jersey. The French tender varieties are not sufficiently acclimatised to stand the spring frosts of the midland counties. Plums in the park just named are also a fine crop. The Victoria might, perhaps, be mentioned as the most successful variety. Damsons are very partial. Trees in some gardens are full, whilst those in the adjoining garden are bare. All kinds of Nuts are a good crop. Small fruits are a good average. Gooseberries are realising 6s. 6d. a cwt. The Coventry Park Gardens are very extensive. They are divided by hedgerows and paths into plots of one-eighth of an acre. They are well cared for and very much valued by the inhabitants of Coventry. Returning to my own neighbourhood, I cannot say that standard Pears are other than a complete failure; whilst on walls they are a good average crop and swelling most satisfactorily. The most successful varieties with me are Marie Louise, Williams' Bon Chrétien, Louise Bonne of Jersey, Dunmore, Beurré Clairgeau, B Langelier, Brown Beurré, Beurré Diel, Glou Moreceau, and Thompson's. Two or three years ago I cut out every other horizontal branch of a good many of our Pear trees, and laid in young shoots, something after the Seymour method of Peach training, with this difference, that the Seymour shoot, after bearing its fruit, is cut away, its place being taken by a young shoot from the base; whereas the corresponding shoots of the Pear are not cut away, but left to form fruit-buds, and in the case of some of my varieties they are this year covered with fruit all over the surface of the tree, while on the old principle they were produced only at the extreme ends of the horizontal branches. Gooseberries are plentiful and without caterpillar, so far as my obser-

vations have gone. Strawberries are also good, but now suffering from the effects of hot weather. Black and Red Currants are a good deal blighted.—W. MILLER.

**Longleat, Warminster.**—Fruit crops in this neighbourhood are generally good. Apples are better than they have been for many years; varieties that succeed well about here are Hanwell Souring, most prolific; Golden Noble, one of the best for cooking; Kerry Pippin, Court Pendu Plat, Lemon Pippin, King of the Pippins, Cox's Orange, Blenheim, Waltham Abbey Seedling, Mère de Ménage, Brabant Bellefleur, Irish Peach, Keswick Codlin, Early Margaret, Northern Greening, Dumelow's Seedling, and the old Cat's-head. Kinds that do not succeed well here are Ribston Pippin, Cellini, Fearn's Pippin, Court of Wick, Tower of Glamis, Gravenstein, Bess Pool, Margil, Franklin's Golden Pippin, Summer Golden Pearmain, Barcelona Pearmain, and Newton Pippin. Pears are a good crop on walls; on standard trees there is a fair sprinkling; varieties that succeed well here are Jargonelle, Doyenné d'Été, William's Bon Chrétien, Beurré d'Amanlis, Marie Louise, Louise Bonne of Jersey, Van Mons Léon Leclerc, Duchesse d'Angoulême, Glou Moreceau, Jersey Gratioli, Fondante d'Automne, Ne Plus Meuris, Thompson's, Winter Nelis, Comte de Lamy, and Knight's Monarch. In order to get the last fit for table I place it in boxes and then put it in a little heat for a fortnight or so; there it becomes first-rate. Pears that do not succeed here are Bishop's Thumb, Napoleon, Colmar, General Todleben, Doyenné du Comice, Bellissime d'Hiver, Josephine de Malines, Forelle, Duchesse de Mars, Crassane, Suffolk Thorn, Eyewood, &c. Plums are quite a failure, owing to the sparrows and bullfinches stripping off the buds. Apricots do not thrive here. Small fruits of all sorts are very plentiful, only smaller than usual on account of the dry weather.

POTATOES around here all look well, and as yet show no signs of disease.—W. PRATT.

**Rangemore Gardens, Burton-on-Trent.**—Apples are generally a fair average crop. Our best sorts for constant cropping and fair quality are as follows: Lord Suffield, Baron Ward, Red Hawthornden, Warner's King, Kedleston Pippin, Keswick Codlin, Northern Beaufin, Northern Greening, and Ribston Pippin. The fine dessert sorts we cannot grow with any flavour on the cold clay here. Lying high, we do not suffer so much from frosts as from the S.W. winds, which are our worst enemy. They have a clear sweep of from ten to twenty miles. Amongst Pears, Williams' Bon Chrétien, Gansel's Bergamot, Jargonelle, Marie Louise, and Beurré Diel do fairly well—the latter for stewing. The finer late kinds we cannot grow fit to eat. Plums are scarcely an average crop. Victoria, Jefferson, and Golden Drop are our best croppers. Damsons are a fair crop. Peaches and Nectarines are not grown in this neighbourhood. Apricots are a fair crop, but this is not an Apricot locality. Here and there against a cottage a tree looks respectable, and does well for a year or two, and then cankers away. Cherries are a good average; in fact, the fruit is both fine and plentiful, especially the Morello. Strawberries are a good crop, but the fruit is small, owing to the dry weather. President is our mainstay; Vicomtesse Héricart de Thury we have used for early work, but there was such mortality among them after potting last year we lost 50 per cent. Nuts are quite an average crop. Gooseberries and Currants are fair crops. Raspberries good.

POTATOES.—We have just commenced lifting early sorts; no disease, nice clean tubers, but small.—W. BENNETT.

**Crewe Hall, Cheshire.**—The show of blossoms on all kinds of fruit trees this season was very fine, and as all growth was from a week to a fortnight later than usual, there seemed to be every prospect of most abundant crops. This was, however, but partially realised, as at the time when Plums, Cherries, Gooseberries, and Currants were in flower, or the young fruit formed, there came a few frosty nights with cold winds and bright days, which had the effect of leaving a very light crop of these fruits except where they were specially protected. Apples and Pears are good crops generally and



above the average. Peaches, Nectarines, and Apricots are good crops, with a few exceptions. Plums, Damsons, Cherries, Gooseberries, and Black Currants are a thin crop generally; Red and White Currants moderate; and Strawberries and Raspberries very abundant. Of Apples the varieties bearing best are Keswick, Lord Suffield, Hawthornden, Irish Peach, Cathed Minchal Crab, Cellini, Worcester Pearmain, Stone's, Wellington, Pott's Seedling, Echlinville, Mère de Ménage, Red Margaret, and Cox's Orange Pippin. The sorts not bearing well are Oslin, Alexander, Ribston, Blenheim, Lewis's Incomparable, Hoary Morning, and Warner's King of Pears. The best bearing are Jargonelle, Citron des Carmes, Red Doyenné, Beurré d'Amanlis, Autumn Colmar, Louise Bonne, Marie Louise, Empereur de Français, Beurré Diel, Beurré d'Arenberg, Easter Beurré, and Marie Louise d'Uccle. Of those not bearing well are the following: Van Mons, Williams' Bon Chrétien, Forelle, Beurré Berckmans, and Baronne de Mello. Amongst Peaches and Nectarines the best bearing are Bellegarde, Barrington, Early Alexandra, Dymond, Osprey, Dr. Hogg, Walburton Admirable, and Grosse Mignonne; and amongst Nectarines, Rivers' Orange, Lord Napier, Impératrice, Elruge, Victoria, and Violette Hâtive. Prince of Wales and Humboldt Nectarines and Stirling Castle Peach do not bear here well. The above refers only to those grown outside this season. Of Apricots, Moorpark, Hemskirk, and large Early are our best. Of Plums, Victoria and Kirke's are bearing well, and of Strawberries President, Sir J. Paxton, James Veitch, and Hélène Gloede.—W. WHITAKER.

**Monstrous Foxgloves.**—A curious instance of hybridisation by bees was observable last month in a neighbour's garden, in which a number of bee-hives stand. Foxgloves and Canterbury Bells were grown in this garden last summer; and this year a number of self-sown plants of Foxglove had their flower-spikes crowned with a perfect Canterbury Bell-shaped flower—some white, some pink. These bells at the top expanded and withered before the Foxglove bells forming the lower part of the spike expanded. The leaves and whole appearance of the plant were those of the Foxglove, only the top bell was exactly the same as a Canterbury Bell.—WEST HIGHLANDS.

\* \* This is no case of hybridism, but a sport to which the Foxglove is very liable, and of which examples are plentiful this year.—ED.

**Preserving Tomatoes.**—In a letter recently received from one of my sons in South Australia, he says: "I have been amusing myself by making some Tomato sauce. Tomatoes grow splendidly in my garden, and inasmuch as my sauce has been a great success, I will give you the recipe, which is as follows: I put 18lbs. into a pan and boiled them for an hour and a half until they got into a good pulp (no water, mind). I then strained them through muslin, and added 1½ pints of vinegar, ¼ lb. salt, 1 oz. white pepper, 1 oz. allspice, 1 oz. cloves, 1 oz. mace, 4 oz. garlic, ¼ oz. cayenne pepper; then I boiled again for another hour and a half, and again strained through muslin and bottled. The produce thus obtained filled five wine bottles. Total cost at the outside 2s. 3d. Some people like to put in a few Apples, in which case sugar must be added, but I prefer the sauce without the Apples."—T. B. PURNELL, Exeter.

**White Elephant Onion.**—This is, in my opinion, one of the best of Onions for an early crop. Last August we sowed it side by side with Giant Rocca and Giant Madeira. The two latter have bolted partially, while White Elephant, with its thin neck, has bulbed out to 15 inches in circumference, and not one runner can be found amongst them. Most certainly Mr. Gilbert has not over-stated its high qualities.—J. OLDFIELD, Chirk Castle, North Wales.

**Diseased Peach leaves.**—Like Mr. Woodfield (p. 109), a good many, I think, will find that the mutilated condition of their Peach leaves is the result of fumigating. Some time ago I had occasion to

fumigate for black fly; about two weeks afterwards I was puzzled to account for the crumbling away of the leaves, as already described. At first I put it down to the work of an insect. I had the leaves carefully examined, but no trace of any insect could be found. Later on I fumigated another house, and in three or four days the same symptoms appeared, and this time sooner, owing to the bright sunshine which we had the morning after fumigating. Some varieties seem to be more easily affected than others, Dr. Hogg and Noblesse being the worst here, while in the same house Barrington, Desse Tardive, and others evidently were none the worse. Fumigation will be practised lightly by me in future.—W. P.

**Vitality of Tobacco seed.**—Some twenty years ago Tobacco was cultivated in the garden here for fumigating; since then none has been grown, but, strange to say, every summer a few plants come up here and there, though to my own knowledge no seed has been sown for the last eighteen years; therefore the seeds which produce the plants in question must have remained in the ground during the time just stated.—J. C. C.

## BOOKS.

### GREENHOUSE AND STOVE PLANTS.\*

THIS book, by one who may be, perhaps, described as one of the very best cultivators of pot plants of our time, is now ready. It is full of information clearly given, and is a thoroughly useful handbook, which enquirers as to indoor plants of all kinds may trust. The arrangement is alphabetical. The work deals with the propagation as well as with the culture of plants, and this is a point that has been neglected in many similar books. Mr. Baines is well known as a thoroughly good gardener, and when he cultivated stove and greenhouse plants won the best prizes at our leading shows. It is often said that good cultivators are seldom good writers, but Mr. Baines is one of many exceptions, as he has the ability to write, and, more effectually than any other gardener, has shown the way to good culture. It contains over 360 pages, well printed on good paper, and the price, 8s. 6d., is reasonable, considering the amount of information afforded to the reader. There is a thorough index, so that anything in the mass of information given may be found without loss of time. It must be the standard book on the subject for many years to come.

## OBITUARY.

### THE REV. H. T. ELLACOMBE.

WE have to record the death of the Rev. Henry Thomas Ellacombe, rector of Clyst St. George, near Topsham, Devon, which occurred on the 30th ult. The deceased, who was 95 years of age, graduated at Oriel College, Oxford, taking his bachelor's degree in 1812, and proceeding M.A. in due course. He was ordained deacon in 1816 by the Bishop of Exeter, Dr. Pelham, and was admitted to priest's orders in the following year by the Bishop of Gloucester, Dr. Monk. Having held for a few years successively the curacies of Cricklade and Bitton, he was appointed in 1835 to the vicarage of the latter parish, which he held till 1850. He afterwards held the rectory of Clyst St. George. Mr. Ellacombe was the author of several privately-printed works on church bells and other historical works, including "The Bells of Devonshire," "Practical Remarks on Belfries and Ringers," "The Bells of Exeter Cathedral," "The Bells of Somerset," "The History of Clyst St. George," and "History of the Manor of Bitton." We published a portrait of Mr. Ellacombe in THE GARDEN (Vol. XXIII.), and gave there a notice of his life. He was, till quite recently, a correspondent of THE GARDEN, and some years ago we published lists of the shrubs and hardy flowers growing in his garden at Bitton over fifty years ago. He was the patriarch of the "hardy" gardening fraternity of

\* "Greenhouse and Stove Plants, Flowering and Fine-leaved, Palms, Ferns, and Lycopodiums." By Thomas Baines. London: John Murray, Albemarle-street.

recent years, and used playfully to sign himself the "old gardener." We need scarcely add that the collection which he formed at Bitton still exists in part in that of his son, Canon Ellacombe.

MR. JAMES CUTBUSH, the well-known nurseryman of Highgate, died suddenly on Saturday night last. Mr. Cutbush was a good plant grower, especially of Hyacinths, and therefore his services were in frequent demand as a judge at leading shows. He took especial interest in those societies which have for their object the promotion of a love for the cultivation of fruit and flowers amongst the working classes. On Saturday night he was present at the distribution of prizes by the Baroness Burdett-Coutts, in connection with the Brookfield Horticultural Society, South Highgate, to which he had lent a number of plants for the decoration of the platform. He was seconding a motion for a vote of thanks to the officers of the society when he was seized with an apoplectic fit and fell forward against those who were sitting near him. Medical aid was summoned, and having somewhat recovered, he was removed to his home at Highgate, where, however, he was seized with another fit, and died at midnight.

## LATE NOTES.

**Green Rose (J. H.).**—This is called *viridiflora*, a Bengal Rose cultivated merely as a curiosity.

**Iris ochroleuca.**—There is a slight error in the notice of this Iris (p. 72). There was but one flowering stem, which was about 5 feet high and had four flowers, although I have several clumps. Can it and *I. gigantea* be the same? I see *I. ochroleuca* marked 8d. in a trade list, and *I. gigantea* in same list 4s.—GREENWOOD PIM, Monkstown, Co. Dublin.

**Red Water Lily.**—In the autumn of 1881 I received a strong root of this plant from Woolson, of Passaic, and it is now for the first time showing bloom. Like Mr. F. Clowes, Windermere, I would like to know how others have succeeded.—A. K., Eastcott.

**Crocuses.**—I am exceedingly obliged to Messrs. Maw and Foster for their kind answers to my enquiry about Crocuses. I am ordering a few bulbs of *C. obesus* and *pyrenaicus*, and if they flower in the spring will send them to THE GARDEN to be named. They are both down in the list of spring flowering kinds. I am beginning to make a collection of species of Crocus, and am anxious to have them all correctly named.—M. P. FORSTER, Lesbury, Northumberland.

**Mignonette (M. P.).**—I cannot tell what is affecting your Mignonette. I have just been examining some plants which have suffered in the same way, and can find no insects on the roots or in the earth round them. I do not think insects are the cause of the affection, but very probably the dry weather is.—G. S. S.

**Carnation sport (Clark & Co.).**—Identical with the pink-flowered Souvenir de la Malmaison, which has been grown and exhibited about London for two or three seasons past; a beautiful and valuable Carnation.

**Seedling Carnation (C. Green).**—We consider your variety first-rate and quite worth naming. The flowers are large and full, and the colour a vivid crimson, just what is wanted in a border Carnation. The foliage indicates a vigorous grower, and if the variety is as floriferous as you say, it is, indeed, valuable as a market Carnation.

**Tomato leaves (C. B.).**—There is no "blight" or parasite of any sort on the leaves sent, and without further information we cannot say why they have become dry and shrivelled in places. Hot sunshine and drought may be the cause.—W. G. S.

**Laxton's Evolution Pea.**—Last season I alluded to this variety in THE GARDEN; it is the best Pea with which I am acquainted for bearing successional crops. I have just now a row seedling nearly ripe, and still pods come from the tops in profusion.—R. GILBERT, Burghley.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—E. M. G.—*Eupatorium cannabinum*.—*Old Sub. (Shrops.)*—*Lycium barbarum* (commonly called Tea Plant).—*Ann. No. 2.*—*Nicotiana glauca*.—*J. C. B. (Guernsey)*.—*Watsonia angusta*.—*S. H. C.*—Your Tritoma appears to be a premature flower of a late variety, no doubt owing to the exceptionally dry season, *Bahia lanata*.—*D. C.* 1, *Libertia ixoides*; 2, *Eugenia Ugni*; 3, cannot name without flowers and fruit; 4, *Cocculus laurifolius*.—*J. L. B.*—*Phacelia campanularia* (blue), *Physolaurifolius*.—*P. Inghalt*.—White is *Campanula persicistegia imbricata*.—*P. Inghalt*.—*H. C. B.*—Variety of *Achillea alba*, other *C. carpatia*.—*H. C. B.*—Variety of *Achillea*.—*H. M. C. G.*—1, *Agrimonia Eupatorium*; 2, *Hemerocallis fulva*; 3, *Hypericum perforatum*; 4, *Knausia arvensis*.—*A. B.*—1, *Spirea Filipendula*; 2, species of *arvensis*.—*A. B.*—1, *Potentilla atrosanguinea* variety; 4, *Eriogonum* (no flowers); 3, *Periploca graeca*; 2, *Rhus Cotinus*; 3, Maiden-hair tree (*Salisburia adiantifolia*); 4, *Ruscus androgynus*; 5, *Pteris tremula*.—*J. Thorpe*.—*Galium verum*.—*N. P.*—*Bulb Company*.—1, *Funkia subcordata*; 2, *F. Sieboldi*; 3, *F. ovata*.



## WOODS & FORESTS.

### THE SCHOOL OF FORESTRY.

SIR JOHN LUBBOCK'S Select Committee on Forestry has suspended its sittings for the session. The short time at its command has been principally devoted to taking the evidence of Indian forest officials and other gentlemen interested in the forest economy of India. This evidence is interesting enough in itself, but has little direct bearing on the question at issue beyond pointing to the fact that forests intelligently managed are more remunerative than when left to themselves. This, at any rate, appears to be true of the Teak forests of India, but whether the conditions existing there would also apply to this country, and whether proceeding here on the same lines would be equally successful is to us an open question.

As may already be known to some of our readers, the Indian Forest Department was established some forty years ago, and an inspector of forests was appointed in 1864. When the forests were first taken in hand the revenue amounted to only £40,000, but since then the nett return has reached as high as £400,000, the gross revenue being nearly £1,000,000, and this increased value is attributed to their better management, in consequence of the officials being thoroughly trained to their work. In the first instance a forest instructor was obtained from France, and subsequently the department sent men to study at Nancy. This was partially satisfactory, but in consequence of the difference in language and for other reasons the forest officers are now advanced as far as possible at the Royal Engineering College, at Cooper's Hill, and then sent to the French forests. There are also forestry schools in India. These facts were recapitulated by Mr. W. G. Pedden, Revenue Secretary India Office, and, in answer to Dr. Lyons, this witness also stated that the cutting down and taking away of one tree by unskilled hands frequently destroyed about twenty others.

If this is what generally happens in native forests, there is no wonder that they are disappearing; therefore, the prevention of this destruction alone must be a very important step in their conservation. In connection with this, however, it must not be overlooked that, although such knowledge is very desirable, this work of cutting and removal would be no better performed by one individual of the highest scientific attainments than by one who was no scholar, providing the latter was practically conversant with the use of the axe and the saw and the means of transport. Although a few of the more highly educated class cannot be dispensed with, it is on the actual workmen that the onus of carrying on the successful exploitation falls. Another cause of damage appears to be that done by grazing animals, and this in a country like India must be a difficult matter to deal with. Speaking in reply to Colonel Nolan, who asked what would be the effect on Ireland of planting

5000 square miles of forest, the witness said that in India this would employ about twenty directing men and 300 others, but he could not say its effect on the climate. This witness also informed Mr. W. H. Gladstone that the timber in India was generally cut up where it fell, otherwise the cost of transit would be so great.

Colonel Michael, who has been intimately connected with Indian forestry, remarked that the present system originated through General Frederick Cotton in about 1848. This latter officer, in riding through the forests, noticed the way in which they were overworked through the Government system of leasing. This led to the change which, within seven years, produced very beneficent results. There was no planting in his (the witness's) time, but now there were 3500 acres in India planted entirely with Oak. When the committee resumed their sitting, the evidence of Dr. Cleghorn, who has been actively engaged in the formation of Indian forests, was taken. This gentleman said that since his return in 1868 he had paid considerable attention to the state of our English forests, and from what he had seen he had no doubt that with trained woodmen they may be made much more productive. It was the general opinion of those acquainted with our woodlands that a forest school would be a great advantage. He also stated that better samples of timber may be grown by careful management. Questioned by Dr. Farquharson, this witness said:—

That there were some very good practical men in Scotland, but they had not been taught vegetable physiology. Three or four of them were employed in India for planting. They had had no school to go to for theoretical knowledge. In France and Germany they did not plant much; they left it to Nature. The Scotch were exceedingly good planters, and if they had a little more theoretical knowledge they might turn their natural sagacity to better account. He hoped that forest schools might become self-supporting. It was also a question as to what the owner of the woods could afford to pay. Of course, a man who only received £60 a year could not pay much. As to planting more extensively in Scotland on mountain slopes, he guarded himself by saying these should be inaccessible places near rivers. Asked his opinion as to planting grouse moors, witness said smilingly he would rather not say much on that subject. If a much greater area was put under wood in Scotland, it would depend on the foreign supply as to whether that would bring down prices.

Following this, Colonel Pearson, who had charge of the students at the forest school in India, was examined.

He was strongly of opinion that the more scientific training of the Indian forest officials had a great deal to do with the increase of the forest revenue, and he had no doubt a similar effect would follow forest schools in this country. There were not more than two or three forests in France where Oak could be grown to advantage. It made a great difference to a forest as to what classes of trees were in association. A great part of the New Forest was going to wreck and ruin. The Indian establishment was frequently applied to to send competent forest men. They were frequently obliged to send Frenchmen. The French schools, though useful, were not quite suited to Englishmen on account of the language, the difference of technical terms, and also political differences. The French school was, however, an admirable one, and we were indebted to it for the able men who were carrying on forestry. The education was expensive and exclusive. Asked if the arrangements suggested

at Cooper's Hill would suit the requirements of the English owners, he did not think they would. Any education given in England should be sufficiently economical to enable wood managers and bailiffs to take advantage of it. If a man got three or four months' forestal education in each year for two years, he might acquire a good deal. General education in this country might be supplemented by special forestal education at museums and in forests by those who required it. King's College and University College both seemed to give facilities for general education. Forestal botany might be carried on with the other education. A forestal chair might be established in Edinburgh, but in all cases it would be necessary to take the students to the woods. There was enough forest in the New Forest and the Forest of Dean to illustrate lectures on scientific forestry.

We have not, of course, in this short paper been able to reproduce all the questions and replies that were asked and given at the sittings of this committee; but it will be sufficient, however, to enable our readers to form a pretty clear conception as to how far the question of the desirability, or otherwise, of establishing a school of forestry in this country has been proceeded with up to the present.

### PLANTING ON HILLSIDES.

WITH the view of improving pasture-lands, draining, fencing, and planting bleak exposed situations for shelter should precede all other operations, and the urgent necessity for such is admitted by farmers and flock-masters generally. I see an article on this subject by "J. D." (p. 106), and although the writer gives some sound, good advice, yet I cannot endorse it in its entirety; as, for instance, we are told that shelter alone is wanted in order fully to develop the pastures, and increase and improve our herds and flocks. "J. D." further tells us that he is fully convinced that much if not all the disease which has overtaken the Larch, in some localities, must be set down to the introduction of imported seed into the nurseries of this country. Now, this statement is by far too sweeping, and, in fact, is direct against the testimony of the trees themselves. Does he mean to tell us, for one moment, that imported seed has anything to do with blister, blotch or ulceration, ground-rot and pumping? I have just been looking at some plantations (some 2000 acres in extent) which I planted some 30 years ago; the plants used were principally Scotch Fir, Larch, and a few Spruce Fir. Part of the Larch used were raised from imported seed, and, in place of being diseased and worthless, the trees, as a general rule, are in excellent health, and such as have been allowed proper space, for the development of their side branches are, in many cases, really models of beauty. I could find traces of blotch or ulceration on some of the trees, but this disease could likewise be found on the same species of trees in the same plantation raised from home-saved seed, and also affects the same species growing in their natural habitats, so that we need not be surprised at this. With regard to Scotch Fir the produce of France or Germany, the writer says he would not use them, although offered to him gratis. This is better advice, and in perfect keeping with my own experience, as the trees are less hardy than the native variety and the wood of inferior quality.

J. B. WEBSTER.

**Inferior Grass in woodlands.**—On travelling over some hundreds of miles in the north recently I was surprised to see field after field clothed to a great extent with inferior Grasses, and as they were in full flower at the time they could easily be distinguished from the railway carriage. One of the most predominant of these Grasses was the soft meadow Grass, also called Yorkshire Fog and White Hay (*Holcus lanatus*), and it is surprising that farmers as well as foresters who have the charge of Grass fields along with their plantations should grow this Grass to such an extent, for to all appearance it must be introduced from sowing the seeds, as it was always on grounds



and fields under a state of tillage and rotation of crops that it was most abundant. Another inferior Grass, although not so common as the former, is the soft creeping Grass (*Holcus mollis*), and as both are inferior and inutritious, the forester as well as the farmer should banish and eradicate them from his fields by every means in his power, as they make inferior hay and the worst of pasture. These Grasses may be known by their soft downy leaves, as well as the flowers, and I may briefly state that all Grasses whose leaves are covered with soft downy hairs are of little value. In order, then, to improve our pasture land, shelter alone is not only wanted, but also better and more nutritious Grasses introduced.—J. B. WEBSTER.

**The wood of the Phillyrea** is, perhaps next to Box, the best for wood engraving. It has been used for this purpose with entire success, with the advantage that blocks of large size can be had of it without joining. It works quite as well as Box; and for hardness and durability in printing, seems to be but little inferior.—R. T.

**Thinning and pruning young plantations.**—It is perfectly lamentable to see so many plantations completely ruined for want of this necessary operation at an early stage of their growth. It was in by-past times totally neglected; and we are sorry to see it in nowise altered at the present day in very many instances. It is a prevailing error to plant very thickly of one common mixture, the consequence of which is, that the quick and useless sorts soon overtop the more valuable, and that what ought to be the permanent trees. Neglect of thinning, following mismanagement in planting, soon carries them beyond recovery, and they become drawn up like whip-sticks, useless either for a shelter, for a screen, or profit. As an illustration of this ruinous neglect, we are at the present time partly surrounded by plantations that have been planted about thirty years with one common mixture of trees in which the Birch predominates; they are not more than from 4 feet to 10 feet apart, and are from 40 feet to 55 feet high; few of them carry a trunk more than 6 inches in diameter at 3 feet from the ground, and many of them are of much less size. Had they been properly thinned in time, they would now have served the purpose for which they were intended, viz., shelter and ornament.—G. G.

**Cover beneath Beeches.**—That the land underneath Beech trees should have a naked appearance, with deposits of fallen leaves, is, from a technical point of view of wood culture, quite satisfactory. If the foliage of the Beech joins overhead and forms a continuous canopy, then, it may be said, nothing will grow underneath. I have seen on the Continent many Beech woods in close order with thorough shade, and, as far as my memory serves, I never saw any shrubs or trees growing underneath, nor any undergrowth except only occasional patches of the Wortleberry or Bilberry (*Vaccinium Myrtillus*) where the canopy was a little defective. If, however, there is any strength of light reaching the ground—if, in short, the Beeches are opened out as they would be to admit of natural reproduction—then all the shrubs and trees which can endure a great deal of shade may be planted with some prospect of success.—N. N.

**The Black Walnut** (*Juglans nigra*).—The wood of this tree makes the most beautiful cabinet-work, and is fashionable in America, as it is often finely veined, and receives a polish equal to Mahogany. The tree grows to a great height, and the trunk to a large size. A few years since the trunk of one was shown in Philadelphia and other cities, "which grew in Chataun County, New York, that measured 36 feet in circumference; its height previously to branching was 80 feet; the entire height 150 feet; the branches were from 3 feet to 4 feet in diameter. Had it been chopped and split into firewood it would have yielded not less than 150 loads, of a fourth of a cord each, the common produce of an acre of woodland, or, had it been sawn at a mill, 50,000 feet of inch boards worth, at the country price, £300." The bark was 12 inches thick. The part that has been preserved consists of the lower portion of its trunk, 9 feet in height, and is entirely sound. It was ex-

cavated after great labour, circular seats placed round it inside, and a door made in it.—J. M.

### TIMBER OF THE SILVER FIR.

THIS Conifer (*Picea pectinata*), which is a native of Central Europe, Asia, and other temperate regions, was introduced into this country as far back as 1603. Its leaves are dark, glossy above and silvery beneath, and the branches grow in regular whorls round the stem, which is erect and not very tapering. The cones, in contradistinction to those of the Spruce Fir, are upright, while the cones of the latter are pendent and hang on the tree for a longer period. The Silver Fir is, I believe, up to the present time, the loftiest-growing Conifer which we have in Britain. It is a majestic tree either singly or in a clump, and when planted sufficiently apart to allow its branches full development, it becomes feathered to the ground. Its habit is symmetrical, pyramidal, and very formal, particularly when young; when old it presents a greater variety of form and exhibits many picturesque features. The liability of this tree when young to start into growth very early in spring and lose its leading shoots from the effects of frost has often proved disappointing to nurserymen and planters; probably on this account it has not been so extensively planted as the Larch and the Scotch and Spruce Firs, neither has it ever been so cheap and plentiful in the market as the two latter, owing no doubt to its being so difficult to rear when young; when older and fairly established in its permanent quarters it will withstand the severest winters and will thrive on the most exposed sites. In many localities it is a tree but seldom seen; indeed, in some parts of the country it will not succeed; and again in others it is the most prominent tree, towering high above its compeers and breaking the level outline of wooded hills. The timber of this tree is less valuable than the Larch; under ordinary circumstances it sells at about the same price as the Scotch and Spruce Firs, and is used for similar purposes. A few years ago its timber was in some request for making suites of bedroom furniture, but I do not think it is now in so much demand, apparently having been superseded by the Pitch Pine for that purpose. The Silver Fir thrives well on a variety of soils and subsoils; where lime and chalk abound, perhaps it succeeds the worst, but as a rule it flourishes best in rich loams and clays.

OLD FORESTER.

**Abies Douglasi for timber.**—In my opinion this Conifer, owing to its quick growth, would doubtless make a valuable forest tree, especially as it can now be procured in quantities at a cheap rate. I have a tree which has been planted, as near as I can ascertain, about forty-five years. It is now over 90 feet high, and more than 10 feet in circumference at 3 feet from the ground, and it has a spread of branches 50 feet in diameter on the surface of the ground. It is growing on a strong hazelly loam, in which Rhododendrons and, in fact, nearly all sorts of shrubs do well. Near it are growing some very fine Silver and Spruce Firs, some of the former being over 100 feet in height and 10 feet in circumference above the ground level, and one specimen of the

latter is the same height and 16 feet in circumference at 4 feet from the ground. During the time I have owned the place, viz., six and a half years, the Douglas Fir has increased 16 inches in girth.—SOUTH HANTS.

### LARCH IN WIGTONSHIRE.

SOME weeks ago I was taken to task by one of your correspondents who understood me to assert that the largest Larch in this country stood at Galloway House. What I said was, that the largest in this country were there. Their proportions are not stupendous; nevertheless, they support my objection to "Yorkshireman's" statement that Larch will not thrive in South-west Scotland. I give herewith the dimensions of four healthy trees which have been measured for me since "Yorkshireman's" note:—

MEASUREMENTS OF FOUR OF THE LARGEST LARCH TREES GROWN IN GALLOWAY HOUSE GROUNDS:—

1. Girth 4 feet from ground, 9 feet 4 inches; 15 feet from ground, 7 feet 4 inches; length, 31 feet; extreme height, 50 feet; solid contents with bark, 104 cubic feet—without bark, 94 feet 11 inches 3 pa.
2. Girth 4 feet from ground, 8 feet 10 inches; 17½ feet from ground, 7 feet; length, 35 feet; extreme height, 50 feet; solid contents with bark, 107 cubic feet 2 inches 3 pa.—without bark, 97 feet 2 inches 8 pa.
3. Girth 4 feet from ground, 9 feet; 22½ feet from ground, 7 feet; length, 45 feet; extreme height, 60 feet; solid contents with bark, 137 cubic feet 9 inches 9 pa.—without bark, 125 cubic feet.
4. Measured in two parts.—Girth 4 feet from ground, 10 feet 9 inches; first length, 23 feet; quarter girth at 11½ feet from the ground, 20½ inches; solid contents, 138 feet 11 inches 11 pa.; second length, 23 feet; quarter girth at 11½ feet from the ground, 12 inches; solid contents, 23 feet; total contents, 161 feet 11 inches 11 pa.—without bark, 149 feet 0 inches 8 pa. Allowance for bark on girth, 4 inches.

SALMONICERS.

### NOTES.

**Experimental planting.**—I have not a word to say against this in the sense in which the term is generally understood; indeed, there is much to be said in its favour, as a tree may be written about until the end of time, but if experiments are not made in planting and growing it under various conditions as to soil, climate, and situation, we should be just as far off from knowing the qualities it possessed as if a word had never been spoken about it. It is not in this sense, therefore, that I object to experimental planting, but in the sense of re-forestation a country with trees of unknown timber-producing qualities; I very strongly deprecate the idea. The sound of warning given in your columns by "Glendye" is therefore opportune, as the notion of planting the waste lands of Ireland with the heterogenous collection of species indicated by Mr. Howitz must be a grave mistake. A writer recently rather quaintly, but truthfully, remarked that an undertaking cannot be carried on indefinitely for the mere fun of the thing, and this is as true about tree planting as anything else. To the student it is interesting to have an imposing list of trees with long Latin names tacked on to them, but until they are thoroughly known their place is in the arboretum, and not in the forest. Tree planting costs money, and the novelty of planting large areas with experimental subjects soon wears off. The time, therefore, to speak is before the error is committed, as it is useless to raise the outcry afterwards. What we want is not an endless variety of trees, but larger quantities of such kinds as have stood the test of centuries and are of a known timber value. For national planting in a climate like this it is not wise to give too much ear to the Conifer rage. Some people talk and act as though the Oak, the Elm, the Ash, and similar trees were things of the past, and not to be thought of for future planting. Whether this is occasioned by the love of novelty I do not know, but one thing it would be hard to deny, and that is that a large proportion of the money raised by the sale of timber in this country comes from our common hardwood timber trees, and, taken foot by foot, their value is relatively greater than that of the much-lauded Conifers. British timber as well as British soil will have its ups and downs in the price it will realise in the market; but, notwithstanding this, to the individual who is content to look ahead rather than to the present moment my advice is, plant British timber of known worth and leave experimentalists to deal with



the newer kinds in their proper place—the experimental grounds.

**British trees for building-wood.**—Remarks have from time to time been made as to the suitability of our common home-grown timber trees for building purposes, but much has not been said as to the uses of the Poplar in this direction. This is a tree of comparatively little value in the market, and generally relegated to the manufacture of such ephemeral commodities as packing-cases. After explaining that there are “Poplars and Poplars,” and that generally the White Poplar or Abele is the firmest and most durable, I will add that this latter is by no means an unsuitable wood for many purposes in building. By specifically mentioning the White Poplar I do not mean to imply that every other kind is inferior, but rather to recommend this when choice is possible. The wood of the Lombardy Poplar is to all intents and purposes “Poplar timber,” and the wood of the Abele is no more; still, given the opportunity of choosing, I should greatly prefer the latter. On the ordinary estate, many of the purposes to which timber is applied would admit of the use of this wood. Although the adage that “a pound saved is as good as a pound earned” is often used, it is not so much taken to heart as it should be. Every pound saved by using up material of small value, instead of buying in the market, is a pound earned, and many such amounts as this may be saved by turning to account wood thought so little of as the Poplar. Even in labourers’ cottages there are purposes for which it could be used; but leaving dwelling-houses out of the question and looking to such buildings as stables and houses and stalls for cattle, there are comparatively few things in these structures for which timber is wanted, except in positions such as posts standing in the moist ground, for which Poplar is not adapted. For roofing, for joists, and upper floors it is very suitable, and even for outside boarding, when protected from the weather by tar or some similar coating, it will probably last as long as the foreign deal that would otherwise be used in its place. It is not, perhaps, within our scope to particularise every purpose for which it should be used, as these would vary on almost every estate; but as the need arises the best method of supplying it will soon become apparent if sought for in the right direction. When the resources of the estate have been thoroughly gone over it is time enough to resort to the foreigner.

**Sawing home-grown timber.**—Speaking of thus utilising the wood on an estate reminds one of the difficulty there sometimes is in getting timber into a usable shape when there is no saw-mill on the place. This has been referred to lately in these columns, and suggestions made as to how, to borrow a phrase from our cousins across the water, a temporary mill may be “fixed up.” Lacking both a permanent or a temporary mill, there is still the old method of sawing it out by hand on the saw-pit. Some figures were given in THE GARDEN (p. 135) in the article on “Using home-grown wood,” estimating the cost of cutting up trees at 3d. per cubic foot; this, of course, would vary considerably according to the sizes and description of material which would be required, but, speaking generally, even by the necessarily slow and tedious process of the pit saw, this sum for sawing wood for estate use need not be greatly exceeded. When, however, a building has been determined on it will be well to set about sawing up the timber at the earliest possible moment, as this is a process that generally occupies an indefinite time.

**The sap-wood of trees.**—The property that the sapwood of the Oak has of decaying at a comparatively early period is probably the result of its being cut at a season when it is so full of moisture, but, apart from this, I do not think that the durability of the sap-wood always follows in proportion to that of the heart-wood. I must admit it is a thing I have not closely looked into; perhaps some of your readers have, and would communicate the results of their observations.

**Conifers at Bowood.**—As in an earlier note I spoke somewhat disparagingly of the Conifer, in the sense of objecting to its displacing our better-known British trees, it will be a simple act of justice to admit that it is sometimes very ornamental. I recently paid a visit to Bowood Park, the Wiltshire

seat of the Marquis of Lansdowne, and although the time then at my disposal was too short to make anything like a complete list of the trees there, I was much pleased with the appearance of many of the specimens. Most of the trees in the arboretum are comparatively young. I did not take any measurements, but probably the Sequoias in the collection do not much exceed 40 feet and the Araucarias 30 feet in height. There is a tree of the latter probably more than this, but it is not a good specimen, as the lower branches are gone. The Californian Pine (*Pinus monticola*) is here a shapely tapering tree of some 40 feet in height, and with an abundance of cones. The deciduous Cypress (*Taxodium distichum*) is a somewhat taller tree than the latter, and is a fair specimen of the larger trees here. Another tree of a corresponding height is a Douglas Fir; this promises well towards making a fine tree, as it is already a good specimen, well shaped, and perfectly straight in the stem. There are also two Firs (*Cedrus atlantica*), the silvery foliage of which is very striking. These are about the same height as the Douglas Fir, and are very spreading in their habit, which tends to increase their effect. The Bhotan Pine (*Pinus excelsa*) is not at its best here, as the specimen is divided and not at all shapely. Among the smaller trees there are some good specimens of the Evergreen Cypress and also of *Arbor-vitæ*; amongst the latter a very pleasing example of *Thuja Lobbi*. These trees, taken haphazard, do not form a tithe of the collection, but will give a little idea of the size and species of trees to be found there. There is one circumstance that sometimes detracts from the usefulness of collections like this, and that is the absence of the date of planting. The age of a tree thus readily ascertained is a valuable factor in reckoning its value for ornament, if not so much for timber. D. Y.

## SHELTER AND SCREEN PLANTING.

WHERE shelter planting is done extensively, such as where a break against the sea breeze over a considerable tract is required, or in exposed situations further inland, where it is necessary to raise a barrier against the sweeping force of the wind, the position where to plant is generally so easily seen, that mistakes are not common. But more frequently in cases where it becomes necessary to secure shelter for a garden or a dwelling there are few things so common as to see the work carried out in a way that ultimately becomes a lasting inconvenience. Material and position, that is, the kinds of trees used and the position in which they are planted, often are both at fault. In support of this one has only to look at the state of matters bearing on the subject as they exist in the surroundings of many of the old residences and the gardens attached throughout the country. In many cases it will be found that the trees used are of kinds that are unsuitable for the purpose, being so far too large for the position they occupy, that they have a dwarfing effect on the building which their presence was intended to improve. This is often the result where such kinds as strong-growing Elms have been planted near the building in place of being kept further away with others of smaller growth immediately adjacent to the dwelling. Another objection to big trees when not kept at sufficient distance from a house is that they overhang and smother everything in the way of lower-growing kinds deciduous and evergreen.

The effects of this kind of injudicious planting may be seen in numbers of fine old places in any county in the kingdom where

the mistake has been committed generations back of planting trees that would have been right if placed in the right position, that is at sufficient distance from the building, but which are wrong when too near it. In numbers of old fruit and vegetable gardens the same mistake of planting big coarse-growing trees too near is alike apparent, and in their case the effects are more injurious, as they not unusually exist to such an extent as to seriously interfere with the cultivation of everything that is grown alike under glass and in the open ground. That this is a real and serious grievance not a few gardeners who have charge of the old places throughout the country can testify, and yet they are powerless in the matter, although they could easily point out what should be done in the way of removing the trees that make it impossible to grow much that they have to deal with as it should be, for in most cases the natural repugnance to cut down trees, however injurious to other things they be, is such, that to make any suggestion in that direction would be futile. Except in very exposed situations little or nothing in the way of shelter is required for vegetable gardens, wherein are usually located the houses devoted to fruit and plant growing. Anything that goes to limit the free access of air, and still more of light, should be shunned, as directly opposed to successful cultivation.

Gardens that are sheltered so that the air within them is still are pleasant to move about in at many times when the wind is keen, but they are equally congenial to aphides, thrips, and mildew, which collectively take up their abode in such snug quarters in preference to places where the air can move freely. But it usually happens that the department of the garden in question is situated at no great distance from the dwelling, and that it is necessary to shut it out by planting, in which case the only reasonable course is to confine the planting principally to such trees and shrubs as will form the required screen. The big deciduous trees that have been used in so many old places have not alone defeated the object in view by killing everything under them that could have shut out that which was objectionable, but, in addition, they have half spoiled the most useful department in the garden where they exist. Anything in the shape of trees, either deciduous or evergreen, that grow to a height of more than 18 feet or 20 feet when near usually interfere with the requisite motion of the atmosphere, and tend to reduce the amount of light that should reach whatever happens to be within some distance of them. The effect that dark high objects, such as tall trees, have in absorbing light, and so reducing the amount which anything growing within their influence gets, seems to be insufficiently understood; but if anyone happens to be doubtful about it, they have only to note the difference in the growth of any soft-wooded plant grown in a greenhouse that happens to stand as much as 50 yards or 60 yards away from a row of high trees as compared with the



same kind of plant grown in like houses where trees are absent. Winter crops also in sheltered gardens invariably suffer more in severe winters than where they are more exposed.

In planting to secure the requisite shelter to a dwelling, looking at the matter from an ordinary point of view, be it a simple cottage or an important mansion, the object is to effect a break to the sweeping current of the wind from the points where it comes with objectionable force. To do this it is not necessary to plant so near the house as is often supposed. As a matter of course, position and the natural lay of the surrounding land will have something to do in varying the work, but in many cases, where the trees that are intended to form the break have been planted within 50 yards or 60 yards they would have been equally effective if stood at more than double the distance, which would usually be so much preferable, that it would admit of such portion of the intervening space as it might be desirable to plant being arranged in a less formal way. Wrong beginnings in work of this description would not be fraught with so much future ill effect were it not, as already said, that there is so much reluctance to interfere with trees when they once get established. One mistake in planting in times present, as in the past, is that not a few who are engaged in the work seem to forget the size the trees they plant will reach. Hence we see no end of big coarse-growing kinds planted where none but small or medium growers should be admitted. There are plenty of such to choose from. T. B.

#### SEASONABLE WORK.

DURING the present month, when but few special operations demand the attention of the forester, every effort should be made to push forward the general work connected with the enclosure, drainage, and cultivation of land intended for new plantations. This is the more necessary upon heavy clayey soils, where winter work proves highly injurious to the prospects of a successful growth of young trees. Pitting for October planting should be done as early as possible in August. Ground intended to be planted the coming season may now receive attention whenever hands can be spared, by means of clearing, fencing, and cutting open ditches to drain wet places, and laying off surface water in low places. Young plantations that are becoming too thick and crowded should be thinned at once while hands generally can be better spared than later on when forest work is more varied and plentiful.

Wherever much game is kept in the woodlands the work should be suspended after the middle of the month to allow the game to settle down quietly when driven in by harvest operations, and if the rides are at once mown and cleared, the woods may remain undisturbed until October. In point of convenience, too, where game is preserved, any covers thinned at this season can be left quiet and undisturbed until cover-shooting takes place, which is more particularly necessary in the case of outlying plantations adjoining arable lands, for as soon as harvest commences game of all kinds is driven into the covers.

Hedgerow trees should be pruned where necessary as soon as the corn crops are cut and the removal of branches becomes possible. Too much hedgerow timber of low growth is one of the greatest impediments to high and profitable farming. Young hedges should be kept clean by means of hoeing, or, by what is still better, hand-weeding; older hedges may

be kept clean enough by cutting the weeds off with a hook, and spreading the litter over the roots of the hedges, unless in the case of Docks and Thistles, or other bad seeding weeds, which should be exterminated by rooting out and burning. See that watercourses, culverts, and pipe drains underneath rides and drives are well cleared out in the proper order for carrying off a sudden flood of water. Clean and scour out open ditches and trenches and cut new ones where Rushes and other aquatic weeds abound.

Gates, stiles, and all kinds of fences bounding woods, slopes, and plantations ought to be made perfectly secure against the inroads of cattle, sheep, &c. Those fences adjoining grazing lands should have special attention during hot weather, for cattle when driven by insects quickly find out weak places in hedges, and when one breaks through the whole herd or flock will surely follow, and, of course, can in a very short time do an immense amount of injury to young trees or underwood; and, besides, when once cattle get into a habit of trespassing into covers it is no easy matter to fence them out.

Large Evergreens may be successfully transplanted during the present month by being carefully raised, quickly removed, and well shaded from the sun, and also well watered and mulched after replanting.

Park trees will now require some attention where they have been browsed by cattle, bent down and broken by the weight of foliage, or injured by storms. Weeds should also be kept down in young plantations, tree-guards be strengthened and repaired, fencing painted or tarred, and hedges switched. Budded and grafted trees must be attended to, and all growths of weeds around young plants should be cut away, scions upon young stocks be removed, and coppice stools thinned. Layering either in the woodland or in the nursery may commence. Prune young trees in the nursery if the work is not already done, and make cuttings of various kinds—Holly, Yew, Privet, Laurel, &c.

In the nursery a sharp look-out should now be kept on choice Conifers for insects and their larvæ. This is about the time when, generally, they begin their work of destruction, and, what is most provoking, the leading shoots are most liable to be attacked, thus destroying the season's growth, and throwing the symmetry of the tree out of balance for, perhaps, two or three years; some trees, indeed, never regain a proper leader. The hoe should be kept going wherever the weeds show themselves; but little difficulty will be found in destroying the weed crops so long as this scorching hot weather continues. This has been an unusually favourable season for the cleansing of foul ground. Any trees or shrubs that show signs of flagging or of backgoing should be well mulched with half-rotten manure, and a thorough watering should be given overhead occasionally; this is best done in very hot weather towards evening. Newly grafted trees should be gone over, the ties slackened or removed, where necessary, and all shoots and buds growing on the stock should be cut or rubbed off. Any trees intended to be budded may now be operated on. Clean all superfluous shoots off the stems of young hardwooded trees, lighten their heads when growing out of proportion to the strength of the stem, and if necessary stake them firmly, as they are liable to damage one another by wind-waving in the nursery rows. Rot-pits of Haws and Holly berries should be well turned. Weed and compost heaps will be rendered valuable by mixing both with quicklime, reforming them into steep ridge-shaped mounds, so as to keep out wet. Dry, friable soil is most valuable in the nursery during wet winters and springs for covering the roots of young trees when planting is in progress and the ground is in a wet, sodden state. Attend to green crops by hoeing and thinning out the young plants.

Where it is intended to lay down with Grass any land cleared of trees, this should now receive a thorough cultivation and cleaning, and afterwards be dressed with lime. Towards the end of the month roll down the land and make the surface as firm as possible, sow a proper mixture of about 40 lb. of seeds per acre, and lightly brush them in, taking care that none of them are too deeply buried.

#### VALUE OF THE ASH.

THE common Ash justly occupies a high position among forest trees in this country. Like the Larch, its wood is tough, lasting, and valuable at all stages of growth, and is capable of being used with advantage for a variety of purposes from the sapling the size of a walking-stick onwards. It is an indigenous tree, growing on a great variety of soils and situations, and produces abundance of seeds (keys). It, therefore, is enabled to propagate itself plentifully, as we find its progeny springing up on fertile soils in glens and hollow places, as well as among the recesses and chinks of rocks on the exposed mountain side. But although the tree will grow on a variety of soils and situations, yet the quality of its timber, as well as the size of the tree, is affected to a great extent by the quality of the soil and local circumstances as regards shelter.

Trees growing on exposed situations on poor, gravelly, and rocky soils never attain a large size, and the wood is short-grained and not so pliable and elastic as that of trees grown upon the rich alluvium soils of sheltered glens and valleys. Again, if we take the opposite extreme as regards soils, we find the Ash inferior both in size and quality when grown upon decomposed peat bog, even although the situation may be well sheltered by other hardy trees. It may, however, be grown on any or both of such soils as a coppice both for profit and utility, and in places of the country where there is a demand for such stuff it may be planted as such with advantage.

Ash is well adapted for planting as a mixture among other deciduous trees, such as the Sycamore and Beech, both of which require to be grown to a large size before they bring a profitable return. Fine clean-grown trees of this description, not less than 22 inches in diameter, always command a ready sale and a high price, but when they are cut at a less size than the above dimensions they are seldom looked after, and the price realised inconsistent with a profitable return. When Ash, however, is planted as a mixture, it has this advantage in common with the Larch, that it can be cut out at all stages of its growth, and thus gradually allow space for the proper development of the former, and if the trees are clean grown and free of knots and blemish of any kind upon the stems, they always command a ready sale and a good price for handle-wood and a variety of other purposes where toughness and elasticity is indispensable.

The Ash generally produces perfect flowers, but trees may be found that produce female flowers only, and as these are generally produced in large quantities and continue attached to the tree till late in autumn, such trees are thereby easily detected, and as they produce wood of inferior quality they should be weeded out in the course of thinning at the earliest opportunity. Although the wood of such trees is of a short brittle texture, yet the trunk sometimes produces a knotty



excrecence, which, when cut up is finely veined, takes on a fine polish, and is thereby of great value for decorative work. Sometimes roots are likewise found of great beauty, and are highly prized for the same purpose. Whether Ash is planted as a mixture with others, or grown in groups and masses by itself, it should always be grown rapidly, as the wood in that case is found to be more elastic than that of trees of slow growth. In order, then, to produce the best class of Ash timber the trees should be planted in rich deep loamy soil, not apt to get too dry in summer or retain excess of moisture in winter, and, if possible, moderate shelter is also highly beneficial. Stiff plastic clay soils are unsuitable to the growth of the Ash, so that in the formation of plantations where such soil is found, the Oak should take the place of the Ash, and always gives better results under such circumstances. In thinning Ash plantations great care should be taken not to expose the trees too much at one time by overdoing it. I have seen plantations of this tree suddenly opened up, and the result was that the trees, especially on the most exposed parts, got bark-bound, and the prospective value of the plantation injured thereby to a serious extent.

**DISEASES.**—When the growth of Ashes is checked by the roots coming in contact with inferior subsoil or by exposure, they not only become bark-bound, but likewise affected by heart-rot and the coccus insect, and when these have once got thoroughly established upon the bark, the trees never recover their wonted vigour, so that the best plan is to cut them down and dispose of them at once, as the longer they stand the wood will become of less value. The colour of these insects is of a silvery grey tint, and so like the colour of the bark of the tree, that they may be present on the surface in thousands and yet never be suspected or detected without careful examination. Their presence, however, may easily be detected by drawing the flat side of the blade of a pruning knife briskly along the surface of the bark, by which means the insects are crushed and a small red mark immediately appears at the spot where they were glued to the surface. I have sometimes seen trees so badly affected with this insect that on drawing my marking knife along the bark the mark left had the appearance of a streak of red paint. When such trees are felled the bark should be removed and burned in order to destroy the insect and eggs.

**PROPAGATION.**—In propagating the Ash care should be taken not to gather seeds from such trees as are infested by insects, or suffering in any way by disease. When the seeds are thoroughly matured in autumn, they should be collected and placed into a pit, mixing them at the same time with light sandy soil. Here they should remain during winter and summer, and the following winter till February or March, when they should then be removed and sown broadcast on well-prepared beds of rich friable soil about

4 feet broad. During the time the seeds are in the pit it will be beneficial to turn them occasionally in order to assist or encourage the decomposition of the rind that envelops the seed.

J. B. WEBSTER.

**Rabbits and woods.**—I would recommend all proprietors, if they wish to see their plantations thrive, entirely to suppress the preservation of hares and rabbits; for they may rely upon it, there is not a class of men who do their employers so much injury as keepers. In the first place, they make a constant practice of gossiping with the men who may be at work upon their estates, thereby robbing them of much labour; and they keep the minds of their employers constantly in a state of excitement, rendering the improvement of woodland property almost impossible, by representing that this plantation must not be pruned, nor that wood felled, or the game will all be driven away.—HIGHLANDER.

#### ROTATION OF LARCH CROPS.

It has been often asserted that Larch will not grow well on old forest land, and particularly where the preceding crops have been Larch or Scotch Fir, and to attempt to do so in such places would be to court failure and disappointment. I am not prepared to say how far the advice should be followed, but I think it should be very frequently disregarded in Ireland.

It is a well-known fact that there are hillsides of considerable extent in this country which have produced two excellent crops of Larch in succession, the second crop equalling and in some instances surpassing the first, but whether those results are entirely due to the quality of the soil is a question that has yet to be decided. Climatic influences play a most important part in everything relating to arboriculture, and, according to the opinions of some of your correspondents, the results referred to may be more or less attributed to the climate.

Be that as it may, the quality of the soil is of primary importance to the successful cultivation of the Larch, and to plant it indiscriminately on every kind of soil, as I have seen on many estates in Scotland, is a mistake which cannot be too strongly condemned. The soils and subsoils on most of our hillsides in Ireland are, as a rule, admirably adapted for the requirements of the Larch, and are much better than anything of the kind that could be met with in similar situations in Scotland, and are also immeasurably superior to the stiff retentive soils which constitute almost the whole of the immense breadths of moorland in that country. To the superiority of the soils and subsoils, therefore, I attribute, in a great measure, the high vitality of the Larch and its almost complete exemption from disease in this country.

I recently sold a Larch plantation on this estate which is, or rather was, a complete contradiction of the views of many foresters on this question. The plantation referred to was planted about thirty-two years ago immediately after the previous crop, which was Larch, had been cleared away, so that in this instance the land had no time to recu-

perate before it was replanted. The amount realised per acre for it was something over £48, or about £1 10s. per acre per annum during the time it occupied the ground—a truly remarkable return from land which has been since let for 4s. an acre for grazing purposes. The land in this plantation, as may be inferred from its letting value, is not of an extraordinary high character. It is, however, admirably situated in addition to having an unrivalled natural drainage; it is also completely sheltered from the prevailing winds which sweep in here with terrific force from the west and south-west.

A plantation, consisting almost wholly of Larch, adjoining the one to which I have just alluded also illustrates very forcibly the mistake in rigidly adhering to any fixed rule. It was planted by one of the most eminent foresters in Britain, and is but one of the many magnificent testimonies of his skill and success as an arboriculturist which are to be seen in almost every county in Ireland. The ground in this plantation in question was occupied by an exceedingly heavy crop of Scotch Fir previous to its being planted the second time; and though a comparatively short time elapsed between clearing and replanting it, we have a plantation on it to-day which, for its age, is perhaps without a rival in the British islands. The soil in this plantation is good, and the situation is exactly the same as the preceding one. I quite anticipate that this plantation, when about thirty-eight or forty years old, will be worth from £80 to £100 per acre. Many plantations of the kind, such as the two I have adduced, exist in this neighbourhood, but the two I have given are quite sufficient to show that there are soils covering a wide area in this country which can and have produced two crops of Larch in succession, and that, too, without appreciably diminishing their productive power. Whether it would be advisable to plant such soils as I have alluded to for the third time in succession with Larch without allowing them some time to recuperate is doubtful, but my own impression is that if they were allowed to remain idle, say for eight or ten years, replanting them could be successfully carried out.

I am not, however, one of those who believe that rotation in cropping can be altogether dispensed with. On the contrary, I believe it to be in some cases as indispensable to success in arboriculture as it is in agriculture, but comparatively few foresters in Ireland are in a position to carry out any system of rotation at all. Their choice of trees is practically limited to two kinds, viz., the Larch and Scotch Fir, the only two trees in my opinion worth planting in Ireland, with perhaps the exception of the Ash. The Ash, however, requires a good soil to grow it to perfection, and would be quite out of place on most of our mountain tracts. It would, however, pay well to plant it in good soils and in sheltered situations. Spruce Fir on most properties in Ireland at this moment is not worth as much per ton



as would convey it to the nearest railway station. Silver Fir is perhaps of even less value. It will be seen from the foregoing remarks how very difficult it is for the Irish forester to change his crop in planting old woodland.

In a future number I may give you my experience of planting between 1200 and 1400 acres of land previously cropped with trees, and which contains a great many varieties of soils, aspects, and situations. I hope some of the older members of the profession will also give us their experience on this subject, for, notwithstanding its importance, it is perhaps the least defined question in connection with forest management.

IRISH FORESTER.

### ESTABLISHING PLANTATIONS ON THE SEACOAST.

CONSIDERING that we have in these islands such an extensive coast line, and that numbers of the seacoast counties are more suitable for tree raising than farming, the subject of forming seaside plantations does not receive the attention it deserves. As I have had a good deal of experience in establishing plantations in Devon and Cornwall, two of the most sea-exposed counties we have, I will detail my practice, as it may interest some who are contemplating seaside planting.

To raise a deep plantation of forest trees on the coast in the above counties in fully exposed situations, I would recommend that the whole of the ground intended for the plantation be ploughed (as, indeed, it should be for every plantation, in whatever situation) to the depth of at least 9 inches; that the whole be planted with Pinasters at about 5 feet apart; and that these be allowed to have not less than three years' growth before the forest trees are introduced, so that they may be capable of affording the latter immediate protection. This I have observed to be of the utmost importance, as if the forest trees are planted at the same time with the Pinasters, many of the former will become stunted, and will remain so until the Pinasters afford them the necessary protection, sustaining by this means an injury, from which they will never properly recover, and to hide the effects of which a partial replanting must be made. If ploughing the ground be dispensed with, on account of the expense or for any other reason, let holes be made 15 inches in diameter at the above distances two or three months before the Pinasters are to be planted; the earth from these holes should be laid up in hillocks to be pulverised and the turf be laid on one side. On proceeding to plant, let the turf, if any, be chopped small and put into the bottom of the holes, as this, during its decomposition, will considerably assist the growth of the young plants. If the ground is naturally inclined to Grass or other herbage, great care must be taken to clear the young Pinasters

and not to suffer them to be overshadowed, particularly in a wet season, as instances have occurred where, for want of attention to this, nearly half the crop has been lost by the plants damping off near the bottom. With regard to the age of the plants to be inserted, those of two years' growth, and having been once transplanted from the seed-bed, are generally adopted; perhaps, not on account of their being cheaper than those which have been twice transplanted, but by reason of there being in the nurseries a greater number of them for sale; plants, however, of three years' growth which have been twice transplanted are by far preferable, and will amply repay the planter for their extra price. In raising a plantation of forest trees on the coast thus nursed by Pinasters, the latter must always be considered of secondary importance; therefore, as soon as they have come in contact with each other, means must be taken to prevent the forest trees from becoming encumbered by the Pinasters, either by lopping the latter or by taking them entirely away by degrees, as it may appear necessary, at the same time taking care to leave a good breastwork of them on the outside opposite to the coast.

With regard to the selection of forest trees, I have known failures to happen through the partiality of the planter to one particular species, for which there was no congeniality in the soil to be planted. I should, therefore, strongly recommend that a variety of species be introduced, and that in the course of thinning place be given to those which take the lead, or at least to such as promise fair to make fine trees of the most valuable kinds of timber.

The time for planting the Pinaster is usually the months of March and April. The success of the plants depends greatly upon the weather in the following two months; if it be hot and dry, many failures are likely to take place; it is, therefore, a question with me if autumn planting would not be preferable, and experience in some measure confirms me in the opinion that it would; but as the trial was only made in one instance, I do not feel myself at liberty to decide upon it. I can only say that in the instance alluded to very few failures occurred, which may be accounted for upon the principle that all Evergreens derive great benefit from their foliage being kept moist for some time after being planted; which is more likely to happen in the autumn than the spring, particularly on the sea-coast, where the air is mostly humid during the autumn and winter. The frost also is less intense near the coast, and consequently less likely to injure the trees than it is in places far removed from the sea.

In transplanting from the nursery, the roots should be prevented from being exposed to the air; great care ought also to be taken when the plants are drawn from the nursery bed to preserve all their fibres entire. This part of the business ought to be strictly attended to, as much of the desired success

depends upon it. Whatever failures take place ought to be made good the following planting season with plants which have been twice transplanted, with which, under any circumstances, fewer failures occur than with those which have been only once transplanted. Transplanting from the seed-bed to the plantation is by no means to be recommended; but if done, I should advise that two or three plants be clumped together, as there is a danger of many failures in this mode of procedure; however, if it should be adopted, it will be necessary in a year or two to take away all the plants but one in each clump, leaving that which is most promising.

ORNAMENTAL PLANTATIONS. — For all plantations near the coast designed principally for ornament, I most decidedly recommend a line of the *Quercus Ilex*, or Evergreen Oak, to be planted on the outside at the same time with the Pinasters. *Ilexes* are in nurseries usually sown in pots, or they are transplanted into pots when a year old, and are in the course of two or three years fit to remove to the plantation with safety; if drawn from the nursery bed in the common way, even planted under the most favourable circumstances, success is very uncertain. Should planting in autumn be adopted for the Pinasters, I should in that case recommend that the *Ilexes* be turned out of their pots in the following spring. On transplanting *Ilexes* into pots from the seed-bed, it may be well to mention that they will derive great advantage from being placed in a cold frame for a few weeks, and kept close and shaded when necessary. The coarse lands in some parts of the west of England, and particularly in Cornwall, have sometimes a stratum of spar, consisting of small stones, lying on the surface, but more generally a few inches below it, the thickness of which varies from 2 inches to 3 inches or 4 inches. Should this be the case where planting is intended, ploughing or breaking up the ground will prove of essential service to the future progress of the plantation.

The above hints are grounded upon the observations and experience of more than twenty years on the coasts of Devon and Cornwall, and may, I think, be fully recommended to the consideration of those who are desirous to raise plantations on the coast in that part of the kingdom. Perhaps some of your readers may be able to send you a few hints as to the suitability of the Pinaster for the above purpose upon other parts of the coast.

T. R.

Plantation management. — According to an old practical forester, the essence of rational treatment of plantations for profit may be summed up in a few words: 1. Choose such trees as are likely to remain where they are planted; and at each successive thinning clear off a few of their lower branches, till a clear stem is formed to the height of 5 feet or 6 feet, or to a greater height in trees having pendent branches, such as the Wych Elm, Lime, &c. 2. Cut down by degrees all the trees which are not intended finally to remain.



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"This is an Art  
Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## FRUIT GARDEN.

### THE BEST GOOSEBERRIES.

IF the general public were ignorant of the number of kinds or assumed kinds of Gooseberries in existence prior to Tuesday last, at least some portion of that body are now wiser than they were, thanks to Mr. Rivers, of Sawbridge-worth, who staged at South Kensington on that day some 100 or more dishes of kinds all of some merit more or less, although the "less" was perhaps in many cases as applicable as the "more." Not but that the sorts shown were generally good, but then some are much better than others, whilst it is equally certain that a mere exhibition of fruits does not convey with any accuracy the not less important matters relating to quality and cropping. Certainly the public learned that there were other than the ordinary red Gooseberries of the market; still further, that whilst unripe all are green, that such is not the case when ripeness ensues, but that the berries, according to kinds, assume the hues of red or crimson, white, pale yellow, and golden yellow, and not least that the original hue in some is retained. Therefore there are several distinct sections of colour, and in these sections may be found small sorts and large ones, smooth sorts as well as hairy ones. But unless Gooseberries are grown for exhibition in variety, there is no resulting good from growing so many sorts; the benefit does not at all correspond with the trouble; hence it is found that for all ordinary purposes half-a-dozen kinds are enough; whilst a dozen sorts, well selected, will satisfy the most exacting lover of this valuable berry.

That excellent fruitist, Mr. G. Bunyard, of Maidstone, whose experience, gained amidst 150 kinds, is worth something, asserts that six kinds are ample for all purposes, but certainly he has in view chiefly market purposes, and his selection is as follows: White-smith, for early green gathering; Early Sulphur, for early ripe berries; Warrington, with its terrible *chevaux de frise* of triple spines, for late red berries, and delicious eating they are; Rifleman, red; Crown Bob, red; and Lancashire Lad, red, for large berries. The latter three are favourite market kinds, and the last one of all probably the most so. It speaks volumes for this variety that it is, perhaps, much more widely grown than any other for market purposes around the metropolis. There can be no doubt that this selection is made chiefly with a view to fill the bushel, size and prolificacy being prominent. Valuable as these may be, the lover of Gooseberries, however, as dessert fruits may prefer some of the smaller, but more highly flavoured sorts, and of these Red Champagne, Yellow Ball, Pitmaston Green Gage, Hedgehog, Keen's Seedling, and Green Walnut are all excellent. Again, some growers may still have a hankering after the fame which attaches to the production of the "biggest Gooseberry," and our old acquaintance is sadly in want of renewed life. These should take in hand such big fellows as British Crown, Lion's Provider, Roaring Lion, Napoleon le Grand, Ploughboy, and Lord Derby, reds; Lord Scarborough, High Sheriff, Pilot, Marigold, Leader, and Trumpeter, yellows;

British Oak, Village Gem, Angler, Thumper, Freedom, and Telegraph, greens; and Lady Leicester, Antagonist, Wellington's Glory, Postman, Overseer, and Smiling Beauty, whites. This selection is made from Mr. Rivers' interesting collection, and even then represents not more than one-half which might have been noted as meritorious. Apart from flavour there can be no doubt that some appreciation attaches to colour, and, therefore, the deep reds and the clear yellows will find most favour. Next these come the greens nearly all of which are thin-skinned, but the whites are not pleasing in appearance, as the skins are so transparent; were these really white, perhaps they would be more appreciated, but the hue is of a dirty creamy aspect and the reverse of interesting.

In arranging the collection upon which we are remarking, something was gained from a picturesque point of view by mixing up the colours with an eye to effect. The value of the group educationally would have been more enhanced had each section been together, as then comparison might have been more effectually instituted. It is unfortunate that more growers do not follow Mr. Rivers' generous example. However, the suggestion has been made that Gooseberries should another year form the subject over which a jury of pomologists should hold a conference at South Kensington, and a most interesting day's work may be got out of the inquiry. If a material reduction of kinds in trade resulted and the public were taught which are the very best kinds to grow, very much good might be done in a solid, unpretentious way. Whilst the market grower likes fruit which fills his measures, connoisseurs have a penchant for smaller kinds, even for such commonplace things as tarts, and for that purpose it is an excellent plan to plant Gooseberry bushes as one's hedgerows. Clip them hard with shears and thus induce them to crop freely, and yet produce only small fruits. Again, where birds are troublesome and it is desired to keep fruits long for dessert use, it is an excellent plan to have some of the better favoured kinds grown on vertical rods against a north wall, as there not only will the fruits ripen later, but they may be netted and thus be preserved from birds; indeed, in this way the Gooseberry season may be prolonged several weeks.

**Queen's Apple.**—I am of opinion that the Apple to which M. Burvenich alludes is not The Queen Apple of Saltmarsh, as Mr. Bunyard seems to think, but Queen's Apple as grown so largely in Devonshire. In the "Fruit Manual" it is named as being identical with Borsdorffer, an opinion from which I am inclined to differ, as the flesh of our true Queen's Apple is streaked with bright red throughout, and, moreover, the fruit differs in shape from that described in the Manual. I have not heard of anyone sending out the variety as a novelty, and I fear M. Burvenich has become confused between the two Queens. In our nursery they are distinguished under the names of the Old Queen and Saltmarsh's Queen. —P. C. M. VEITCH, *Exeter.*

**Grapes at Longleat.**—The Muscat house at Longleat is well worthy of a long excursion to see. Throughout the whole extent of the house there is a fine, even lot of bunches, many of them weighing not far short of 8 lbs. They are very compact and tapering, and the closely-set berries extra large in size. They will be at their best at the end of August. Mr. Pratt has been equally successful with a house of Black Hamburg, the Vines of these also being heavily cropped with large bunches, all of which have large and perfectly coloured berries. The heaviest bunch will weigh about 9 lbs., and is perfect in every respect. —I.

**Stanwick Elruge Nectarine.**—A tree of this kind in the gardens at Rood Ashton, Trowbridge,

has just perfected one of the heaviest and best crops of fruit I have ever seen. It is trained over a semi-circular trellis at the front of a successional Peach and Nectarine house, and the large and richly coloured fruits were hanging not more than 4 inches apart each way all over the tree. It more resembles the Elruge than the Stanwick Nectarine, but it is a few days earlier and of better quality than the former. For exhibition and market purposes the Stanwick Elruge is especially to be recommended. —W. I. M.

### PEACHES AND PEACH HOUSES.

I WOULD strongly recommend all who purpose growing late Peach crops under glass to try the plan of growing standard informal headed trees. I should not advise anyone to adopt the plan were I not perfectly convinced that it is the right way. Its great advantages are, that it permits the tree to have its natural shape, and entirely gets quit of all formal training, tying, and stopping of the shoots, &c., and is at once the simplest and easiest method of Peach culture. I have not the least doubt that by planting standards of such varieties as the Royal George Peach and Victoria Nectarine, for example, anybody might have plentiful crops the year after planting quite young trees, and in two or three years more than they could use. Peach culture is in its infancy with us yet, but in future (good though Peaches are on open walls this year) it must be conducted under glass and in properly constructed houses. By growing a Peach in the standard form we get trees of large size in one or two years, such as cannot be grown by any method of training. This fact is not sufficiently realised. A Peach tree trained against a wall or a trellis cannot make above a sixth part of the wood which it makes as a round-headed standard. A wall or flat trained Peach tree no more represents the size and capabilities of a standard of the same age than a sectional plan of a building represents the extent and conveniences of a house. Those who contemplate Peach culture would do well to consider this matter, and plant standards. I would recommend anyone doing so to try the Victoria Nectarine by way of experiment. It is everywhere spoken well of, and is as nearly a fail-me-never as anything of the kind can be. With us it has never failed, and the crop is always abundant. It is a most extraordinary grower and bearer; the fruit is of the largest size and of Stanwick flavour, than which there is no better. It is a second early kind, but forces freely, ripening early in June.

Houses for standards would require to be differently constructed from the usual pattern. The simplest and best form is represented by an inverted letter  $\cap$ . Any hothouse builder can build a house of this sort, and provide ventilators along the centre of the curve at the top and at the sides near the ground. Houses of this description need have no gutters, the water running right down into the drains at the bottom. A house of this kind for Peach culture would have to be about 15 feet or 18 feet high, the sides being about 12 feet on the perpendicular, and the rest made up by the curved roof. The width might also be about 12 feet, but less would do, the trees being planted in the centre, and consisting of riders with tall stems, with a path under or around them. The tops would occupy the top portion of the house, and anything else suitable could be grown under the trees along the sides where light was abundant.

As to the training of the trees, the cultivator would find many of his anxieties and troubles removed, for standards require no training in the ordinary sense, but only disbudbing. Young standards with two or three spreading branches should, at the beginning, be permitted to push every shoot. There will be many, for a single Peach shoot usually produces from twenty, perhaps, to fifty or a hundred leaf-buds, according to its length, all of which in flat-trained trees have usually to be removed to two or three, because room cannot be found to lay them in, as all lie in the same place. Standards permit much more growth, for although many buds would have to be removed, still a good few may be left on each shoot, as the round, spreading head provides room for them, and at the end of the season quite a large tree is the result. I should deem it nothing remarkable for a standard Peach or Nectarine to produce twelve or



fifteen dozen fruit the year after planting. I have seen and had flat-trained trees of that age produce about half as many, and a standard tree has three or four times as many bearing shoots. This is on the extension system of pruning, of course.

I have grown standards, but in very small and unsuitable houses, just for experiment, and have been much impressed by the growth and fertility of the trees, and I am convinced that for late crops under glass, the plan beats any other, and costs less trouble. Some may inquire how it is that gardeners have been so long in finding this out, but it is easily explained. Up till late years, comparatively speaking, glass was dear, and houses were mostly constructed against walls, as lean-tos, for economy's sake, and the trees trained on trellises; with the advent of cheaper glass and loftier houses, the idea of standards does not appear to have suggested itself generally, but only an amplification of the flat trellis system. The value of standards is, however, becoming better understood, and I know of some fine examples, notably those at White Hill, near Edinburgh, where the crops from the standards have been little short of incredible in quantity, and the quality first rate. There are many fine-trained Peaches of the same age there as well, but the gardener informed me that the standards bore by far the heaviest crops and most regularly, and required, he said, ten times less attention.

J. S.

**Melons in an unheated house.**—There has been a great difficulty experienced in setting Melons hereabouts this season, this being more especially the case in well-heated houses. At Rood Ashton, however, where the principal portion of the summer crop of Melons is grown in unheated houses no such difficulty appears to have been experienced, the weight of Melons ripening on closely restricted plants, as I saw them recently, being somewhat startling. The fruit were all of a useful size, such, for instance, as find most favour with fruiterers or market salesmen, and the weight was sufficient to break down the nearly new and fairly strong dividing sash-bars to which the trellis wires were attached. The favourite varieties with Mr. Miller are Blenheim Orange, Hybrid Cashmere, Eastnor Castle, Premier, and Hero of Lockinge, and all appeared to be equally good under the same treatment. It must not be thought that I wish to recommend unheated houses for Melons; quite the reverse; as I only allude to them by way of an illustration of what can be done by persevering men when circumstances are not always so favourable as they might be. Frame Melons would also appear to be superior in quality this season to many that have been ripened in houses, owing, I imagine, to the latter ripening too rapidly, in many cases prematurely perhaps, and as a consequence they are neither luscious nor richly flavoured. The Longleaf Melons which were recently successful at the fruit show held at South Kensington were grown under a perfect canopy of healthy foliage, and as there is now a heavy successional crop swelling off on the same plants, it may safely be premised that no drying off was attempted. To prevent our Melons ripening too fast, and also to check the spread of red spider, we thought it desirable to shade freely and also to turn off the fire-heat, and I am glad to say our fruits are of good quality.—W. I. M.

#### TRAINED PYRAMID FRUIT TREES.

I HAVE said so much against this form of fruit tree, that some might imagine I had a special grudge against it; but that is not the case. I simply do not like it because the shape is unnatural and ugly; if an artificially trimmed Laurel or Holly, for example, be looked upon as a deformity, surely no defence can be offered for a fruit tree trained on the same lines. This is one objection, and the other is that the pyramid fruit tree, whether pendulous or erect, is unnecessarily troublesome and expensive to raise and keep in shape, and it is not so fertile nor so profitable as any other tree of the same age. In the culture of fruit trees for crops and profit, I can conceive of no question of more importance to the cultivator than the cost of production, and that being so, I consider that every grower—be he amateur or market gardener—should face that question first of all. As a rule, the market gardener does do this, and private gar-

deners and amateurs evade it; hence their practice and that of the market grower has always been different. But it appears to me that no good reason exists for making any distinction between the two, for it is just as necessary, and particularly now-a-days, that the private garden should be conducted on as sound economical principles as the market garden. Some latitude might be allowed in the case of the flower garden, but why such things as Cabbages and Potatoes, or Grapes and Peaches, for example, should cost more in the private garden than elsewhere has yet to be explained. I do not say the produce of private gardens is always more costly, but in numerous cases the system of management is more expensive, and our elaborately trained trees are examples out of doors, just as expensive Vine borders, often renewed, and vineries, often replanted, are indoors. As to a fancifully trained Apple or Pear tree, my proposition is that it is ugly from the point of view of those who condemn trees and shrubs trained in the same way, although there are some who inconsistently advocate the one and condemn the other; in the second place, such shapes are unprofitable from any other point of view. I find that among amateurs and owners of orchard houses and the like there is at present a tendency to simplify their practice if they could; but, as they say, they have hitherto been at the mercy of arbitrary rules and teachers until they had acquired some experience of their own. It is these amateurs and others who own gardens, and direct many of the operations therein, that are the sufferers, and would gladly welcome a change from the troublesome methods of training almost all kinds of fruit trees to one more natural, and at the same time better and much less costly. The natural bush forms of Apples, Pears, Plums, &c., are now being adopted in many places, and they are found to produce the best results, while they quite get rid of all formality of shape and the trouble of training is reduced to a minimum, the pruning at the same time being so simple that anyone may prune his trees who likes.

J. S. W.

**Spanish fruit.**—A "Salesman," writing to the *Times*, says: "Notwithstanding the cholera-stricken condition of Spain, the next few months will see several thousand packages of fruit consigned from that country to the United Kingdom every week, notably Nuts from Barcelona, Lemons from Valencia, and Grapes from Almeria. These last being packed in barrels, filled up with cork-dust, I leave to the careful consideration of the authorities."

#### QUESTIONS.

5374.—**Rose wanted.**—Can any reader of THE GARDEN tell me where a Rose named Dr. Baillon can be obtained? Has it changed its name, or is it out of commerce?—H. A. W.

5375.—**Golden Rhus Cotinus.**—Can any of the readers of THE GARDEN kindly tell me where I can buy in England the gold-leaved Rhus Cotinus (R. C. foliis aureis)?—A. B., *Warsaw*.

5376.—**Gardenias.**—What is the lowest temperature in which Gardenias can safely be wintered with the view of having early bloom? I have a lean-to frame built against the front of a fernery 45 feet long and 7 feet wide, with one floor and return 3-inch pipe along the front close to the sashes. Can I winter Gardenias in a frame of that description by excavating the soil so as to lower the pots sufficient to keep the top free from the glass? Some of your readers will, perhaps, kindly give me a hint or two in reference to this matter.—Novice.

5377.—**Camellias.**—I have a small Camellia about three years old in a 7-inch pot with which I am at a loss what to do. Last year it formed six fine flower-buds, but one night about Christmas all dropped off. The house in which it grows is kept at 50° or thereabout all winter till about March, when it rises to from 55° to 60°. This year it made new growth in March about 5 inches long, and last month I put it in a sheltered place outside, but instead of setting its buds it made new growth. I have it now in the greenhouse and well watered and shaded from the midday sun. Any advice on this matter would be thankfully received.—J. J.

5378.—**Monstera deliciosa.**—We have at the present time a fine plant of this Monstera on the point of ripening three fully developed fruits, each of which measures about 12 inches long. The plant in question has been growing in a pot at one end of our plant stove for several years, but never fruited before. It has for some time been left almost in a starved condition in consequence of its robust growth. It is limited as to pot room, but roots have emerged from the pot and have made growth 2 yards or 3 yards long and are as thick as a riding whip. Can any of your correspondents inform me for what purpose the fruit is used when ripe, which it will be in a few days?—THOMAS CARLTON, *Wilderneise, nr. Sevenoaks*.

5379.—**A better Mullein.**—Will "K." say if he knows V. phlomoides, which is the best Mullein I know?—R. E.

#### PHOTOGRAPHS OF GARDENS OR PLANTS.

THE days of amateur photography have come, and there are besides such various means of getting good photographs in most parts of the country, that it has struck us that it may be useful to invite our readers to take or procure photographs of beautiful garden scenes and plants of peculiar grace or other merit. Our purpose is to get pretty or suggestive pictures of any gardening objects of interest, whether from the open garden, the hothouse, greenhouse, rooms, or windows. The best photographs of objects of gardening interest that are sent to us during each month will be engraved as soon as possible in the most fitting manner for publication in THE GARDEN. That is, perhaps, the best honorarium we can bestow upon the senders, but those who send the chosen pictures will also be entitled to receive not less than one guinea and a half's worth of books useful for garden reference or practice.

Inasmuch as the tendency of a great deal of the so-called landscape gardening of a past generation or so has been to mar or blot out wholly the most precious feature of British gardens, the lawn, we wish in the first series of prizes to encourage good views of that portion of the garden. Our first prizes, therefore, will be for the most beautiful

#### LAWN VIEWS,

either to or from the house, or from any position that may be found most picturesque. Any other views, however, will be welcome. In addition to the above we propose to give to the reader who, during the current year, sends us the best series of photographs for engraving a painting by Alfred Parsons, shown in the present exhibition of the Royal Academy. It shows a bunch of the common Moss Rose, bought in Covent Garden, and painted by the artist in oils.

Photographs of the outdoor garden should be taken with a lens adapted for the purpose; some photographers use lenses unfitted for landscape work. All photographs sent must be clear, the subject intended to be shown in good focus, and of a size to be distinctly seen; imperfect photographs will not be admitted to competition. Figures of men or women, barrows, vases, and all similar objects should not be taken.

Photographs should be addressed to the Editor of THE GARDEN, and marked "Garden Illustrations." The name and description of each object sent should be distinctly written on the back of every photograph. The photographs may be those of objects in one's own possession or cultivation, or of any others that may be obtained, but the source whence they are derived should be stated, and none sent the copyright of which may be questioned. Unmounted photographs will do as well as mounted.

Drawings and photographs for the first competition should reach us by September 15.

**Campanula Waldsteini.**—This, one of the prettiest little gems belonging to the Bell family, is now in flower. It has pretty dark green, oval-pointed leaves, and bears lilac flowers with a ring of a darker colour near the base. C. Tommasini, pusilla and its varieties also make good plants for the decoration of rockwork.

#### THE LATE MR. ELLACOMBE.

MR. THOMAS ARCHER TURNER, President of the Lancashire Association of Change Ringers, writes to the *Standard* as follows concerning the late Rev. H. T. Ellacombe: "Our patron and advocate with the people of England has ended his days on earth in a crown of glory, won after ninety years of sojourn here below. I refer to the Rev. Henry Thomas Ellacombe, M.A., the venerable and dear Rector of Clyst St. George, Devon. No one has done more than he to advocate the science of change ringing and to elevate ringers in the social scale. To his great energy and ability all the County and Diocesan Ringing Associations owe their birth. He has visited more towns than any other man in the land, and has unearthed many an 'Ancient Briton' in the old church steeple. He has written more upon bells than any other man, and his great learning and courtesy were extended to any and every correspondent, however humble. He was



the means of our earliest special organ, *Church Bells*, being started in 1870, and, despite his great age, has to the last edited its columns on 'Bells and Bell Ringing.' Comrades all! With permission of vicar and churchwarden, some time during the present month, and out of respect to this good man, let us ring a muffled peal, or a date touch, or a plain course (sending a report to the bell papers), or, at the least, a round ring, as a requiem.

## BOOKS.

### DEW OF THE EVER-LIVING ROSE.\*

THE dewdrops from the Rose, which, more or less brilliant, form the beads of this rosary, are gems selected from the poetry of all times and climes; and they form an adjunct to the worship of the queen of flowers which should be devoutly handled by all true rosarians.

The book, very dainty in its design and tasteful in its illustrations, is preceded by a quaint and graceful preface, modestly depreciating the merits of the writer and eloquently extolling the theme, the rose of "the grand old heathens of Greece and Rome"—the flower of love, of chivalry and heraldry, beauty and sweetness—sweetness in a twofold sense, for "Roses were once made very much of for confections and for potions—Rose cakes and Rose drinks; and many a recipe for their making has come down to our day."

The author would have shown a yet larger love, and, withal, a wiser discretion, had he (or she) kept to generalities, avoided nomenclature, and refrained from condemnations, which are so unworthy of one having such true appreciations of the beautiful, that they can only proceed from ignorance. We are told, for example, that

Where hundreds once were grown perhaps the numbers now are countless ("Roses are grown;" that very phrase, so commonly used, proves how prosaic we are), and for the few old typical names they once bore, the Red Rose, the Damask, the Musk, the Velvet Rose, the Celestial, the Maiden's Blush, the Prænestic (?) Provence, Cabbage Roses, and others; and the undying Roses of a later day, Aimée Vibert, Souvenir d'un Ami, Coupe d'Hébé, Céline Forestier, Charles Lefebvre, &c., there are now a thousand names. And they mean almost nothing; or they mark a period, and then die out and are forgotten. Such were the Queen of Sweden, William IV., and Louis Philippe. Such may be in a few short years, alas! our present catalogues of Horace Vernet, Duc de Montpensier, M<sup>me</sup>. Lacharme, Sir Garnet Wolseley, John Hopper, M<sup>me</sup>. Grévy, and a host of others. The Roses themselves are being continuously changed or lost by cultivation; so that the Rose—of to-day before to-morrow's sun become Hesterna Rosa, the Rose of yesterday. In my own garden I gather together and fondly nurture very old Rose that can be found. . . . Then there are the Rose shows and new Roses almost daily advertised. But the finest in form and colour, among these the most beautiful sorts in the eyes of a Rose grower, are most often scentless, or else, when fading, we wish they might be. The poet had in his thoughts something widely different from these modern Roses when he praised "the patient beauty of the scentless Rose"; and, besides being unperfumed, so large and so doubly double are they, that there are days when I almost think the soul of the Rose is dead.

The whole paragraph is "a comedy of errors." Why should not Roses be grown in countless numbers and by a thousand names for the delectation of Her Majesty's lieges instead of by hundreds? What is there more "prosaic" in "growing" Roses than in growing Orchids or Grapes? Am I no longer to ask my neighbour, "Do you grow," but "do you gather together and fondly nurture, Roses?" Did not our grandfathers and grandmothers always write of "growing"—I will not say "the Prænestic," for I find no mention of it—but the other "old typical"? Were they quite satisfied with these, or constantly rejoicing in some new acquisition brought from distant lands or produced by the patient skill of the Rose grower? And if some are to be "undying," such as Aimée Vibert, why should all more recent introductions "mean almost nothing?" Who wants to hear of "Queen of Sweden" (a name unknown to rosarians), or of such obsolete inferiorities as "William IV." and "Louis Philippe"?

What if our modern developments should disappear in time (I have not seen or heard of Madame Grévy, but Horace Vernet, John Hopper, and Madame Lacharme will be admired for many a year to come) to give place to yet lovelier tints and forms—shall we not admire and tend them with all true reverence *now*? And of this I am quite sure, that they who most appreciated Roses as they were would most appreciate Roses as they are, and that the grand old gardeners, amateur or professional, would tell us, with enthusiastic delight, that time had realised their visions of beauty in such Roses as La France, Duke of Edinburgh, Merveille de Lyon, Maréchal Niel, and Catherine Mermet.

So with the poets. While they retained, as we retain, all their old appreciations of the Rose in every phase of its beauty, they would see with gladness of heart, as we see, Gloire de Dijon covering the cottage wall, pure Niphetos in the nuptial bouquet, "72 Hybrid Perpetual," and "12 Tea and Noisette Roses" at the Rose show; and would not "almost think that the soul of the Rose was dead." It would be with them, as I know it to be with the greatest of our modern poets, and they would say:—

Never sure, since high in Paradise  
By the four rivers the first Roses blew,

has eye seen fairer flowers.

Why should we contract and stereotype our approbation of "infinite variety?" Why fight this new war of the Roses? Why make contrasts instead of seeing in all, on the hedges, in the garden, and under glass, some excellence separate and supreme? If Mrs. Ramsbottom had read Keats upon the Musk Rose—

And as I feasted on its fragrancy,  
I thought the garden Rose it far excelled—

she would have rightly remarked that such comparisons were odorous.

It seems inconsistent, having said this, to give extracts where there is such general excellence, but this must be done to induce those who like the pattern to purchase for themselves the piece.

La tombe dit à la Rose :  
"Des pleurs dont l'aube t'arrose  
Que fais-tu, fleur des amours?"  
La Rose dit à la tombe :  
"Que fais-tu de ce qui tombe  
Dans ton gouffre, ouvert toujours?"  
La Rose dit : "Tombeau sombre,  
De ces pleurs je fais, dans l'ombre,  
Un parfum d'ambre et de miel."  
La tombe dit : "Fleur plaintive,  
De chaque âme, qui m'arrive,  
Je fais un ange du ciel!"

—VICTOR HUGO.

If innate worth in thee is born,  
Thy origin deserves not scorn :  
The Rose aye blossoms on the Thorn.  
—SADI.

If this pale Rose offend thy sight,  
It in thy bosom wear ;  
'Twill blush to find itself less white,  
And turn Lancastrian there.  
—ANON.

And Carew in a like spirit—

Ask me no more where Jove bestows,  
When June is past, the fading Rose ;  
For in your beauties, orient deep,  
These flowers, as in their causes, sleep.

And Burns to Miss Cruikshank, "a beauteous Rosebud," with a sweeter, purer pathos—

May'st thou long, sweet crimson gem,  
Richly deck thy native stem ;  
Till some evening, sober, calm,  
Dropping dews and breathing balm,  
While all around the woodland rings,  
And every bird thy requiem sings.  
Thou, amid the dirgeful sound,  
Shed thy dying honours round,  
And resign to parent earth  
The loveliest form she e'er gave birth.

Thesè and many pages of other extracts, intermingled with dear old favourites, such as Shakespeare's fifty-fourth sonnet, "Ah, how much more doth beauty beauteous seem;" George Herbert's "Sweet day, so cool;" Herrick's "Gather ye Roses;" Waller's "Go lovely Rose;" Cowper's "The Lily and the Rose;" Sir Walter's lines "The Lady of the Lake," "The Rose is fairest;" Moore's "There's a bower of Roses," "The last Rose of Summer," "You may break, you may ruin;" and Gerald Massey's exquisite little poem, "The wee white Rose," will add to our enjoyment in the "time of Roses," and will revive our memories and enrich our hopes when their leaves become *pot pourri*.

S. REYNOLDS HOLE.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.

\* "Ros Rosarum ex horto Poetarum: Dew of the Ever-living Rose." Gathered from the "Poets' Gardens of Many Lands," by E. V. B. London: Elliot Stock. 1885.



## WORK DONE IN WEEK ENDING AUG. 11.

AUGUST 6 AND 7.

AT last we have been favoured with rain, to the extent of 0·23 inch, and with what relief, not to say joy, we put aside the hose and water-pot none can know but those who have been in a similar plight. Our first thought was of finishing up the planting of winter greens, such as late Broccoli and Kales. We also sowed Black-seeded Bath Cos Lettuce, Curled and Batavian Endive, and early Peas. This last is a chance crop, by which I mean that if we have a warm moist autumn we may get good Peas, but we certainly shall not do so if the weather proves dry and cold. Thinned out Lettuces and Turnips. Pulled suckers and small outer foliage off Celery and earthed up the earliest batch. Soiling up of all crops that require that operation we always endeavour to do after the ground has been well soaked, for then the added soil keeps down the moisture and prevents the necessity for any further artificial watering, at least for a considerable period. Our staple varieties of Broccoli are Veitch's Protecting, Snow's Early Penzance, Sutton's Michaelmas White, Cooling's Matchless, Veitch's Model, and Sutton's Late Queen. Our favourite Kales are the old Scotch Curled, Asparagus, and Cottager's. Our best Cabbages are Ellam's Dwarf and Sutton's All Heart. Another small sowing of each of these three kinds has just been made for the latest autumn plantings. Indoors work has been potting Strawberries, exposing the fruit to light in latest Peach house by picking off a few of the leaves, and tying aside any shoots that overshadowed it. Watered inside borders of latest vineries, and afterwards mulched them with clean straw. The variety Madresfield Court, that in previous years has always cracked badly, has this season shown no tendency in that direction, and yet the treatment has been just the same. To what, therefore, must the freedom from cracking be attributed other than to abnormally high external temperature and drought, which in this county has extended over nine weeks, and with such severity that the Grass is now the colour of our gravel, namely, yellowish brown. Of course, the drought does not apply to Vine borders, as they have all had ample supplies of water. I am, therefore, inclined to believe that the cause of cracking is purely atmospheric. But, there, it is only surmise on my part, and better men seem to have got but little further as to what really does cause cracking.

AUGUST 7 AND 8.

No more rain, and worse still, the most harsh north-easterly wind that ever blew in August, and which is drying the very life out of plants. Rhododendrons and Conifers that were planted last winter are obliged to water to keep them alive; but hardy fruits—Pears, Peaches, Apricots and Cherries—have our first consideration, and well have they all repaid our labour, Peaches and Pears in particular, as they promise to be extra fine; the heat apparently suits them well. Gathered a few Jargonelle Pears from a west wall; this variety we always harvest soon as there is the faintest tinge of colour on the side next the sun; the fruit is then of finer quality, and continues in good condition after being fully ripe for a much longer time than if gathered, as is usually done, soon as the fruit begins to drop. Cut away the breastwood, or rather the new growths, from the principal shoots of Apricots, and tacked in such main shoots as had got loosened or overweighted with fruit. They have had abundance of water, and the fruit is extra fine in consequence. There being a thick mulching of long litter over the roots, artificial watering will now be discontinued. The birds are in desperation, and they attack every description of fruit long before it is ripe; protecting nets are, therefore, being put over every tree and wall that can conveniently be got at. Herbaceous plants have had a general trim and tie up—Phloxes, Carnations, perennial Sunflower, Japanese Anemones, Funkias, and auratum Lilies being at present our most effective flowers. The old red Clove and its white counterpart Gloire de Nancy come in for the largest share of admiration, and certainly they are worthy. Work in the flower garden is quite of the routine order, namely, picking, pinching, and tying up. We have done a little propagation of Pelargoniums, the cuttings having been

taken from plants that were exceeding their limits. The tenderest plants have this season grown like weeds and coloured to perfection, but for all that our aim is to have more hardy bedding plants that we may have the more room and space in the houses in spring to devote to fruit and plant culture. Potting Strawberries, mulching with fresh droppings Cucumbers and Melons that are swelling off their fruit. Cut remainder of Grapes from early house and put them in bottles. This clearance effected, the new lateral growths had their points pinched out, then with a moderate amount of pressure, so as not to injure the foliage, the watering hose was brought into play with a view of checking the spread of, if not able to destroy, red spider, which has this season punished the Vines severely. However, the time for revenge has now come, for the repeated slushing or washing of to-day will assuredly destroy every insect. All houses had a thorough clean up and plant houses rearranged, the best flowering plants having previously been taken out for the decoration of rooms in the mansion. Our most useful—because lasting—flowering decorative room plants at the present time are Celosias, Gloxinias, tuberous Begonias, and double Pelargoniums.

AUGUST 10 AND 11.

On Sunday, the 9th, there was another attempt at raining; 0·7 in. was the extent, but the harsh easterly wind of these last two days has effaced all trace of the shower, and watering has again been our principal work. Fruit, vegetables, flowers, and shrubs, each in their turn share in the supply. Winter greens, Savoys, early Broccoli, Coleworts, and Spinach we must now keep watered, if other crops be neglected. Peas, Cauliflowers, Runner and dwarf Beans, Carrots, Parsnips, Beet, and Onions have hitherto, thanks to deep trenching, scarcely felt the drought. I am wondering how the shallow-cultivating advocates are faring. If they have had the courage to practise what they have preached, their kitchen gardens will now be in a poor plight. Put in a few more cuttings of Pelargoniums, clipped tops out of dwarf Lobelias, an operation that destroys some little flower, but increases the wood growth, and ensures successional and a longer season of flowering. Lobelias of the cardinalis section have grown so tall that staking has had to be resorted to, as it has also in respect of the rather straggly-growing *Marguerite Reine d'Or*. Single Dahlias we look over once a week for the purpose of tying and picking off seed-pods. These enjoy the sunshine and deep rich soil, for they are now, and have been for a fortnight past, a complete mass of flower. Finished potting Strawberries for forcing; pressed plunging material closely round Pines; they had to be lifted by reason of the over-heating of beds, but the heat has now declined to 90°, and is therefore safe. All the plants are now looked over for watering twice each week, and to Smooth Cayennes now swelling off their fruit manure water is given at each watering, and the atmospheric moisture is at all times of a liberal description, and on very hot days all our plants have at closing time a slight syringe over-head. Potted on another batch of Cinerarias and a few Coleus. Split up old plants of variegated Panicum, and repotted in small pots for use as edgings for baskets of plants. It is an excellent companion plant for such a purpose, to the drooping Grass (*Isoplexis gracilis*).

HANTS.

## HARDY FRUITS.

We are now (Aug. 3) into the seventh week of drought, and, judging from the reports which we have received from different parts of the country, it is to be feared that the fruit crops on light burning soils have suffered more than they have in our own immediate neighbourhood. Here, although the calcareous soil is cold and heavy, trees of all kinds that cannot receive abundant supplies of water are now casting their fruit and leaves, and insect pests are rapidly on the increase. Wall trees of all kinds carrying fruit have been heavily mulched, and the hose is kept going from six o'clock in the morning until late at night; but where everything is pleading for water, a constant stream seems little better than child's play, and we have lately supplemented the hose with water-barrels worked by relays of men whose occupation on the lawns is reduced to the cutting of bents and a few

flower-stems. Two days ago the glass indicated a downward tendency; yesterday it was firm, and to-day it is again falling; heavy clouds are blowing up, but the wind still sticks in the north, and immediate rain is extremely doubtful. Peaches and Pears on walls, external Vine and Peach borders receive our special attention, and so far all seems to be going on well, but notwithstanding the thousands of gallons of water that have been given to the Peaches, a tendency to mildew on the fruit is now unmistakably present. This, there can be but little doubt, is due to cold nights (the glass on one occasion last week registered 45° Fahr.) and the overcast state of the atmosphere. This enemy is a quick traveller, and although the discovery has only just been made, a good supply of sulphur water is already in course of preparation, and by its use we hope to arrest its deadly progress. We have sometimes applied dry sulphur through a dredger, but it clings so tenaciously to the woolly coats of the Peaches, and clear sulphur water answers equally well, if not better, as it penetrates into all crevices and checks spider as well as the mildew. We have this day, August 4, finished nailing and tying in our wall Peaches and Nectarines, just in time for the safety of the shoots, which otherwise might have been injured by the rather heavy downpour of thunder rain from the north-west. The glass is still falling, and once broken the weather may now continue showery for some time; but if it does not, we have had sufficient to carry the hose supplies thoroughly home to the roots. Orchards are already looking refreshed, and many of the trees which at one time looked thinly set are now beginning to show good crops of fruit; the never-failing Keswick Codlin, Lord Grosvenor, and Golden Winter Pearmain, three of our most useful Apples, are literally breaking down, but the trees are too large for thinning, at least to an extent that would make any appreciable difference in the size of the fruit. Pears on walls, some of them badly infested with blight and honeydew, although well mulched and watered, have again been thinned, and there is now a fair prospect of the trees swelling good average crops to maturity. They will not, however, be left entirely to themselves, as we have a good pressure of water, and the hose will be vigorously plied until the foliage is clean and free from blight. If not already done, all leading shoots should now be nailed in close to the walls, and sub-laterals again broken off to let in light and air, and at the same time to force every ounce of sap into the spare buds and fruit.

## PLUMS,

with us a partial crop, are literally devoured by the white aphid, which renders pruning and nailing a very unpleasant operation; but the work must not be shirked, as next year's crop greatly depends upon persistent warfare with the enemy, and manipulation that will favour the formation and ripening of the buds. Here, again, our vegetable crops and flower-beds being safe, the hose will be turned on full bore, as we cannot have perfect fruit-spurs if aphid is allowed to reign rampant. The crop of Pershore Plums was at one time heavier than usual, but the immense strain on the trees and the drought combined have greatly thinned the fruit, and it is just possible this fine rain, if it has extended along the Avon valley, may save and swell up sufficient fruit to make the crop really valuable and remunerative to the growers.

## APRICOTS

are now beginning to ripen on our cool marl, and the crop being light the fruit promises to be very fine. Our trees have been mulched and well watered at the roots, but the foliage has not been washed, as we find hosing in hot weather favours the cracking of the fruit, and the smallest flaw in the skin attracts winged enemies. These trees, like Plums and Pears, should be kept constantly pinched; otherwise a great deal of force will be wasted on breast-wood, and the fruit will not attain its fullest size, colour, and quality. As wasps may soon be very troublesome, provision should be made for protecting the best trees from their ravages. Light materials of many kinds in various widths can now be obtained for this purpose, but there is nothing better or cheaper in the long run than Haythorn's hexagon netting, as



it lets in light and air, dries quickly after rain, and keeps sound for a number of years. To facilitate the examination and gathering of the fruit, light poles or slating battens, let into the ground 3 feet from the foot of the wall and secured to the coping, will keep the netting clear of the trees and admit of the whole length of border being traversed when the fruit requires gathering.

## FIGS.

If not already nailed in to the wall, all weak and superfluous shoots must now be cut out to make room for the most fruitful growths, which should be laid in full length, and sufficiently wide apart to admit of a free circulation of air. The stopping of outdoor Figs should never be practised, as it rarely happens that the young breaks ripen; but by laying in firm, short-jointed wood full length, an abundance of embryo Figs which will be the first to ripen next season will be formed from base to summit of what may be termed extension-trained trees. Brown Turkey, heated in this way last season, is now carrying an immense crop of fruit to maturity; the roots are heavily mulched and water is freely supplied to the 3-foot border, which forms the limit of their range, as they are shortened back every year. The best time to perform this operation is immediately after the last ripe Figs are gathered and before the leaves fall. The trees then receive a decided, but not over-severe, check, which favours the ripening of the wood and prevents many of the young Figs from getting too forward to pass safely through a severe winter. When outdoor Figs are well mulched and regularly watered, insect pests do not hurt them in ordinary seasons, but this has been an exceptional year, and it is more than probable red spider will be present; if so, the pliable hose, which can be turned in every direction, must be worked full force on the lower sides of the leaves and well into the crevices in the walls, not once or twice, but frequently until the webs are completely washed away.

## LATE CHERRIES.

Where Bigarreau Napoleon is grown on north walls for giving a late supply of fine dessert fruit, the trees should now be carefully hand-picked to clear them of decaying leaves and faulty fruits, which, if left, will soon taint the best and shorten their season. The great drawback to the preservation of ripe Cherries on open walls is exposure to rain and stagnant moisture; birds also and wasps are very destructive, but they can be kept out by the use of finely meshed or Haythorn's hexagon netting, fixed, as has been recommended for Apricots, and the fruit to a certain extent can be sheltered from rain by the use of broad coping boards, to the outer edge of which the netting should be attached. The first cost of wasp-proof netting being heavy, an effort should be made to lighten the annual outlay by fixing it taut and free from folds, which do not dry quickly. The lower edge can be kept clear of the damp ground by the use of coping boards running longitudinally the whole length of the border and resting against the poles or battens, to which they should be secured with small nails to prevent them being blown down by the wind. Morellos do not often receive this attention; but where these and late Dukers are appreciated, their season can be greatly extended by the use of coping boards for throwing off the wet. Cherries having been so badly infested with black fly, every tree should be thoroughly cleansed with a strong insecticide as soon as it is clear of fruit. A cheap wash can be made by dissolving three or four pounds of Gishurst compound in a 40-gallon cask and filling it up with soapsuds, in itself a good insecticide and an excellent stimulant for the roots. This quantity may be increased to 80 gallons by the addition of warm water when it is taken for use, and it must be applied with considerable force through a garden engine to dislodge the fly from the shoots and imperfect joints in the walls. One dressing, it must be borne in mind, will not be sufficient, as black aphid is most tenacious of life, independently of its security when thoroughly established in the curled-up points of the shoots and leaves.

## STRAWBERRIES.

Oxonian, our latest variety, is now (Aug. 7) nearly over. We generally gather from north borders until

the 20th, but, notwithstanding the copious supplies of water which the plants have received, the intense heat and dryness of the atmosphere have prevented the late fruits from swelling to maturity. If not already done, all sticks, ties, and runners must now be removed from beds which it is intended to retain preparatory to the application of a good dressing of rotten manure or fresh loam, either of which will stimulate the surface roots and keep them moist and cool should we have a return of hot, dry weather. Fine showers of rain have been falling in this district for some days past, but when thoroughly dry, nothing short of a deluge will penetrate through the old stools, and as drought and mildew go hand in hand, the hose should be laid on where water is plentiful.

Where, in accordance with former directions, fresh ground has been trenched and manured for new plantations, this genial change to moist growing weather will favour the transfer of the young plants to their permanent quarters.

## RASPBERRIES.

Where winged depredators render the netting of this useful fruit necessary, the plantations should be thrown open as soon as the crop is over, when the nets so employed will come in for autumn-bearing kinds, Currants, and late Gooseberries. If not already done, cut away all the old fruit-bearing canes, thin out the weakest of the young growths to let in light and air, and secure the best to the stakes or wires to prevent them from being broken down by wind and rain. This done, weed the plantations, give them a good soaking with the garden hose, and mulch with rotten manure to feed and keep the surface roots moist and cool. Many years ago an old gardener observed that he could not get on with his Raspberries, and the miserable canes bore out the assertion. Upon inquiry it came to light that he allowed the old wood to stand half through the winter; the stools then received the annual dressing, manure in plenty was wheeled in, and the spade destroyed the valuable surface roots which it should have been his object to preserve and feed. The plantation was placed under new management, the old canes were cut out as soon as the fruiting season was over, digging was discontinued, and the natural result very soon followed. The Raspberry delights in shade and moisture, but the shade should be produced by its own vigorous canes and foliage, and moisture can always be secured by biennial mulching and an occasional drenching with the hose when the fruit is swelling. Like all other fruit-bearing plants, the canes and roots of Raspberries require plenty of sun, light, and air to ripen them up before they go to rest in the autumn; they will then pass through a severe winter with impunity and produce an abundance of vigorous young canes and fine fruit in due season.

W. C.

## KITCHEN GARDEN.

## CELERY IN HOT WEATHER.

THERE is every prospect of Celery being scarce, especially in small gardens, where either space, labour, or water, or perhaps all three, are limited; and even those in charge of large gardens have delayed planting till much later than usual in the hope that a favourable change in the weather would take place. Gardening under difficulties has been the case this season, and it seems our troubles are not yet ended, as at the present time (July 31) there are no signs of the much-needed rainfall. Celery is essentially a water-loving plant, and even when well established and well supplied with water, it makes but slow progress in hot weather, accompanied as it now is with a parching east wind. We were fortunately able to cut out our trenches early in the season, as we invariably do in fact, and planted the Celery as fast as the successions of plants were large enough, and the greater portion of them are now looking fairly healthy. Some growers of my acquaintance, however, either delayed planting, although the trenches were prepared, or else delayed cutting the trenches till after such times as a soaking rain had fallen, which has not come, and the delay has proved most disastrous, as the ground is now nearly as hard as a road, while the plants are completely overcrowded and spoilt.

When pricked out in a thin layer of firm, rotten manure placed on a hard bottom, if not left till they have become drawn, they may be safely transplanted in the hottest weather; but the same plants with the same amount of soil and roots, when badly drawn will flag very badly if put out in such weather as we are now experiencing. They will eventually recover from such a severe check, but it is doubtful if they will ultimately perfect such solid crisp hearts as we now consider indispensable. The bundles of plants without any soil about the roots, as usually sold in the markets, will be quite useless this season, or at any rate will not pay for the amount of trouble necessary to grow them to an eatable size. As before stated, all our Celery is now established in the rows, but the last batch of plants has been the most difficult to manage. The plan which we adopted with these, and which I can commend to those who may have Celery yet to put out, was to first soak the bed in which they were growing and also the trenches; this greatly facilitates the work of transplanting. When the latter was done another over-head watering was given and then the trenches were rather heavily shaded with branches of deciduous trees. Without this shading the plants would have scarcely existed without more water than we could afford to give them, and even with the shading we thought it advisable to lightly water them overhead every evening. Those first planted require frequent supplies of water even after a little soil has been cut down and worked round them, as all the moisture which the manure and soil hold is quickly absorbed by the roots. Strong, well-rooted plants, if water is scarce, especially should also be shaded, as it is quite certain they will never thoroughly recover from the check experienced in very dry, hot weather. W. I. M.

## CELERY SEEDING.

THE recent dry weather has been very much in favour of this, and those who did not water their plants liberally once a week or so when it was so very hot and dry may have a large number to pull out shortly. There is little danger of Celery running to flower from October onwards, but that planted in June and July is apt to "bolt" in August or September if it receives a check at any time before being quite established. When the plants have begun to root freely and penetrate the soil deeply, there is not much danger of any going wrong, but until this is accomplished it is always a good plan to water freely during excessively dry weather, especially in the case of light soils. It is very disappointing when many of the plants run, as they cause unsightly and unprofitable blanks in the trenches, and sometimes no good plants remain to make up the gaps; an effort should, however, be made to fill them in as soon as possible. We always keep a quantity of plants in reserve, and though we hardly ever require any for making up gaps, it is always satisfactory to have them in hand. I have not as yet seen any plants of the white Plum Celery attempt to seed prematurely, and the same remark applies to the Turnip-rooted variety. A thin mulching between the rows is a capital thing in dry weather, and when the plants have once been earthed up, the roots are then well protected from the heat. In the early part of July the Celery fly appeared on our early plants. One day about that time a shower of rain fell, and we thought it afforded a good chance to get a sprinkling of guano washed down to the roots. It was sown broadcast over the plants, but it had not been long on them before the rain ceased, and much of it remained on the foliage. Since then the fly has entirely disappeared, and we attribute this to its dislike to the guano. J. MUIR.

Margam.

**Preserving Tomatoes.**—In THE GARDEN of July 25 I saw an enquiry about preserving Tomatoes, and having a lady from Canada staying with us, who had just been remarking that she sometimes preserved two bushels of Tomatoes at a time for winter use, and always very successfully, I asked her for her recipe, which is as follows: "Pour boiling water over them to loosen the skins; peel and slice into a preserving kettle; boil for a short time, say ten minutes, then pour into bottles or small jars that have a perfectly tight-fitting cork or lid; fill the jars at the fire to



insure the fruit being actually boiling at the time of filling; fill them to overflowing, so that no room is left for air. Each bottle or jar must be sealed at once, either by sealing-wax, or perhaps bladder would do. No seasoning need be added until time of using. Thus treated, I have kept Tomatoes for over a year. This is the Canadian system of canning, and may be used for other fruits. The jars should be stored in a cool, dry, dark place."—A. HENDERSON, *Thoresby, Olferton, Notts.*

#### AUTUMN CARROTS.

I HEAR of spring-sown Carrots failing in many instances this season. In light soils especially the recent dry weather has been very trying for them, and where worms have not attacked the roots, fly has been injuring the foliage. In such cases the prospects of having a good supply of Carrots throughout the winter are far from being bright, but much may still be done to rectify the deficiency. There is no time in the whole year when Carrots succeed better than when sown during August, and if a good breadth of English or French Horn is put in now, there will be abundance of tender young Carrots ready for gathering in two months or so, and the supply need not cease, if enough are put in, throughout the winter. In seasons when our main spring-sown crops are at their best, we sow at this time as well, as young Carrots are so much valued in the kitchen at all times, that quantities of them are used apart from the demand for large roots. I have generally noticed that grubs are more destructive in June and July than afterwards. If the seed was sown then, probably many of the young plants would be destroyed before they had begun to bulb, but grubs being less troublesome after this time it rarely happens that August-sown Carrots are injured by them. Indeed, so much is this the case, that I know of some growers who suffer so dreadfully from insect ravages in spring, that they have given up sowing their main Carrot crop until August is in. There are many vacant spots in the garden now, as Potatoes, Peas, Spinach, Turnips, &c., are being cleared off; therefore there need be no want of Carrot ground. Where the soil was manured in spring, do not give more now, but spread a sprinkling of soot or salt over the surface and fork it in. Drills should then be opened 15 inches apart and 2 inches deep and the seed sown. If a small pinch of guano can be put in all along each drill with the seed it will do good. After covering up, the soil should either be trodden or rolled down firmly. There is nothing like firm soil for checking the depredations of grub and producing clean roots, and when once the soil is firm, surface stirring with the hoe does not disturb the part where the roots are forming. The French Horn is a good kind for late sowing, as it bulbs freely and is ready for use before some of the long ones would have gained the thickness of a quill. As it is a great advantage to have these late Carrots hardy, thinning the young plants should have early attention. Some of them should be drawn out as soon as they can be handled and they must never crowd each other. It is not in large gardens alone that roots sown at this time would be found useful, as wherever Carrots are used autumn-sown ones will be appreciated. We have sown later than this, but prefer having them all in before the beginning of September. J. MUIR.

*Margam.*

**Summer Lettuces.**—I disagree with "J. G." when he affirms that market gardeners do not plant out Lettuces. My experience is that vast breadths are so planted about London, whilst leaving plants to stand where sown is rarely resorted to. It is worthy of note, however, that during certain seasons of the year, and as much during the heat of summer as at any time, Lettuces do not sell well; indeed, it is no uncommon thing to hear growers declare that they cannot sell at any price. It seems hard to credit all one hears, having regard to the enormous consuming power of the metropolis, but it is a fact that very often good vegetables will not pay to carry a few miles to market. There are few summer Lettuces that will stand hot, dry weather long, whether sown to stand or planted out, especially if the soil be hot and dry, as in this district, where it bakes fearfully,

and things flag in the most distressing way under such weather as that we have recently experienced. The best of all to stand drought is the new Cabbage kind White Chavigné, a sort that only needs to be known to be universally grown, for it is at once the finest and longest standing kind I have met with. Some from spring-sown seed have recently turned in. These were planted out in dry weather, having to be watered in, and have been growing in a hot, dry, and rather poor soil ever since. Yet these are now so firmly hearted, that I could walk on them and not do harm. It is also a very sweet, crisp kind, and much more enjoyable than Cabbage Lettuces usually are. What it would develop into in good garden soil that is rich and holding I cannot say, but as growing here exposed to the scorching sun all day I can but say I have never seen finer, solidier, whiter, or longer-enduring heads, and that is saying a great deal.—A. D., *Bedfont.*

#### VEGETABLE MARROWS.

I AM pleased to see Pen-y-byd figuring creditably at the London shows of late. Where quality is valued it is unique. I do not suppose anyone would grow Pumpkin-like Marrows now, except for cattle feeding, and then their growth would not be profitable. We sometimes hear of judges at shows favouring large ones, but this is only where size is regarded as the masterpiece of cultivation, and it is pretty well known how very far that is off the mark. Marrow plants generally are now growing fast and fruiting freely, and they require a good deal of attention at this time in the way of thinning and training the shoots. Their natural disposition, especially on manure heaps or in rich soil, is to become an impenetrable mass of shoots and leaves, and when this happens the crop is never a satisfactory one, as three parts of the blooms which open never set, and large, healthy-looking plants often remain almost sterile. Indeed, it is generally the most robust plants which are the least fruitful, as a superabundance of leaves and masses of fruit never go hand in hand. The best crops I have ever had were grown against a wall, to which the shoots were nailed very thinly. Every inch of them was exposed to the sun, and one or more fruits formed at every joint. This is the proper system of growing them, and applies to plants in all positions. Those on manure heaps require the most attention. They should be looked over once weekly just now, in order to thin out superfluous shoots and keep those remaining from mixing up with each other. Those on kitchen garden borders may not grow so fast, but they very soon form many superfluous shoots, and it ought to be the constant care of the cultivator to see that these do not become crowded. Many who grow Marrows never get them to fruit so freely as they desire, and in nine cases out of ten it is through having the blossoms covered up with leaves when they should be fully exposed to air and sunshine. Sometimes the fruit forms and swells up to the size of an egg or so; then it becomes yellow and drops off, and this chiefly from want of a circulation of air about it. Dryness at the root will cause this too, but I do not think it happens so often from this as from overcrowding. Superfluous shoots should be cut clean off with a sharp knife, and twisting and smashing, which goes on sometimes in dealing with a free-growing subject, should not be tolerated. Where the position in which the plant is growing is very dry, a slight mulching of half-decayed manure should be spread over the roots, to prevent the sun from injuring them. They must never be allowed to suffer from want of water, but liquid manure need not be given until the crop has become an extra heavy one. CAMBRIAN.

**Second early Potatoes.**—I have already lifted and tested the following, viz.: Snowdrop, a grand Potato as regards produce, beauty, and flavour; White Beauty of Hebron and Hughes' Prolific, both up to the mark in all points; and Midsummer Kidney I can also speak well of. But I think the pick of my collection is Prizetaker, the crop of which is enormous and all sizable Potatoes, just the thing for table use; it is kidney-shaped and pale red. All our early Potatoes are now stored, and have turned out

well. The field or late kinds look well also, but we sadly want rain.—R. GILBERT, *Burghley.*

**Dwarf Peas.**—My experience must be contrary to that of many others in regard to the productiveness of dwarf Peas, *i.e.*, those which do not exceed 4 feet in height. I have tried many different sorts, and although they grow fairly well I do not get a third of a crop; as soon as they come into flower the tops of the growth begin to curl up, and not half of the pods swell out. This season I have tried Marvel, but that is behaving in the same way. The only mid-season and late Peas that succeed with me are Champion of England and Ne Plus Ultra.—J. C. C.

#### ORCHIDS.

##### NATIVE ORCHIDS.

LIVING in a neighbourhood where the commoner kinds of these are extremely plentiful, I am glad to see them attracting attention. Some of the most beautiful grow most strongly by far in coppices of deciduous trees. Orchis mascula produces spikes a foot high and of a bright rose colour in coppices, while in open meadows it is only a shade or two redder than the Marsh Orchis. The Butterfly Orchis is also very fine in woods, and has well furnished spikes with 9 inches or 10 inches of flowers, each flower close on an inch across. In woods this species is very sweet-scented, but is often scentless in the open. The white Helleborine does well in coppices, but is very quickly over. Orchis maculata seems to do well everywhere, in open meadows and by shady paths, but likes moisture; some pure white specimens might be mistaken for white sports of the Marsh Orchis. The kinds which seem to do best in sunshine are Gymnadenia conopsea, which is very fine this year, and Orchis pyramidalis, which prefers the bare chalk down. A group of the last with its deep crimson unopened flowers would be very showy. Shrubbery borders in shade or partial shade, where the leaves were allowed to rot as they fell, and the ground was carpeted with something to prevent the soil from drying, would be the best place in which to establish them. In orchard lawns they would, of course, do well. Orchis mascula and O. maculata are easily established if a cube of soil is lifted with each plant.—J. D.

— I am glad to read in THE GARDEN advocacy of our native Orchids. Few British wild flowers are seldomer seen in gardens, and few better repay cultivation. Orchis maculata increases from a single tuber to a large clump in a manner which it never does when growing wild. I have such a clump sprung from a tuber planted seven or eight years ago bearing this year twenty-two flower-spikes. The Kilmarnock variety of maculata is much the finest, but I do not know where to get it. Miss Hope used to grow it to perfection at Wardie. O. mascula and latifolia both succeed well in cool loam, and the fragrant conopsea is perhaps more worth attention than any other. All of these succeed in ordinary garden soil.—SALMONICEPS.

**White Alexandrian Odontoglossum.**—We have received from Lord Rothschild's garden at Tring Park a spike of what we consider to be the finest form of the pure white variety of Odontoglossum Alexandræ (crispum) that we have seen. White varieties of this Orchid are not rare, but there are degrees of excellence among them, and we place the one in question at the top of the list. The petals, which are overlapping and broad, are crisped and crimped in a characteristic way. The only bit of colour in the whole flower is a dash of yellow on the labellum, which, indeed, only serves to show the purity of the other parts. The gracefulness of the spike we need not mention. Mr. Hill, the gardener, informs us



that this superb variety has cropped up out of an imported batch obtained some three years ago. It would be interesting to know what such a choice variety would fetch at an auction. We have rarely seen beauty and rarity combined so well as in this variety.

#### ORCHIDS AT ST. ALBANS.

THOUGH the lowest ebb of the Orchid flowering season has now set in, still in the largest collections there is always a certain amount of bloom. The great Orchid nursery at St. Albans, for instance, one cannot visit at any time of the year without seeing some varieties or novelties in bloom besides the grand effect produced by assemblages of thousands of plants of one kind. Notwithstanding the long spell of hot and dry weather we have experienced and which has been unusually trying for cool-house Orchids, the *Odontoglossum* houses on the occasion of a recent visit on a parching hot day we thought were never more enjoyable. The atmosphere was delightfully cool and moist, while outside everything was heated and dried up. Moreover, under the subdued light caused by the heavy shading, the beauty of the tens of thousands of graceful spikes of *O. Alexandræ* seemed to be intensified tenfold—the cool whites of the flowers and the luxuriant greens of the foliage and Moss looked so deliciously cool. By the excellent plan of ventilating and shading, and the provision made for a simultaneous damping-down, Mr. Sander is enabled to keep down the temperature and maintain a moist atmosphere in his houses during the hottest and driest days. He believes in shading *Odontoglossums* in moderation, and that is how he is enabled to obtain such luxuriant growth and at the same time well hardened for flower production. The green French lath shading is used extensively as well as permanent shading. But, no doubt, the whole secret of success of *Odontoglossum* culture here, as elsewhere, lies in the maintenance of a moisture-laden atmosphere during dry, hot weather, for without it healthy vigorous growth cannot be expected.

The plan of providing for an abundance of evaporating surface under the stages on the paths and elsewhere is one that should be carried out in cool Orchid houses, large or small, and if to this is added an abundant water supply, arranged as here, so that with one turn of a tap myriads of tiny jets are set in motion, the arrangement is complete. Our visit was well timed to catch the first sight of the unfolding buds of several choice varieties, and to be choice in such a place as this means that the varieties are in the foremost rank of recognised beauties, if indeed they are not absolutely matchless or unique. As the thousands of plants expand their spikes keen eyes are watching every hour of the day for new "breaks" or new "types," and sometimes some extraordinary beauties are singled out and then have to take their place among the select, and when the selected forms make a good group the very best are picked out, and if their characters are sufficiently distinct to warrant a distinctive name they are christened forthwith. On the day we were there a few were donned with names, and no doubt these will be heard of or seen in time to come in connection with some of the richest amateurs' collections. A few varieties which we saw, and which have been seen in public, are *Alicia*, a superb variety which will be difficult to match. It is in the way of elegans, but brighter looking. *Johnsoni*, a richly spotted flower; *Eckhardtii*, large, full flower, rosy, and profusely spotted; *Arthurianum*, a large flower heavily stained with claret-purple on the front surface and stems at the back of the sepals; and *Herbertianum*, one of the guttatum type with heavily spotted flowers. These are a few of the choicest that are named, but almost as good could have been picked out of the myriads of spikes which formed the dense carpet of white beneath the capacious span-roofed house.

**CATTLEYA GASKELLIANA.**—When most other *Cattleya* flowers are past for the season the beauty and value of this new variety is rendered the more prominent. If a late summer-flowering *Cattleya* had been made to order, a more suitable flowering period could not have been fixed than that over which the flowering season of Gaskell's *Cattleya* extends. It

commences to bloom in company with *Mendeli*, *Warneri*, *gigas*, and others; it goes on blooming till these are all past and lasts out until the autumn-flowering *labiata* comes into bloom. But while orchidists await the expanding blooms of their one plant of *labiata* they can have dozens of *Gaskelliana*, so plentiful has it become. Here, in this nursery, its birthplace, so to speak, one may see it in perfection. As may be imagined, the thousands of imported plants yield an infinite variety of forms, from some as pure white as a white *Trianae* to a deep lilac and every intermediate shade, and some have beautifully margined lips. The form, too, of every flower, be it a good or bad variety as regards colour, is excellent, the sepals holding themselves out in a handsome manner. Some of the forms we saw in bloom we thought as beautiful as any *Cattleya* we had seen. Let those quibble who like as to the claims of this *Cattleya* to specific rank; those who love Orchids for their own sakes know how to appreciate so great a beauty which enlivens their houses at a season when most required. The much-talked-of new *C. Lawrencei* appears to be a very free grower, and we may expect soon to see flowers of it, as some of the plants here are in sheath. *C. Leopoldi*, a very handsome late flowering species, made a grand show, some large specimens being in bloom, but with the exception of these there was but little in the *Cattleya* and *Lælia* houses. An Orchid grower would probably be more interested in seeing how luxuriant *Cattleyas* of all kinds thrive here in these capacious houses, notwithstanding the fact that some object to large *Cattleya* houses. One of the most remarkable plants now in bloom in this nursery is

**THE NECKLACE ORCHID** (*Vanda Lowi*), which is represented by a grand specimen bearing two flower-spikes carrying fifty-eight flowers. On one spike there are three yellow flowers among the thirty, an unusual occurrence, for generally there are not more than two. The long pendulous spikes which hang so gracefully are fully 5 feet in length. The colour of the majority of the flowers is a deep maroon-chocolate barred with primrose-yellow, and the effect of the plant, though only about a yard high, was very fine. This plant was in the *Phalænopsis* house, where also was the rare *P. Reichenbachiana*, said to be one of two plants known to exist in this country. It is a supposed cross between *P. Luddemanniana* and *sumatrana*, and though not so showy as the first-named species is pretty and interesting. Among the varieties of *P. violacea* in bloom one could not have any difficulty in picking out some to match the *Schroederi* variety, as the flowers have the same rich colouring. In the *Phalænopsis* house also the wonderful new

**ANGRÆCUM LEONI** is coming into bloom. This is the species which was described in *THE GARDEN* last week. Every orchidist awaits its flowering with great interest, as it is said to rival the well-known *A. sesquipedale*, and certainly the preserved flowers tend to bear out the assertion. The blossoms are pure white, of wax-like texture, and each flower is provided with a long spur, which twists and curls about in a peculiar way. Numerous flowers can be seen on the preserved spikes. The growth of the plant is remarkable. The broad sword-shaped leaves are arranged in a fan-like manner, while the flower-spikes are produced at the base. The most remarkable point about it, however, which the cultivator will welcome is, that it may be grown successfully in a cool temperature, as may be seen in this nursery. In one of the *Dendrobium* houses the most noteworthy feature just now is a great gathering of that handsome Orchid,

**MORMODES LUXATUM EBURNEUM**, which is no doubt the Orchid of the present season. It would be as difficult to accurately describe it as it would be to overrate its value to the orchidist at this season when so few Orchids are in bloom. Its massive spikes of singularly-shaped ivory-white flowers of wax-like texture are extremely handsome, and the perfume is delicious. The original is a fine Orchid, and so is the variety *punctatum*, with spotted flowers, all of which crop up in an importation. It seems to thrive admirably here on the sunny side of the house. Other Orchids of a similar stamp now in bloom are *Anguloa Ruckeri sanguinea* and *uniflora*, both noble plants. A new Mexican *Odontoglossum* is in bloom.

It is in the way of *Reichenheimi*, but has a broader purple lip, similar to *Oncidium Weltoni*. The charming little *O. Phalænopsis* is specially welcome at this season, but finer than all is the gorgeous *Disa grandiflora*, which is grown admirably in the *Odontoglossum* house, most of the spikes carrying three and four flowers. There are various shades of scarlet, from the fiery tint of such as *Barrelli* to a pale orange-red. We much admired also a grand specimen of *Miltonia Regnelli* with twenty fine flower-spikes. When seen in such perfection, this *Miltonia* is really a beautiful Orchid. Among the *Masdevallias* there was still a good sprinkling of flowers on *Harryana*, *Veitchi*, *Chimæra*, *Chestertoni*, and the pretty yellow *Davisi*, which we consider a much under-rated plant. Besides these were such uncommon kinds as *M. inocharis* and *approviata*, with pure white flowers with purple centres. *Kefersteinia graminea* in the same house would be interesting to orchidists. We were pleased to see an importation of the Mexican *Cypripedium Irapeanum*, one of the handsomest of all *Lady's Slipper* Orchids, having large yellow pouched flowers.

The above are among the chief features which interested us, but what astonished us most was the magnitude of the nursery. Since we saw it last house-building has seemingly continued uninterruptedly, until now there are a dozen capacious span-roofed houses each 300 feet long, the whole connected by glazed corridors, which run at right angles to the lines of houses. These corridors are airy places in summer, just the houses for Mexican Orchids, and with these they are crammed—thousands of *Lælia autumnalis* and *Barkerias* and others. Still the plan projected by Mr. Sander is not completed. There are in course of erection packing sheds and unpacking sheds, a herbarium, library, stables, fuel stores, and other offices which when finished will combine to render this one of the most remarkable plant nurseries yet established.

**Phaius (Thunia) pulchra.**—A species with the habit and general appearance of the old *Thunia alba*, differing, however, in having flowers of thicker substance, in the petals being creamy rather than pure white, and in the form and markings of the lip. It has been introduced to Kew from Moulmein along with *T. alba*, and is now flowering there. If we are not mistaken, this is the plant which we have seen in several collections under the name of *T. formosa*, and which is much shyer to bloom than the commoner kinds. We may here refer to *T. Bensoniæ*, the purplish-flowered species, which does not appear to flower as freely, nor to be in any way as satisfactory as the white-flowered kinds. Perhaps some successful grower of the former will be good enough to afford some information on what treatment they find best for this really beautiful Orchid. Are its requirements more tropical than is necessary for the forms of *T. alba*? and does it require as long a rest in winter as these kinds do?—W.

**Anguloa eburnea.**—I was much pleased to see this rare and chaste *Anguloa* flowering in Mr. Dorman's collection at Laurie Park, Sydenham. The late Mr. Spyers had often told me of this rarity, which he termed the Queen of the *Anguloas*, and it truly bears out his description to the letter. The great waxy, pure white, cup-shaped flowers stand up bold and erect, the cup and cradle distinctly facing you as you look at it, differing in this respect from *Clowesi* and *Ruckeri*, which have a tendency to look upwards. This variety really deserves a distinct name, as *eburnea* has some faint rose spots round the lower part of the flower, while Mr. Dorman's plant is spotless white. Mr. Dorman may, therefore, consider his plant to be unique. It was imported some three years ago by one of Messrs. Sander's collectors, who sent it home as a large, pure white *Anguloa*.—B. R.

**Lælia monophylla.**—This is the smallest of the *Lælias*, a full sized plant of it, flowers and all, being not more than 4 inches high. It is only recently that this plant has been introduced in any quantity, the only plant known to us for a long time being one in the Kew collection, where it flowered annually, and where a healthy little specimen is now bearing five flowers. A few weeks ago, 200 plants



if it were sold in one of the London auction rooms, and those who, owing to their small, grassy appearance and probably to the plant being taken on when it was in flower, were sold for a mere trifle. To those who were so fortunate as to procure some of these plants we recommend the species as one which is a real gem, such as regards the colour of its flowers as a bright orange, similar to *Epilobium vermiculatum*, and the ease with which the plants may always be kept in good health and be made to flower freely if grown in a cool shaded house, such as is suitable for *Mosses*. *L. monophyllum* is a native of the Japanese Islands. A flowering plant of this was shown by Messrs. Vitch at South Kensington on Tuesday last.

#### NOTES ON RECENT NUMBERS.

**Strawberries in autumn** (p. 138).—In years such as the present, when the Strawberry season comes with a rush and went with a gale, a second crop "from the middle of August onwards" would be a great boon to those who stay in the southern parts of England and in some of the regions in the latitude of the Highlands, where the first crop is just coming in. The little alpine well grown and properly ripened berries are much to be desired. The association connected in many minds with its enjoyment in its native climes (I had almost written "climates," as it often is spoken of in a sort of sentimental way, but there are not so many gardens as there should be where any degree of trouble is taken with its cultivation. Gardeners seem to forget that it requires ripening almost daily just as much as any other Strawberry if the fruit is intended to be of any size and really juicy; the young runners taken off pretty early in the season generally afford a very good late crop, and the high flavour even when the ordinary sorts are in full bearing is pretty sure to make it appreciated. The sorts of Raspberries which bear a second crop in the autumn are a great gain from a "dinner-table" point of view, and would not quarrel with the companionship of the little alpine. There is a small white Strawberry which grows wild or is naturalised in some parts of England worth hunting out perhaps when the "middle of the autumn," &c., has been completed we shall have a revival of some of the old-fashioned varieties of fruit, including "Hautbois" and "White" Strawberries.

**Packing flowers for travelling** (p. 142).—Mr. Arnold as a practical man has done well in his paper to call attention to what many are already aware of, but do not take the trouble to carry out, and his words deserve to be quoted again in order to impress them more deeply. "It is the greatest failing to suppose that flowers which have to be sent to a distance should be packed fresh from the plants; they will travel better and last longer if allowed to imbibe a sufficient supply of moisture before starting on their journey. How often would the partial or total destruction of a welcome gift be avoided by the observance of this simple precaution, combined with a little knowledge as to the proper method of packing flowers for transit." Packing flowers to send away by post or by train is not an operation that can be performed in a hurry; it entails some little trouble and time, and it is worth remembering that unless properly done in many cases it might as well not be done at all. A mistake often made is to tumble some thirsty flagging flowers into a box and then put a "young brook" of water on the top before closing "to keep them fresh." Let anyone try this method with a bunch of Violets and send them to a friend to be re-entrusted back again, so that they may have an average amount of "personal attention"; they will probably return half rotten with neither scent nor colour. It is wonderful what a drink will do for the blooms of the various tuberous Anemones, which are so useful for sending away, and in their case, as well as of those flowers which only open in a bright light, it is well to put them in water in a dark opaque jar or room, that they may travel with their petals closely folded up, so much less exposed to injury, and thus taking up so much less room. Now that soft "tissue" paper may be obtained so cheaply, there is no excuse for not having a good supply at hand, and a stock of common

"butter paper" is also highly to be recommended to form a lining, &c., as it does not "pulp up" with a little moisture, and by excluding the air prevents rapid evaporation. Anyone who wants good strong deal boxes at a cheap rate suitable for sending by post fruit and flowers will do well to apply to Mr. R. Sydenham, Tenby-street, Birmingham, for a list of all the sizes he can supply, made by a poor family in whom he takes an interest. I have found them such a comfort, that I do not hesitate to recommend them, as I know many people are glad to have a stock of such boxes if they knew where to get them from.

**Eucalyptus globulus** (p. 154). 18 feet high, is stated to be showing a number of flower-buds. Is not this very unusual? I was under the impression that these did not flower until they got to some good size, and was afraid that there was not much probability of its blooming much in England. There are some varieties of the Eucalyptus and its ally *Haakea* which flower in quite a young state and which may prove eventually to be useful greenhouse plants, but the buds of *globulus* can scarcely be mistaken, and we shall hope to hear more of the specimen of which "Bexley" writes. C. R. S. D.

## TREES AND SHRUBS.

### THE DEODAR.

WHEN first introduced the Deodar found many admirers, and was highly eulogised at the time. One writer speaks of it thus:—

The Deodar, or Holy Cedar of the Mountains, is a tree as hardy and fast-growing as the Larch, more valuable in its timber, and with the evergreen beauty of the Cedar of Lebanon. Of all trees of British India this is incomparably the most important to England; it has every good quality and no bad one.

Another writer observes:—

When time shall have tested the newly introduced Himalayan and American Pines, some of them may be found as famous for timber as they now are for ornament. Of the former, the most beautiful, as well as the most promising, in our northern regions is the Cedrus Deodara. Seedling plants of this tree grow in the open ground to the height of 4 inches or 5 inches during the first summer, and resist the frosts of winter, anguring well for their future prosperity. In the shires of Inverness and Ross, where it is considered to be quite hardy, there are several fine specimens of this tree. Its figure is that which is best adapted to a mountainous district, well furnished with branches from the surface of the ground upwards, and tapering into a conical form. The leaves of vigorous trees are of a silvery green, of the most delicate shades, whilst the entire tree is rendered graceful from the young branches being pendulous. At a distance its outline and appearance may be compared to spray falling around the column of some ornamental fountain; in short, it is altogether different in its habit from any other evergreen tree grown in our climate. By the Hindoos it is considered sacred; and, according to Dr. Royle, it is the most celebrated ligneous production of the country to which it belongs.

Would that all this may turn out correct. Up to the present, however, there is but little hope that the tree will ever prove so valuable as these writers predicted. In short, it cannot be reckoned among the trees of the future for English plantations.

**Seaside trees and shrubs.**—On the sea coast of Yorkshire the soil is a cold clay, with glacial drift often appearing. These causes effect an almost total change in the plants and trees that thrive. There is another Conifer besides *P. Pinaster* which thrives well here wherever at all sheltered, namely, *Cupressus macrocarpa*, a true seaside Conifer, and which in this neighbourhood has in ten years reached 35 feet in height in a few instances, and has never been touched by frost or sea wind. Among deciduous trees which flourish well here are Elms, Sycamores, Turkey Oaks, Laburnums, and Service trees especially. The only good-sized evergreen shrubs that

will, in an ordinary winter, stand the direct blasts of the sea are Aucubas and smooth-leaved Hollies, particularly the Minorca Holly. Bays, Laurustinus, Euonymus, Ilex, and Escallonia only thrive in sunny and sheltered situations, where sometimes they do attain a considerable size; but there is one shrub that has proved itself most hardy, even in very exposed situations, provided it is not drawn up by the shade of trees in summer, which is the shrubby *Veronica Blue Gem*.—E. H. W., Scarborough.

**Juniperus Sabina**, the Savine, is a beautiful lawn plant when left to take its natural growth in an open space and kindly soil. A plant here, twenty-five years old, measures 22 yards in circumference. Its branches radiate from a single stem, which is invisible in the centre, feathering all round without gap or blemish down to the grass, and rising about 3 feet in the middle. It is at all times a pleasant object, but in the spring, when it has put forth its tender shoots, or in the autumn, when bespangled with dew, it is particularly beautiful.—C.

**Darwin's Barberry in fruit.**—We have two very good plants of this Barberry here. They are each about 12 feet high and 24 feet in circumference. In spring they were perfect masses of deep golden blossom and of late they have been completely covered with purple fruits about the size of Peas or a little less. I thought this Barberry uncommonly beautiful when in bloom, but I think it even prettier when in fruit, the deep purple berries being exceedingly rich in appearance. We tried to make jam of some of them, but the stones inside were as hard as iron, and the jelly which was afterwards formed was not a great success.—J. Muir, Margam.

### SPIRÆA LINDLEYANA.

NEARLY all of the shrubby Spiræas are characterised by a plain, simple type of foliage, but exception must be made in the case of two or three kinds with handsome pinnate leaves. The finest of this group is *S. Lindleyana*, which in good free soil will form a large bush 10 feet or 12 feet high, and as much in diameter if not choked up by its surroundings. Its beautiful foliage, combined with its snow-white plumes of flowers, render it one of the most desirable of shrubs. These flowers are borne in large terminal panicles, and the effect of a mass when in full bloom and stirred by the breeze is charming in the extreme. This Spiræa blooms about July and August, at which time flowering shrubs are scarce. It is a native of the Himalayas, and though oftentimes injured more or less during severe winters it quickly recovers, especially if the specimen is in a young and thriving condition, while should the winter be very mild the greater part of the leaves are often retained during the whole season. The Sorb-leaved Spiræa (*S. sorbifolia*) is an old inhabitant of our gardens, but, like the last-named, is not seen half so frequently as it should be. It is less in stature than *S. Lindleyana*, while the foliage is smaller and not so graceful; but even then it is an extremely pretty shrub, and possesses the additional merit of thorough hardiness, for, being a native of Northern Asia, our winters do not affect it in the least. There is a variety of *S. sorbifolia* (or as regarded by some a distinct species) known as *alpina*, *grandiflora*, or *Pallasi*, which is more ornamental from a flowering point of view than the species. The blooms of this kind are a good deal larger than those of *sorbifolia*, so much so indeed as to suggest the name of *grandiflora*, while in colour they are of a much purer white, and instead of being arranged in a dense erect panicle are disposed in a looser manner.

These later mentioned kinds are rather earlier in flowering than *S. Lindleyana*, but they are still valuable from being at their best when the bulk of flowering shrubs are over. The culture of these Spiræas is simple, as indeed are all the other members of the genus; but, simple as it is, we frequently see them stuck in where the plants have no opportunity to develop themselves; indeed with them it is but a continued struggle for existence against neighbours better served by the conditions under which they are growing. *S. Lindleyana* thrives best when planted in good soil and in a fairly moist situation, especially if treated as an isolated specimen, for nothing is so detrimental to its beauty as being drawn up with



other shrubs. All the *Spiræas*, to which this is no exception, are often greatly benefited by the thinning out of all weak and exhausted shoots when unduly crowded.

H. P.

### THE SWISS STONE PINE AT HOME.

OUR illustration, showing a group of old trees of *Pinus Cembra* growing in the Tyrolean Alps, is taken from a photograph kindly sent to us by Mr. Otto Forster, of Lehenhof, who also sent us the following note respecting the trees. He says: "These trees stand on a plateau near the Alp Grawand, in the Zemmgrund Tyrol, seven or eight hours from Mayerhofen Zillerthal, 5250 feet to 6540 feet above the Mediterranean. There is a very steep ascent to this Alp, and as soon as you arrive at the top of it, *Abies excelsa* ceases and *Pinus Cembra* begins. It forms not a compact forest, but groves of a hundred trees, and most of the trees are scattered singly on the Alpbodens. There is scarcely a single "specimen" amongst them, but all are picturesque, having lost their leaders by storm and lightning. With the background of gigantic peaks and glaciers they form a true high Alp scenery. Some of the trees are very old, but I do not believe that one of them is more than 80 feet high. The largest *Cembra* I have measured stands near the Gauler Alp Zillergrund. It has below the first branches a diameter of  $6\frac{1}{2}$  feet, and is probably a thousand years old." The illustration is interesting as showing the true habit of this Pine in its adult stage, which is very different from the formal cone-shaped young specimens we are accustomed to see of it in this country. As an ornamental tree it is unquestionably of great value, as no other Pine possesses such deeply toned foliage which is so useful in contrasting with brighter greens. The foliage, moreover, being so massive, may be used with good effect in the landscape, and this character renders it distinct from all other trees even if seen half a mile away.

This Pine has been grown for many years in this country, though not extensively and exclusively for ornament, for, although its

timber is of good quality and found valuable in Switzerland and other parts of Europe where native, it has not been planted with a view to timber production in this country. One of the chief reasons why it is not so popular as other Pines is no doubt its slow growth, as it only grows about 1 foot a year, and even this only on good soils and in unexposed positions. What it might do if planted as thickly as Scotch Fir and Larch, and allowed to become drawn, it is difficult to say, but as an isolated specimen on a lawn or in a pinetum it is a slow grower. There are some very

long. The cones are smallish, somewhat egg-shaped, and generally produced amidst the foliage, as shown in the illustration on page 180.

### GRAFTING RHODODENDRONS.

I HAVE some good young stocks of *Rhododendron ponticum* for standards. Can they be budded with better sorts where they are now in the open, or must they be budded or grafted under glass? Any information on this point will greatly oblige.—A. M. P.

It will be necessary to place the grafted *Rhododendrons* under glass, and keep them quite close till a union is effected, when air can be given by degrees till they are sufficiently established to be fully exposed. To graft *Rhododendrons* either as standards or standards the stock must be young and cleanly grown, with the bark in a fresh and healthy condition. The method commonly employed is that known as saddle-grafting, in which the scion is split and the stock formed in the shape of a wedge, but side-grafting may be and often is used. This operation may be performed at almost any season, except in the winter, though spring is the best; but it may be carried out successfully at the present time if proper care be taken, and without a due share of attention at no time can *Rhododendrons* be grafted successfully. If spring is chosen, the stocks must be taken indoors about a month before they are required, in order to get the sap in full circulation. March is a good month for grafting, and when that operation is performed the stock must be headed down to the base of the preceding year's growth, and then the upper part fashioned in the form of a wedge. The graft (which must be a good healthy shoot of the preceding year) has then a wedge-shaped piece removed in order to fit the stock, which requires to be neatly performed, otherwise the bark will be bruised. The whole must then be tied firmly in position with soft cotton, and the point of union can be covered with grafting wax, but that is not necessary provided a good air-tight case is at hand for the reception of the plants. From the close fibrous nature of the *Rhododendron* roots the plants may be lifted when required for grafting, and need not be established in pots like many other subjects; indeed, pots are not necessary, as the plants can be placed close together and the roots covered with soil, but it is generally preferred to pot them, as they can then be shifted about at any time. In the case of tall specimens they can be laid down if the structure is not of sufficient height, for in a close frame water will not be often needed, though when necessary the plants must, of course, be raised up for the purpose.

In nurseries where grafting *Rhododendrons* is carried out extensively, they are placed in a close frame within a propagating house, being thus under double



The Swiss Pine (*Pinus Cembra*) at home.

fine specimens of it in England in various parts, some being as much as 70 feet in height. In the Alps it grows as much as 100 feet in height. It appears to have been first planted in this country about the year 1746, and some of the finest trees in this country were permanently planted about that time. *P. Cembra* belongs to the group of *Pinus* having five leaves in a sheath, and which measure from 2 inches to 3 inches



glass, the better to exclude air, so that some such a place, or at all events as near as can be, should be assigned to them. A gentle heat of about 50°, rising 10° during the day, is a good temperature to be maintained till a union is effected.—T.

### TRANSPLANTING HOLLIES.

THE statement of "C. D.," respecting the transplanting of Hollies, seems to me to be misleading. The present is a most unlikely season for transplanting Hollies, and the mode of doing it at any time somewhat risky. I have had many years' practice in cultivating Hollies, and my experience is simply this, that unless they are regularly transplanted biennially, they become tap-rooted, and would certainly die if shifted, even in the best months—September, October, April, and May. If such advice as given by "C. D." to purchase off commons, where, doubtless, they have grown from seed on the same spot, and especially if of a moderate size, up to 5 feet or 6 feet high, there would be a very stout tap-root in most soils, and more so on light ones, I should come to the conclusion that our practice as nurserymen is only labour in vain, and we could sell at a quarter of the price now charged with a large profit if they were "lined out" in the seed beds or on ground where budded. We have this spring (May) transplanted a large breadth from 2 feet to 8 feet high, carefully preserving, as far as practicable, the fibrous roots, which can only exist by frequent removals, and well watered before the final "spit" of soil is placed over them; very little attention has been given since, I believe about twice with watering, and there is not half-a-dozen dead, these being the smaller size. I therefore strongly advise planting during showery weather in September or April as the very best season, but do not, under any circumstances, believe, when purchasing, that the very luxuriant "top" growth is indicative of a probable success on transplanting. I have seen many a quarter of Hollies that I would not have at a gift, owing to their not having had that care they require in frequent removals when in a young state.

I agree on one point only with "C. D." that if people are unreasonable, and require trees of twenty-five or more years' growth removed, it is then a question of labour and "hauling," but I should almost be inclined to think a lord of a manor was not alive to his own interest to sell at 6d., as the wood alone would fetch a pretty good figure, leaving out the question of berried Holly at Christmas. I can only assume that the large Hollies which "C. D." has, having been so successfully removed, have come off shallow heath land resting on chalk or gravel, into which the roots have never penetrated, and then transplanted into rich, light soil with plenty of attention, they would succeed; but, as I said, it is risky, and it will take a lot to convince me to the contrary. I was once asked by a gentleman, who saw an Elm adjoining our church, whether I could procure and convey it into Surrey for him, the price being "no object." The Elm at least is 150 years old. I did not try it. Perhaps I was unwise in not doing so; at least, my client as would have been not only thought, but said so. J. C.

**Growth of Conifers.**—I was told the other day that in the grounds of a gentleman in North Wales, near Bettws-y-coed, the healthiest specimens of Conifers in England are to be found. The growth of the trees, colour of the bark, and foliage are all said to indicate the perfection of health. I never saw the Scotch Fir exhibit such luxuriance of growth and healthy glaucous hue in the foliage as in that locality, the spines being also unusually long for that variety. Can it be that the presence or absence of ozone and other subtle elements of the atmosphere affect plants for better or worse, just as they do human beings? I think there can hardly be any doubt of it.—J. S.

**Variegated Dogwood** (*Cornus Mas variegata*).—This is, I consider, one of the most beautiful of the silvery variegated hardy shrubs. It is a free grower, and has the leaves deeply margined with creamy white, and splashed and striped with the same. In spring, before the leaves appear, the plant becomes covered with innumerable small yellow flowers in

clusters, and is then even a pretty and interesting object. It is most effective just now in Lee's arboretum at Isleworth.—G.

**Hardy Heaths.**—Those whose plants of hardy Heaths have become a little lanky will do them much good by cutting or clipping them pretty sharply in spring. This particularly applies to the common Ling and its varieties. They look much better when induced to form a compact fresh growth, and their appearance at flowering time is usually much superior to that of plants not so treated.

## FLOWER GARDEN.

### GARDEN ANEMONES.

It has been frequently remarked of late that these charming flowers seem likely to come shortly to the front. This will not be at all surprising to anyone who has the least personal knowledge of their extreme value as garden ornaments and, indeed, for all purposes of floral decoration, and that at a time when flowers are, as a rule, comparatively scarce. When we consider the range of colour which they embrace, from pure white through all the delicate shades of pink and rose to red, crimson, and on to the deepest scarlet, and from white again through every shade of lavender and lilac on to deep purple, and that all this wealth of colour beauty may be had from the open garden from October to June, a period of eight months, and including the coldest and duldest months of the floral year, no one need be surprised if they become popular. That they are capable of doing all this, if the proper method of culture is followed, is quite a fact; and that this is not generally known seems quite evident when we hear old and experienced cultivators speak of their starting too early, unless kept out of the open ground until January or February, and than which a greater mistake could not be. In order to have good Anemones, their foliage must be well developed long ere the summer is over. I noticed in THE GARDEN a short time since a writer objecting to Anemones being considered "as annuals." I imagine that those who advocate their being treated as such would never think of bracketing them with annuals proper—*i.e.*, *Nemophilas*, *Virginian Stock*, *Collinsias*, *Clarkias*, &c., which are usually sown in spring, bloom during the summer, and pass away. Such things may, however, be sown in autumn, attain a certain size, rest during winter, start into growth again in spring, and flower much earlier than they would do were sowing deferred till spring; in either case they flower when they are big enough. So with Anemones. The general meaning of the term annual, as applied to the Anemone, is that it may be sown sufficiently early to bloom the same season. The theory of this is that a plant in the full flush of youthful vigour will give more and better flowers than a division or continuation of the same plant will give in after years, and no doubt, to some extent, this is true; hence the practice of treating Anemones as annuals is fairly borne out.

The method is this—trench up early in the new year a piece of ground, let it be in an open sunny spot, but sheltered as much as possible from prevailing winds. It should be of an unctuous character—rich, mellow, and moist. Put a quantity of good rotten manure well down as the trenching proceeds; then as early in February as the surface is found to be in a friable dry condition sow the seed. I always sow broadcast, but this is merely a matter of opinion, as it may be sown in drills; first mix the seed with about twenty times its bulk of sand, and well rub all together until the seed is well separated and thoroughly mixed with the sand. The reason for using the large quantity of sand is that it is next to impossible to sow *too thinly*. I never cover the seed, but simply give the surface, after sowing, a light scratch over with a rake just to level it. Anemone seed, when sown naturally, we ought to consider is never covered, and the fullest crops are always obtained from self-sown seed; it takes some time to germinate, and the bed must be kept free from weeds during spring and summer. The plants will gradually attain strength and begin to bloom in September or October, and will continue, as I have said, to bloom all through the winter and spring and on till June, when they may be thrown away. Practically they are thus of annual duration only.

I have, however, fully satisfied myself that just as fine, if not finer, flowers may be obtained by a different practice. Seed sown in July or August, just after ripening, comes up soon enough to make thrifty little plants before winter. They grow on during the spring—a few may produce small flowers—and go to rest in June or July; by that time they have formed tubers varying from quarter of an inch to 1 inch in diameter. These I consider capable of producing perhaps the finest flowers. I lift when ripe and plant them again in August, preparing the ground precisely as directed for the seed bed; in fact I prepare it just as you would for a crop of prize Mangold. Planted thus, they begin to grow at once; are above ground in a few days, rapidly gain strength, and begin to throw up their flower buds in autumn. Older tubers may be treated precisely similar. The one object should be to obtain the earliest and strongest leaf development possible during summer and autumn. "Leaf action" means "root action," and an early and long period of root action means roots getting well down into the rich larder below, which they are well able to do, assisted by the autumn and winter rains, and which they never do if planting is deferred until the early months of the year; so planted there is only partial development, a weakly forced growth, and the poor sickly flowers which many have been accustomed to look upon as "Anemones," and an Anemone season of only a month or six weeks' duration. By the method detailed above we get a huge tuft of large well-developed foliage, flower-stems of great length and strength, and such flowers!



I had flowers this season over 6 inches across ; they could be likened to nothing so well as double Clematis flowers, the arrangement of the pointed petals being precisely similar ; in some the petals are narrow and numerous, in others broader and fewer. In this respect these "Irish Anemones" greatly differ from all other strains with which I am acquainted ; they differ also in regard to their colouring, having a satiny lustre, which notably the French kinds have not ; the range of colour is also remarkable ; many quite new shades appeared this season. One is a mahogany-tinted crimson, with about fifty narrow petals white at the base ; several possess distinct magenta shades, and a few have quite yellow buds, and notably an immense double pure white, lovely to look upon. These are results obtained by years of rigid selection, and doubtless the carefully-saved seed from these will give still better results hereafter. Yes, when it becomes well known that by a proper method of cultivation the length of time during which these flowers may be had, and also the lasting powers of the flowers themselves when cut, I think they will be very likely to come to the front.

T. SMITH.

#### OUTDOOR PERPETUAL CARNATIONS.

THE newer varieties of these are less straggling than the old sorts, owing to their greater disposition to keep on making young shoots at the collar of the plants. Most of the original kinds, on the contrary, made little bottom growth, but kept on forming young shoots on the flower-stems, unless these were kept continually cut away almost before they had done blooming, which there was often a reluctance to do on account of the delay it occasioned in the subsequent production of flowers. In addition to the better habit possessed by the newer sorts, they are generally freer growers, capable of producing more flowers than the old kinds. In this latter respect they are far in advance of any of the different sections of Carnations that have preceded them, including the common border varieties, the Clove-scented sorts, or the show kinds. But to see perpetual flowerers in their best form in the matter of freedom of flowering, they must be planted out in the open ground ; where thus grown and the plants have been treated in a way that enables them to attain full strength, in addition to coming into bloom six weeks earlier than the border sorts, and keeping on so much later, they will carry double the amount of flowers that the old kinds of border varieties are capable of doing. On this account I venture to predict that their superseding the old sorts is only a question of time.

So far as ordinary decorative use is concerned, the old crimson Clove—great favourite though it is—stands a chance of being left in the shade by newer sorts, although it is doubtful if any of them are equal to it as regards strong perfume. To have perpetual flowerers in their best condition they must not have been too much cramped in the pots at the time of planting out in spring, for where stunted in this way they cannot be expected to give anything near the amount of bloom that is the result of more liberal treatment. The early flowering disposition of the perpetual bloomers causes them to push up their flowering shoots so that these are far advanced by the time the plants are put out, which, to prevent the advancing bloom being injured, should not be until the sharp frosty mornings are over. Thus treated, with the help of liquid manure at times to keep the plants moving freely, they will not cease flowering until cut off by frost.

Carnations raised from seed, when the plants are subsequently well treated, produce an extraordinary quantity of flowers—considerably more than are

usually forthcoming from plants raised from cuttings or layers, as these are ordinarily managed. But it is not an easy matter to secure seed of a really good strain of perpetual flowering sorts. Our summers seem not to be long enough to admit of its being produced here in the way in which growers in the south of France manage to get it. Therefore the seed of perpetual flowerers that can be relied on is scarce and high-priced.

T. B.

#### MIRABILIS JALAPA NANA.

THIS genus, if we except jalapa and its dwarf variety, consists of plants comparatively little known in gardens, notwithstanding their large and handsomely coloured flowers. The ordinary *M. jalapa*, a native of Peru, and supposed at one time to be the jalap of commerce, is an old plant, well known both to Gerard and Parkinson, the former of whom cultivated it with great success under the popular name of Marvel of Peru. It has also been called Four-o'clock Plant, a name which applies more or less to all the species, the flowers in bright, sunny weather only opening in the afternoon, and remaining open



*Mirabilis jalapa nana.*

until next morning. The branches are all produced from a large, Potato-like root, and form a compact bush from 2 feet to 3 feet across and the same in height. The flowers terminate the branches in bunches ; in the type they are reddish purple, measure over an inch across, and have a long tube. The leaves, which are ovate, are of a fine dark green. It has given rise to numerous varieties, among which are yellow, purple and yellow mixed, or striped, white, lilac, &c. The variety represented by the annexed illustration has a much more compact habit than the type. It makes a very handsome plant for the rockery, where it withstands the cold for an indefinite time when in a dry situation and the roots deeply planted. *M. longiflora*, also a handsome plant, produces very long tubular flowers, white or pale lilac, with a carmine centre. It requires slight protection, and may be grown near a south wall with fair success. It is a native of Mexico. *M. multiflora*, also a native of Mexico and California, is much the best of the genus for ordinary garden purposes. It stands well in open beds or borders, dying down in winter, but re-appearing in spring unharmed. It is much dwarfer and neater habited than *M. jalapa*, and makes a good companion to its dwarf variety nana. The flowers are produced in terminal bunches, and also in the axils of the uppermost leaves. They are bright purple, with a deeper ring at the base of the lobes, and about 1½ inches in diameter, the tube being about 2 inches long. The leaves, which are oval-shaped, are set opposite each other on the stem. *M. jalapa* is easily raised from seed, which should be

done yearly, as it gets coarse when the roots become large. The two last named kinds seldom ripen seed, but may be increased by carefully dividing their roots in spring or waiting for the suckers that run a little distance from the crown.

K.

#### LILY OF THE VALLEY IN SHADE.

FEW hardy plants are held in higher estimation than this little sweet-scented, unpretentious inhabitant of Britain. Not the least merit possessed by it is the fact that it will live almost anywhere and under any kind of treatment. Were it not so, as often as otherwise it could not exist at all, for few plants are generally more neglected. It is often left to itself until the ground it occupies is impoverished by its own and other roots, and under such circumstances its flowers are few and poor. From its growing naturally in shaded places, the prevailing opinion is that it should be placed where it is protected from the full force of the sun—a conclusion which is correct so far, that there are advantages attending its being so located ; not that a shady position is absolutely essential to the well-being of the plant, further than that, when so screened from the sun, there is a gain in more ways than one. Of these, the most important is that where partially shaded the flowers come of a pure white colour, which is one of their principal charms. In fact, it may be said that, when yellow—a state in which so many of the flowers are met—there is little in them to attract except their name and agreeable perfume. When grown on the north side of a wall or building, other matters in its treatment being such as are needful, the foliage attains a size which protects the flowers from the undue influence of the sun. This Lily has a great dislike to the soil ever being too dry through the growing season, and where under partial shade, like that afforded by a wall or building, it is less likely to suffer in this way than elsewhere. It likes plenty of manure, and should be well watered during spells of dry summer weather. This latter is indispensable in parts of the kingdom where the rainfall is light ; inattention to this is one cause of the large proportion of crowns often met with that bears no flowers, but which would have done so had the plants not suffered from drought the preceding summer.

Another cause of failure, even where enough water and manure is given, is the roots remaining too long undisturbed, by which means they get so crowded, that much the greater portion of the buds are barren. I have always found the plants to do best when, in addition to the other requisite matters named, they are not allowed to stand longer than four or five years without moving, even where comparatively thinly planted at first. The best time for breaking up a bed is as soon as the leaves have died down. Like most other things, it does best with a change of soil ; but if it has to be replanted in the same position, the ground should be well dug, so as to bring up a little new material, working in plenty of manure. It likes good holding loam, and if 4 inches or 6 inches of new soil can be added, so much the better. In making beds of Lily of the Valley I have followed two courses—planting small clumps consisting of ten or a dozen crowns, putting them in a foot apart each way ; or, when the old beds were taken up, going over the whole of the roots, and selecting and separating the blooming crowns from those that would not flower. Those that will bloom are easily seen by their thick, plump condition, whilst the non-bloomers are thin and pointed. In planting the crowns separately this way, I put them in patches seven or eight together, about an inch apart and 12 inches each way between the patches ; this allows room enough for their spreading for several years. Of the two methods, planting in clumps or the selected flowering crowns, I prefer the latter, where the bed that has been taken up has not got so poor that the plants have little flower in them.

Non-blooming crowns should be planted in a bed by themselves, treating them like those intended to flower the following season. In planting Lily of the Valley, the mistake is often made of putting it too deep, treatment which generally results in failure, so far as concerns its thriving and blooming satisfactorily. All it requires is its fibrous roots being fairly covered, with the points of the crowns about



level with the surface of the soil. After the first year of planting, to keep the plants up to their full strength so as to produce full-sized spikes of flowers, they should be manured annually; but, for this purpose, I find concentrated manure to be better than dressing with ordinary material, as if much of the latter is applied, it has the effect already alluded to of covering the crowns too deeply. I give a liberal dressing of some fertiliser in the spring as soon as the flower-spikes are fairly up, washing it in immediately with a good soaking of water, and in any dry spells through the summer I give a good drenching now and then. So treated, beds that have been three or four years planted bloom profusely, quantities of the spikes carrying from eighteen to over twenty bells each; the foliage reaches a foot or something more in height, which, in conjunction with the partially shady position which the plants occupy, keeps the flowers as pure in colour as those forced in winter. As already said, the season's blooming of this plant depends in a great measure upon how it has been treated the year previous. Anyone having beds that are not overcrowded, and yet do not bloom satisfactorily, may improve them much by liberal manurial feeding and plenty of water in dry weather.

T. B.

#### HOW TO IMPROVE SWEET WILLIAMS.

SWEET WILLIAMS have bloomed grandly this summer, probably on account of the continued fine weather. In some strains parti-coloured varieties occur. They are very pretty, especially when in the same head of bloom there is a gradation of tint from white to deep crimson. I have a plant now in bloom which exhibits this peculiarity, and very pretty it is. Extra good kinds should be kept; they continue even on light soils in health and vigour, the same plants continuing to bloom for several years in perfection if top-dressed in winter or given some liquid manure in spring. In the case of an extra good variety it is easy to increase it by pulling the old stool to pieces which, if dibbled into rich soil and kept moist, will make good flowering plants for another year. To have good specimens from seed sow in March and transplant into a piece of free, good soil when the young plants are large enough to handle, putting them into their permanent quarters in autumn. Sweet Williams have been so much improved during these last few years, that it is easy to secure a good strain, but everyone who grows them should, by continued selection, develop the capabilities of these showy hardy flowers by saving seed from the best blooms, only rejecting all of an inferior description. In this way there will be a yearly improvement in size of bloom and depth and purity of tint. What are called Auricula-eyed Sweet Williams constitute a fine strain, the markings being clear and distinct. For shrubby margins and similar places where hardy flowers of an enduring character are used, Sweet Williams are especially suited.

BYFLEET.

**Traveller's Joy.**—This (*Clematis Vitalba*) is one of the most noticeable plants by our roadsides just now, festooning our hedges as it does with abundant masses of flower. Later on, too, when the flowers are gone, the fruit attached to innumerable little feathery tufts is scarcely less ornamental than the flowers. In fact, during most of the summer and autumn this climber is very effective.—RUSTIC.

**Malope grandiflora.**—There are few more showy annuals than this, and when grown in a mass, its large, highly-coloured blooms have a fine appearance. It is all the more worthy of attention on account of its powers of endurance in a time of severe drought, such as we are now passing through. There are not a great many annuals that can be relied on to flower well after the middle of July, but this Mallow seems to rejoice in the strong heat, and if sown in well-stirred, fairly enriched soil will go on blooming freely till autumn.—J. C. B.

**Rocket Candytuft.**—Some plants of the white Rocket Candytuft have this season grown with me to an unusual size. I pulled up quite an ordinary plant of this Candytuft to-day. It was about 15 inches high and had five flower-spikes, three of which were 6 inches in length, and the other two 5 inches, and

all of them had flowers the whole length, each spike being thus a good representation of a rocket, a name in this case at least quite applicable.—J. C. C.

#### LYCHNIS HAAGEANA NANA HYBRIDA.

The annexed illustration represents a new variety with the above-mentioned name, and as regards compact habit and free-flowering it is certainly unsurpassed amongst the class of plants to which it belongs. They include among others *Bungeana fulgens* typical *Haageana*, *Senno*, and *Sieboldi*, all of which botanically are considered either to be forms or varieties of *grandiflora*, although for all garden purposes we prefer the distinctive names, as the variations both in form and colour are wide and distinct. *L. Haageana nana hybrida* is essentially a northern plant, where in full sunshine, in rich well-drained soil, we have seen it flower in surprisingly fine form. The blossoms are of the richest vermilion, about the size of a florin or larger, and almost hide the pretty deep chocolate foliage. In the south they grow best on a rich north border, well drained, but watered freely. In the sun they seem to get scorched or diseased, and require renewing annually, and even then do not quite give satisfaction. They vary in colour in a remarkable way, being sometimes chocolate, scarlet, vermilion, cream-white, pink, and



*Lychnis Haageana nana hybrida.*

orange. They grow generally from 1 foot to 2 feet in height, and may be increased either by seed, which they ripen, or by cuttings or division; we prefer, indeed, lifting and dividing them every second or third year, and never fail in obtaining a plentiful supply of really handsome flowers.

K.

**Milla biflora.**—I left a few bulbs of this beautiful plant in the open ground all winter, and up to the present time they are fairly sound; they have, however, no roots, and there is no appearance of growth in any shape, while bulbs which I took up in November, stored during winter, and replanted in April, are now in flower. What a lovely flower this *Milla* is, and yet so easily grown! A fairly light soil and a warm position are all that it requires.—J. C. C.

**German Irises.**—Few seem to be aware of the great variety that exists in this family of hardy flowers. Only two or three colours are commonly met with; whereas there are quite a hundred varieties, all of which differ more or less from each other. Many of them exhibit tints and colour combinations, such as are scarcely to be found in any other genus of hardy plants, and which remind one forcibly of those to be seen in Orchids. These Irises have indeed been termed the Orchids of the flower garden, and if they demanded shelter and considerable cultural care, they would undoubtedly rank higher than they now do. The only reason why Irises are so much neglected is that many of them are but little known, and I am convinced that they will one day be

amongst the most popular of garden flowers. They bloom freely, grow well, and live healthily in any fairly good soil. I have seen them in a vigorous condition in almost pure sand and in stiff loam verging on clay. The fact that they will survive the unfavourable climatic conditions existent in town gardens, too, considerably enhances their value; indeed, they are amongst the best plants that can be grown in thickly populated neighbourhoods.—J. CORNHILL.

## GARDEN FLORA.

### PLATE 505.

#### CHIONODOXA SARDENSIS.\*

MR. BAKER, in his monograph of the *Liliaceæ* in the "Linnean Society's Journal" for 1871, has described under *Chionodoxa* four kinds distinct enough for any purpose; but, as in the case of other plants when subjected to certain conditions, they began after a time to sport or vary, and now *Forbesi* and *sardensis* have been included under *Luciliæ*—*sardensis* as a distinct variety, and *C. cretica*, a plant which we have not yet seen in cultivation, as a form or variety of the Cretan *C. nana*. Therefore, for all practical purposes, the two former may be classed as forms of *Luciliæ*, and the latter of *C. nana*. Of *C. cretica* little need be said, but for *Luciliæ* and *sardensis*, both of which may be grown with ease in every garden, we anticipate a brilliant future. Already we hear of their being planted by the thousand in the wild garden, where, peeping up through lanky Grass, they form quite a new feature during the early spring months. A little rich soil put in with the bulb at the time of planting will not be labour lost, and in the course of a year or so average strength will be attained and rapid increase at the root the result. One of the best points belonging to this species is that it grows equally as well in partial shade as in sunshine. It ripens seed freely, which, sown as soon as gathered, will produce fairly strong flowering bulbs the second or third year: Our seedlings are raised in a cool frame, but no doubt with so hardy a bulb self-sown seed will germinate freely if properly covered in little nooks in the rock or wild gardens.

**C. LUCILIÆ** (the Glory of the Snow).—This is without doubt one of the finest additions to English gardens of recent years in the way of hardy bulbs. It was first introduced to cultivation by Mr. Maw, of Benthall Hall, Broseley, who gathered it while ascending the Nymph Dagh to the east of Smyrna, about the year 1877, at elevations ranging from 3000 feet to 4000 feet above sea level. It was also found by Boissier in Asia Minor at 7000 feet. Mr. Maw says that on the lower level it was out of flower, but near the summit of the mountain it presented one of the most sumptuous displays of floral beauty one could behold. Nor is the above description in the least in excess of the beauty of this plant, which early in March makes a grand display. To this *Chionodoxa* we owe more than to any other plant the impetus given of late to the cultivation of bulbous plants. It is perfectly hardy in all situations—more so, indeed, than the much-admired *Scilla sibirica*, and as it ripens seed freely, we must expect it to become as common as our Wood Hyacinth. Planted in the turf, as we have seen large quantities of it at Kew and elsewhere, it surpasses in beauty everything we have heretofore seen in its way.

**C. FORBESII.**—This we may regard as a mere form

\* Drawn at Munstead in April.





CHIONODOXA SARDENSIS.







of *Luciliae*, which, indeed, may be readily seen if we note the variations that take place in large patches of the latter. The distinction given by Mr. Baker is really one only of degree. The bulbs, which are almost oval-shaped, with a brown outer covering, are very difficult to distinguish from those of *Scilla bifolia*, and we have repeatedly found bulbs of the latter among those of the *Chionodoxa*. The leaves, which are broad strap-shaped, are produced two and three by each bulb, and sheathing the flower-stem for some distance. The scape grows from 4 inches to a foot high, and carries from one or two to fourteen flowers in the case of old or well grown bulbs. They are bright blue, not unlike those of *Phacelia campanularia*, merging into a white eye at the base of the segments. They are rarely less than an inch and often  $1\frac{1}{2}$  inches in diameter.

*C. SARDENSIS*, of which the accompanying plate is a good representation, Mr. Baker has, as I have said, included as a variety of *Luciliae*. It was introduced to cultivation for the first time this spring by



Flowers of *Chionodoxa Luciliae*.

Mr. Barr, who, we believe, received it from Sardis. As will be seen, it is a vast improvement on the type, the colour being much deeper with just the slightest tinge of violet. One notable thing regarding it is the smaller flowers, but there is no doubt that in the course of a year or two they will become as large as those of the type. It is perfectly hardy, and should become popular. It received a few weeks ago a first-class certificate from the Royal Horticultural Society.

*C. NANA*.—This, though much less striking than *C. Luciliae* or its varieties, is, nevertheless, none the less interesting. It was the first of the *Chionodoxas* that appeared in our gardens, having been introduced by Sieber, an Austrian botanist, as early as 1820, and who is said to have confounded it with *Puschkinia scilloides*, which it resembles when in a robust state. It was found at an elevation of 6000 feet above sea level in the island of Crete, and is a little later in flowering than *C. Luciliae*. The flowers, which rarely exceed 4 inches in height, are generally about half an inch in diameter, of a washy blue colour, with a prominent blue midrib in the centre of each segment. It does well in ordinary borders, or on shelves on the rockery. D. K.

*Lilium candidum*.—There is something inexplicable in the behaviour of this Lily. Some years the flower-stems are quite denuded of leaves just as they begin to flower; then the condition of the plant is anything but satisfactory. I fancy some disease attacks the leaves, for they get quite black before they fall from the stems. We had two lines of these

Lilies here—one in the full sun, and another under the shade of a wall about 5 feet high. Those in the shady border are all dead, while those on the sunny side are all that can be desired. The leaves are quite free from blemish, and the plants are flowering grandly. Last season at this time we had not a presentable flower, yet we have done nothing to them. I find it a mistake to plant the bulbs of this Lily too deep; the top of the bulb ought not to be more than 2 inches under the surface.—J. C. C.

#### FANCY PANSIES.

THESE have found many admirers during the last few years, and some growers, especially those in the west of England, have got together very creditable collections of them. What has surprised me most in connection with their cultivation is the success that has attended the efforts of those who have taken up their culture for the first time, and in some cases even this has been their first gardening experience; yet in

of propagation adopted is, I find, to pull the old plant to pieces, either in autumn or spring, and dibble in the youngest shoots. This plan is pretty generally practised, and it certainly answers as well as taking cuttings and devoting time and attention to getting them rooted. I do not think that the cleverest expert could tell whether his plants were raised from cuttings or not. It may not be the right sort of plan for Pansy fanciers to adopt, but we must not forget that the fancy includes amongst its members some very humble devotees. The intelligent mechanic has become enamoured with the charms of this flower, and in a few cases we find him devoting much time to its culture. I am acquainted with several such, but one instance must suffice for notice here. This is one who is occupied all day in a workshop, yet he cultivates these flowers in the most successful manner. Although he has only a narrow strip of ground for his garden, he has devoted a space 30 feet long and 12 feet wide to the Pansy. In this space he has two beds 4 feet wide, with a 2-foot path between them. These beds are surrounded with stout boards 11 inches deep, and the soil is raised 4 inches above the surrounding level. He takes up and replants his stock early in October each year, as he finds he gets better flowers from autumn planting than that of spring. Before he takes up his plants he goes over them and cuts off all the old flowering shoots. This he does a month before planting time, so that when the time has arrived to replant the old stools are bristling with young growth sent out from the base of the plants. He then pulls the old stools to pieces, and selects the youngest for replanting. A good sprinkling of soot and lime spread on the surface before the ground is dug is all that he uses in the way of manure; yet his staple soil is only of an ordinary garden character—neither very heavy nor very light. Before he used soot and lime he was troubled a good deal with slugs, which used to disfigure the flowers. Someone recommended him to sprinkle on the surface a layer of fresh sawdust, which he soon regretted. Under this system his stock began to diminish, slowly at first and then more rapidly, until matters had got so bad that he had to take up the whole, and, as well as he could, clear the ground from sawdust. I could not learn exactly in what way the sawdust injured the plants, but it in some way affected the roots, as they died back from the extremities. I have often been surprised at the wonderfully fine flowers which amateurs produce without any special preparation of the soil—a circumstance which seems to show that the Pansy is not very particular as to compost. In other respects, however, the plants get good attention, especially in the way of watering and shading. Many cultivators, indeed, use portable frames covered with canvas to put over their plants when the sun is very powerful, and also during winter, when the weather is severe. J. C. C.

*Saxifraga pyramidalis*.—Plants of a light and elegant habit are always valuable in floral decorations as well as for greenhouse embellishment, and it would be difficult to name one possessing in a higher degree this character combined with floriferousness than this *Saxifraga*. It forms perfect little pyramids of numerous white flowers on a branching stem from 18 inches to 2 feet high. Associated with other flowering or foliage plants in a group, it tends greatly to impart elegance to the whole, and this is a point of great importance. *S. pyramidalis* may be readily propagated from side shoots, or those which appear in abundance round old plants. They should be potted up singly in small pots, and kept in a cold frame throughout the season. Being hardy, they never require much heat, and are better altogether without it from hot-water pipes. The young plants when well rooted and growing freely should be transferred to 5-inch pots, in which they should be allowed to flower. This they cannot all be depended on to do the first spring after insertion, but many of the strongest will, and weaker ones make excellent plants for a second year. A rich loamy soil with some manure added is recommended, but not larger pots for single plants than those just named. After the plants commence forming the flower-spikes, they may be fed with advantage; placing the pots in small saucers and giving manure water is a good plan.



This must not be practised earlier, or growth of leaves instead of the formation of flowers will probably be the result. We were misled in this way with some plants last year, but all were kept and grown on in the same pots, and they flowered well. Although this Saxifrage may be grown in the rockery or open border, it is worth while to cultivate it in pots, and put it out wherever desired just before coming into flower. The strongest side growths should be selected for propagation.—J. G. K.

**Phlox Drummondii Heynholdii.**—While I do not think this dwarf type of Drummond's Phlox will ever become so popular as the fine varieties of the larger section, yet it is well adapted for culture in pots, and may be grown in this way by some who have little or no convenience for cultivating a few favourite flowers in the open ground. P. Drummondii Heynholdii appears to have originated as a chance seedling among others raised from seed of P. Drummondii. It was distributed for the first time in the autumn of 1868, and received the name of Heynholdii in honour of the raiser. Since then, Continental growers have paid particular attention to this section, and have succeeded in obtaining several new varieties such as alba, white; cardinalis, fiery scarlet, very fine and distinct, and awarded a first-class certificate by the floral committee of the Royal Horticultural Society; Empress Augusta, copper-rose, with scarlet centre; globosa albo-rosea, atro-rosea, and Perfection. The three last named have been designated globosa on account of their neat spherical growth, and they are well adapted for pot culture. In addition, there are robusta, scarlet; striata, striped rose and white, which is regarded as one of the very hardiest. Perhaps sufficient attention has not been directed to the fact that these types of Phlox are both abundant and persistent bloomers. Seed of these Phloxes germinates quickly in a little heat; as soon as the plants are large enough to handle they can be pricked off into store pots and kept close in warmth for two or three days, then gradually hardened off, and as soon as convenient planted out in a fairly light, rich soil. To flower well, there should be a good early summer growth from well established plants, and then the head of bloom cannot fail to be satisfactory.—R. D.

**Stocks and Asters.**—These, when reared in frames under glass, or in nursery beds in special corners, generally grow very well so long as they remain there; but when transferred to the flower garden, or into beds and borders elsewhere, they do not always succeed. They may grow for a time and healthily; then they assume a yellow hue and die. In flower garden designs blanks caused in this way are very annoying, and I fancy it is chiefly owing to their failing in this way that we do not see more of these showy flowers in gardens than we do. As a rule, it is a small white worm working at the root which causes them to die, and sometimes the soil in which they are planted is unsuitable for insuring healthy growth in hot, dry weather. Stock and Aster beds should be prepared in much the same way as ground for Onions and Carrots. Light soil, consisting chiefly of leaf-mould and sand, should be avoided. They never succeed in such material in very dry weather. A predominance of loam of some heavy soil suits them best. Soot or lime, in the form of a heavy sprinkling, should be added to the surface and dug in before planting. Where this cannot be done, then a good sprinkling of soot should be put between the plants after growth begins and washed down with water from a rosed watering pot, or the rain may be allowed to do it, should it come in time. Do not, however, wait until some of the plants are becoming yellow, but apply it when they show no signs of failing. This is the only way in which they can be saved, and cultivators will find it an advantage to see to it in good time.—CAMBRIAN.

**Wild Grasses.**—Many of the ornamental Grasses cultivated in our gardens are very pretty, but there are plenty of sorts which grow in hedgerows, in meadows, and in fields and waste lands generally just as beautiful, and if bunches of them were collected and dried now, they would be found of the utmost value for mixing with choice cut flowers in glasses during winter. I find that some of the best varieties are now becoming ripe, and they ought to be gathered

before they are quite matured, as then they are good in colour, and are firmer and more graceful than when too ripe. They may be all mixed up together, or each kind can be kept by itself. They are easily dried, either by spreading them out in some airy room or shed, or hanging them up under cover anywhere. Now when flowers and subjects for garnishing are so plentiful, few may take into consideration the value of these wild Grasses, but from November onwards they are both pleasing and useful. They may be used times without number with fresh lots of flowers, and if carefully dried they will be as good in March as in October.—J. MUIR.

#### GOLDEN-RAYED LILY IN THE MIDLANDS.

THIS is probably the most beautiful of all Lilies which can be grown out of doors in the midlands; but at the same time it is exceedingly difficult to make it flower satisfactorily without year after year having to go to the expense of purchasing new bulbs to take the place of those dwindled down into worthlessness. In autumn, when plants of this Lily have done blooming and the foliage shows signs of decay, many people, who wonder how it is they cannot succeed in growing it, cut down the stems and cast them on the rubbish heap, waiting patiently for spring-time to give them a growth similarly vigorous to that of the previous season. The wonder is, however, that they get even the spindly stems and sickly flowers which they do. They do not reflect that the nutriment perfected in the leaf cells of one year's foliage represents the vigour of stem and bloom of the ensuing year, and that if they left the stem on the plant until it was quite brown and dead, this nutriment would be sent below to be stored up in the bulb-scales for the sustenance of the future plant. If these stems be twisted (not pulled) out—say, in December—this storing process will have been completed, and all that need be done is to protect the bulbs from severe frost. When the stems are cut down at or near the ground level, insects get down their soft porous centres, finding both a home and suitable food in them and the Lily bulb. Then, again, moisture lodges in them, which, becoming frozen, splits the outsides and affords ingress to slugs, which are always on the outlook for something to devour. Some protection against all these evils is afforded by a mound of finely sifted ashes, which are perfectly proof against worm, slug, or grub. They also turn the bulk of rain or melted snow from the bulbs to the soil occupied by the rootlets, there to be taken up, as circumstances may require, when mild spring weather sets in. With bulbs permanently planted out, the start seems to come too soon, for with it comes a series of killing night frosts; yet somehow, when properly treated, the shoots are provided with such strength of constitution and thickness of skin, that they come unscathed through many degrees of frost. A clump of *L. auratum*, which has been undisturbed for five years, treated as just described, has growths 2 feet in height and as thick as one's thumb. These withstood 8° of frost, and do not exhibit a symptom of frost-bite, although exposed on a hill-top to every wind save that from the east. After May 20 (the date of final frost three years out of four) the ashes should be spread about the border carefully, so as not to break off the younger shoots. When bloom buds appear, liquid manure must be given in liberal doses, and the result will be a fine show of bloom. R. A. H. G.

**Begonia Wittensteini.**—The *Garten Zeitung* figures this new hybrid Begonia, which is the result of crossing *B. ascotensis* with *corallina*. It has the upright growth and floriferous nature of the former with the colour and shape of the flowers of the latter, from which it, however, differs on account of the male flowers, which come first, being small and often dropping before expanding, so that the female blooms which form clusters of from eight to eighteen together constitute the beauty of the plant. In the *Zeitung* this Begonia is figured as a standard, for which form it is said to be well fitted, it being an easy matter to run up a stem a yard in height and furnish it with a good head of foliage in the course of the season. It commences to bloom in summer, but continues to do so through the winter in warmth.—J. C., *Byfleet*.

#### PROPAGATION OF BEDDING PLANTS.

IT is an unfortunate part of our common mode of flower garden decoration that just at a time when the plants are at their best in August we must begin to cut them up and disfigure them in order to obtain cuttings for next year's supply of plants. This applies forcibly to all kinds of Pelargoniums and many other flower garden plants in a lesser degree. To be successful in producing a fine lot of young plants which will stand the winter well and turn out strong and healthy in spring, autumn propagation must not be delayed too long. August is a suitable time in which to get the bulk of this work done. When left until September the cuttings frequently do not root freely before winter sets in, and then they are difficult to keep alive during the shortest days and darkest months of the year. Young plants rooted in good time and thoroughly established early in autumn are very much easier kept throughout the winter than late propagated ones, and I would urge all who wish to have a good stock to propagate early. Here those whom we are most anxious to please are from home in August and September, and this gives us an excellent chance to cut up the plants and have them in good trim again before they are seen; but where the case is otherwise, the greatest attention should be devoted to taking off the cuttings without destroying the bloom on the plants in any way. The inexperienced or careless might take the first growths which came to hand and cut tops off which were blooming and producing a succession of buds, and thus spoil the display for some time to come; but the careful worker will take his cuttings from the sides where they are hardly missed, or where one kind may be encroaching on another, and hundreds or thousands may in this way be taken from a few beds or borders without anyone being able to tell that cuttings had been secured. The wood for cuttings should not be too soft, and that which is growing in partial darkness would be apt to decay before roots were formed; but there are plenty of hardy ends to the shoots which are neither prominent parts of the plants nor growing in darkness. One of the first places from which to select cuttings is where one kind of plant joins another. It will here be found that they generally overlap each other, and as this is not desirable, a great many cuttings may be secured by reducing the plants to their proper places. Pelargonium cuttings need not be more than 3 inches or 4 inches in length, and cuttings of such things as *Alternantheras*, *Coleuses*, *Heliotropes*, *Tropeolums*, *Iresines*, &c., may be a little shorter or longer according to the strength of the parent plants. With the exception of Pelargoniums, the whole of the other bedding plants should be propagated in pots from 3 inches to 6 inches in diameter. Healthy cuttings, consisting of from six to twelve in a 3-inch pot, never fail to winter well. The small pots soon become full of roots, and this is their mainstay for the winter. Pelargoniums root freely in the open air, but the others should have the protection of a frame and lights, as their being kept close and shaded for a while after being put in is an advantage to such things as *Coleuses* and *Alternantheras*. The best mixture in which to root Pelargoniums at this time consists of two parts loam, one part sand, and one part good leaf-soil or horse droppings. For other things a little more leaf-soil may be added. Pelargonium cuttings may be put into 6-inch pots or boxes from 2 feet to 3 feet in length, 16 inches in width, and 3 inches deep. We put from fifty to sixty cuttings in this size and find them to succeed exceedingly well. A large heap of stuff is mixed up and the whole of the pots or boxes are filled before the cuttings are taken in hand, and when once begun they are taken off and put in quickly. They are watered thoroughly from the first, and by making the cuttings very firm and putting them in a sheltered place away from cold draughts, and not subject to too much damp, 99 per cent. of them root and do well. Pelargoniums, as I have just said, stand out in the open from the first, and as soon as the more tender things are rooted, they, too, are exposed to the weather, especially during the day-time, as it is a bad plan to attempt any coddling of them up too early in the autumn. Pelargoniums may be rooted along the bottom of a wall or in sandy soil in any part of the garden, but they have to be dug up from there before frost comes, and they do not



establish themselves well afterwards; this, therefore, is not such a good way of dealing with them as putting them into their winter rooting quarters at the beginning.—J. MUIR.

—If amateurs and others make one mistake greater than another as regards the management of bedding plants, it is deferring, as many of them do, the propagation of their stock until late in the season. It seems to me that they do not understand the value of early-struck cuttings, or they would make an effort to get them rooted earlier. One cutting put in before the middle of August is worth two put in a month later; early-struck cuttings pass through the winter with less risk and care than later struck ones. Cuttings put in now will have sufficient time to make plenty of roots, and to harden up their growth before damp and frosty weather sets in; consequently, they will be in better condition to bear a little rough treatment during winter than those which have but few roots and a soft, sappy stem. Those who have to provide these plants in thousands have many opportunities of testing this matter, and it has been found to be a decided advantage to take all the cuttings it is possible to get, especially of bedding Pelargoniums, some time in August, and the earlier the better; then our losses of plants during winter are trifling compared with cuttings struck late, and if from any cause we cannot secure all we want by that time, we have to make up our mind to treat late-struck ones much more tenderly than such as are propagated early. Cuttings of Pelargoniums taken off now and dibbled in a shady border will strike freely in a few weeks, and the only attention they require is to give them a little water occasionally in dry weather; then in October they may be taken up and put into pots for the winter, even the delicate tricolors and bronze varieties strike much more freely at this time of year in an open border than they do a month later under the protection of glass. With the assistance of a cold frame such bedding plants as *Heliotropes*, *Ageratums*, *Salvias*, *Verbenas*, *Petunias*, *Marguerites*, *Lantanas*, &c., may all be propagated now with much greater certainty than they can be in September; all these plants are best put into 6-inch pots, placing from ten to twelve cuttings in each. The pots will require a few crocks in the bottom, and almost any kind of garden soil will do, if not inclining to clay and there is a fair proportion of sand mixed with it. As the pots are filled they must be taken to the frame and be kept quite close and shaded from bright sunshine for a fortnight. The soil must be kept moist, and the leaves of the cuttings should be lightly damped with a syringe on the evenings of fine days; but this operation will not be necessary in wet and cloudy weather. At the end of a fortnight give them a little air and inure them to sunshine gradually, and as soon as well rooted let them have all the air possible in suitable weather, for a short sturdy plant, well hardened, is more likely to survive the winter than one which has made weak succulent growth, consequent upon being drawn up in confined air.—J. C.

#### CARNATIONS, PICOTEES, AND PINKS.

"How can one distinguish between Carnation, Picotee, and Pink?" asks a correspondent. The Carnation and Picotee are derived from *Dianthus Caryophyllus*, and the double varieties selected from this parentage are, for garden purposes, divided into Carnations, Cloves, and Picotees. Carnations are sub-divided into scarlet bizarres, crimson bizarres, and pink bizarres. The first have flowers more or less irregularly flaked with scarlet and maroon, the second with crimson and purple, the third with pink and purple. There are also purple, scarlet, and rose flakes; that is, flowers of a white or whitish ground flaked with those colours. Cloves are usually self-coloured flowers; indeed all selfs are erroneously classed as Cloves; but if they are not Clove-scented, it is better to say of a self flower that it is a pink Carnation, or a purple, according to its colour. Picotees are yellow or white, edged with red, rose, salmon, or purple, and they are designated light, medium, or heavy-edged, according to the width of the colour. Spots or bars on the white are serious faults. Pinks are the offspring of *Dianthus plumarius*, or perhaps *D. deltoides*, as is alleged by some; but I am inclined to *D. plumarius*, as

its white flowers with a dark reddish purple centre partake of the character of the common Pink. Named Pinks, belonging to what is popularly termed florists' varieties, were ages ago double, with a dark centre and white margin, the petals being fringed as in *D. plumarius*. Ultimately they became laced; that is, besides the dark-coloured centre each petal has a broad or narrow margin of the same colour as the centre. The Pink is smaller in all its parts than the Carnation or Picotee, and flowers a month earlier. Pinks are usually in flower from the middle to the end of June. Carnations from the middle to the end of July. Another type of Pink is represented by Anne Boleyn and Lord Lyons, the flowers of which are reddish with a purple centre, but in other respects they cannot be distinguished from the others.

J. DOUGLAS.

### INDOOR GARDEN.

#### THE BLUE THROAT-WORT.

(*TRACHELIUM CÆRULEUM*.)

THIS, although generally cultivated in pots as a greenhouse plant, where, when well grown, it is very attractive, is comparatively hardy in the open air, either on a south border or in a nice sunny spot on the rockery. Under such conditions it rarely gets



Blue Throat-wort (*Trachelium caeruleum*).

killed unless in very severe winters. A plant of it with us has survived the last two winters unharmed out of doors. Young plants of it are, however, preferable to more than two-year-old ones, as after that time they become leggy, and never flower so freely as they do the first year. They are easily increased from cuttings, by which means a set of young plants may be kept in readiness to take the place of the older ones. The young ones, if wintered in a cool frame, will flower all through the summer and early autumn months. Seedlings, when the seed is sown early in March, make large flowering plants the same year. They should be grown on in the frame until they are 6 inches high and then turned out into light sandy soil. *T. caeruleum* is a half-shrubby, much-branched plant, growing 1 foot or 2 feet high and producing a profusion of clusters of small blue or lilac flowers. There is also a pretty white variety of it in gardens. It is a native of the Mediterranean regions.

K.

**Lilium auratum degenerating.**—Three years ago I bought 100 bulbs of this Lily. Some of them were put into pots, others were planted in a bed under glass in a cool conservatory, and a number were put out in the open border. The first year after planting the majority of them flowered very

well, producing strong growths and numerous large flowers. Last year a slight degeneration was observable amongst the whole of them, and this year it is still more noticeable. The soil in which they are growing is good and suitable, and I do not think their degeneration can be attributed to any deficiency in that respect. I suppose, unless under very special treatment, their natural disposition is to degenerate, as I hear of many whose bulbs have behaved like mine.—CAMBRIAN.

#### CORK DUST FOR DRAINAGE.

HAVE any of your readers thought of employing cork dust for draining flower-pots? The material to which I allude is that in which Grapes are packed that come from Spain and Portugal. Although termed "dust," it is not really so, being composed of nodules, five or six of which would form a fair sized Pea. A year or two ago I happened to have some by me and used it for draining 4½-inch and 6-inch pots, putting one good sized crock over the hole and the cork dust on that. It answered very well indeed, and, seeing what a quantity of this material is yearly imported into this country, I have since thought that it might be made the means of reducing labour by employing it as a substitute for crocks. Any quantity of it ought to be obtainable from Covent Garden, where so many imported Grapes are unpacked during the winter time, and in towns and even in country districts it can be had from fruiterers and grocers. In a general way it can be had for fetching, as those who sell the imported Grapes seldom have any use for the "dust," which goes to the rubbish heap. Not only would labour be saved, but it would probably be less costly to buy the cork dust than crocks, which where a large amount of potting is done must be bought, and which often cost nearly 10s. per load. Drained with this material, pot plants would also be much lighter, an important consideration in the case of market growers and others who have to transport their plants to some distance. In shifting plants on, if the greater portion of the drainage is not removed at each shift, by the time a 12-inch size is reached this alone adds much to the weight, and the removal, a necessary evil, would be avoided. If possible, I should like your readers who grow many pot plants to try the cork dust; in my case the roots seemed to look fresh and healthy. In re-potting there would be no absolute need that I can see to remove it.—BYFLEET.

#### CRINUM REVOLUTUM.

ABOUT three years ago I received from M. J. B. A. Deleuil, of Marseilles, a bulb of this beautiful hybrid raised by him from seed, but of what parentage I have no recollection. It was said to be almost if not quite hardy, and for the first eighteen months I tried it out alongside of my group of *C. Powellii*, but owing partly to our wet and cold autumns, and also to the slugs and snails finding its long curling foliage very pleasant food, it did no good, and failed to bloom, though the bulb had the remains of a bloom spike on it when it came, so that it was evidently of blooming size. For the last eighteen months I have grown it in a pot, and this summer it has rewarded me with two fine spikes of bloom in quick succession, with only an interval of about a month between the fading of the first and the appearance of the second, which is the better and handsomer of the two, and is now about at its best, bearing thirteen flowers, of which six are open as I write, the remainder promising buds in various stages of development. The flowers are of medium size, of a pleasing shade of pale blush, caused by the deep red veining on the outside of the tube showing through the otherwise white petal. From the shape of the flower I should think that *Amaryllis longiflora* was probably one of the parents of this hybrid; but if so, a very considerable improvement in the size and beauty of the flower has been effected by crossing it with whatever variety was its other parent. I send a bloom for your inspection, and shall be glad of your opinion thereupon.

W. E. GUMBLETON.

Belgrove, Queenstown, Ireland.

\*\*\* A delicately tinted flower, being white with a broad line of rose-pink running down the middle of each petal on the outside. The flower is long and funnel-shaped, not so large as *C. Powellii* or *C. capense*, to which it is evidently nearly allied.—ED.



## BULBS FOR EARLY FORCING.

**White Roman Hyacinths** are the earliest bulbs to flower, and where white flowers are much in request during the short days of winter they are invaluable, either in a cut state or growing in pots. Bulbs potted in August may be brought into flower in November with very little forcing, and what enhances the value of these Hyacinths so much when required for filling up vases, &c., is that they will flower in a very satisfactory manner in very small pots. This is an important matter, because if half a dozen bulbs are potted in one pot the chances are that only half of them will be in flower at one time. Where a few little masses are required it is a good plan to put a sufficient number of bulbs in single pots; those  $2\frac{1}{2}$  inches in diameter will be large enough, and when the bulbs come into flower, or rather a day or two earlier, those likely to open at one time can be selected and three or four of them placed in a larger pot, and if it is necessary to remove a little of the soil from the roots, that will do them no harm. When to be brought into flower in February and March they require scarcely any forcing, and most of the bulbs push up flower-spikes at one time. Therefore for that purpose it is unnecessary to use single pots; on the contrary, put them three or four together in the pots in which they are intended to flower. The bulbs, the flowers of which are to be cut, we plant ten or twelve together in a deep pan of soil.

**Freesia refracta alba.**—As the management of this very fragrant plant gets better understood, the more it will be valued as a winter-flowering subject; and when we consider its beauty and usefulness, one feels that any effort one can make to understand its requirements will be sure to be rewarded. It must not, however, be thought to be a difficult plant to cultivate; on the contrary, it is not much more difficult to grow than a Hyacinth, but we shall doubtless find that it requires special treatment to bring it into flower at Christmas. Our plants which flowered last March have lost all their leaves for some weeks past; therefore they must have already had a pretty good rest. We have, however, shaken them out of the old soil in which they grew last year, and have re-potted them in fresh material, which we will keep moist and give them a shady position in the greenhouse. I am of opinion that if grown in a temperature of from  $50^{\circ}$  to  $55^{\circ}$  during November and December, they will flower in January. They increase rapidly, and require sorting before they are replanted. The largest should be set apart for flowering in pots, and the smallest should be put into deep pans to grow on to a flowering size. They seem to grow well in a compost consisting of ordinary garden soil and a little sand. In turning out our stock to-day, I noticed that the largest bulbs were those under the surface, those partly exposed being rather small, a circumstance which evidently shows that when planted the bulbs should be wholly buried. I am satisfied, too, that they keep better when resting in a fairly moist soil than a dry one.

**Van Thol Tulips.**—The single varieties of this Tulip are much the best for early forcing, and amongst them as there are several distinct colours, they are very useful; the red and yellow variety is the earliest to flower, but in this respect they all come in nearly

together; the most distinct colours are scarlet, white, and yellow. These should all be planted early in September, and the most satisfactory way of dealing with them is to put each sort separately into a pan, and as soon as they begin to show colour to lift them out carefully, and arrange them according to the forward state or otherwise of the flowers in pots or whatever they are to be flowered in. If these are wanted at Christmas, they must be introduced into a temperature slightly above that of an ordinary greenhouse early in December. There are several other single-flowered Tulips that may be had in bloom

freely in any odd corner, runs up 6 feet or more in height, and produces many leaves on each stem. The leaves take about six weeks to become ready for use. It may be sown in April for a summer supply, and about this time for late autumn use.—J. MUIR.

## FERNS.

## HARDY FERNS.

ALL the hardy Ferns may be cultivated in our gardens, and it is not at all necessary to imitate the conditions under which the plants grow naturally. Indeed, in some cases it would be impossible to imitate natural conditions, and undesirable to do so if it were. As an illustration, let us take *Allosorus crispus* (the Parsley Fern), growing as it does on a bleak mountain-side, protected only from the scorching sun or winter blast by a rough stone. We have taken plants of it from such a position, and planted them in peat on the north side of a house where they never felt the sun's rays, and they grew famously with the aid of burrs from the brickfield. We also tried them in a more open position, and were even more successful. We have plants of them now twenty-five years old—great tufts. *Asplenium marinum*, too! What garden could provide for it the precipitous rocks over-hanging the sea to which it clings? In fact, it does not take kindly to open-air culture, but produces rich deep green fronds a foot long in a plant stove, or in the cool Orchid house. *Ceterach officinarum* (the Scale Fern) I never found except on old walls where the mortar had become loosened. This I have grown for years in the shady part of a greenhouse. I fill a pot half full of drainage, and form a compost consisting of half mortar, rubbish, and half loam, and in this my plants thrive admirably. They ripen their spores, which in their turn produce plants abundantly if sown on the rough surface of the turfy loam and mortar rubbish. The diminutive forked Spleenwort (*Asplenium septentrionale*) makes, for it, very vigorous growth under the same conditions. We grow the pretty little green Spleenwort (*Asplenium viride*) both outside and in pots. If planted outside, all that it requires is the shelter of a bit of porous rock and means to carry away the superfluous water. Stagnant water will kill the whole of them, while a single spadeful of suitable loam, a barrow-load of burrs or clinkers from the brickfields, and good drainage will enable anyone to grow them, and in very unsuitable localities.

No one with an eye for the graceful and beautiful can fail to be impressed with the charming variety of a well-arranged garden of hardy Ferns. Small-growing hardy kinds must have a corner to themselves. They require light, air, and root room, and this cannot be obtained if a Wall-rue Spleenwort is planted in juxtaposition with the more robust of its kindred, such as the Male Fern, &c. Hardy Ferns are grown in most gardens in pots, and for this purpose they are well adapted. The tall and majestic Tree Ferns of the antipodes cannot find a place in every garden, but all can grow the numerous varieties of the graceful Lady Ferns, which quite rival in beauty and greatly surpass in interest the finest Tree Ferns ever grown. What infinite variety there is in the different kinds of



Cone of Swiss Pine. (See p. 175.)

early in the new year; the best are Alba Regalis, white; Clairmond, in three distinct colours—red, white, and yellow; Couleur Ponceau, rose and white; Kaiser Kroon, crimson, margined with yellow; Proserpine, silvery rose; Rembrandt, crimson; and Queen Victoria, white and crimson. All these should be potted, four bulbs in a  $4\frac{1}{2}$ -inch pot, and introduced into a gentle warmth early in January. J. C. C.

**Curled Mallow.**—This, *Malva crispa*, is one of the finest plants we have ever grown for supplying leaves for garnishing fruit dishes. They are very soft, about the size of an ordinary vine leaf, and their edges are beautifully curled. This Mallow grows



hardy Ferns! We grow some twenty varieties; but for a small collection the following would be suitable: Craigi, Rutsoni, cristatum, Loweii superbum, multifidum superbum, Frizelli, plumosum, Vernoniae, Victoriae, and crispum. A few of the most distinct of the varieties of the Male Fern are Lastrea Filix-mas, Pinderi, cristata, crispa, magnifica, and Barnesi. Lastrea montana coronans is a distinct and pretty form of the mountain Buckler Fern. I have not yet planted it out, but it is a charming little pot plant.

The soft prickly Shield Fern has sported into many distinct and graceful forms, of which the best are Polystichum angulare gracile, proliferum, plumosum, and grandiceps. Even the common Hart's-tongue (Scolopendrium) and the common Polypody (Polypodium) have sported into many distinct and fine forms. In the former, the variety Kelwayi is the most curious, while crispum is the most handsome. The recently introduced form of Polypodium vulgare, named cornubiense Fowleri, is not to be distinguished at first sight from the best form of the Killarney Fern (Trichomanes radicans). Indeed, one might fill pages with descriptions of hardy Ferns, including American species. Hardy Ferns will make good growths in the greenhouse or conservatory, in frames, or, indeed, anywhere, if sheltered from winds and too much direct sunshine or frosts. To grow them to perfection, as they are sometimes seen at exhibitions in June and July, they must have the advantage of a rather humid atmosphere as soon as they start into growth. Artificial heat is not necessary; perhaps the plants do better without it. The only object to be obtained in using artificial heat is to push them on more rapidly for the purpose of getting the fronds developed earlier. They should be syringed every afternoon, and the house where they are growing ought to be shut up at the same time. Under these conditions it is very interesting indeed to notice the rapid development of the fronds; they slowly and silently unroll themselves, and in a few weeks from the time when the unrolling process begins they are mostly full grown; it takes much longer, of course, to perfectly develop all their parts. It cannot be said that Ferns, either hardy or exotic, are difficult to grow, and yet they require careful attention. I pot all our plants carefully, using good compost. Ferns are as carefully treated in this respect as any other plants we have. The compost for the strong-growing Ferns is good decayed turfy loam and brown fibrous peat, mixed together in about equal proportions. It is a good plan to pot them once a year, when they are at rest. The drainage must be perfect. If this is stopped, or even mixed with the potting soil, the plants will not do nearly so well.

The small Ferns usually found attached to rocks or walls succeed best in the mortar rubbish and loam compost, with plenty of drainage. A small frame may be filled with such plants, and would be a great source of interest and amusement.

J. DOUGLAS.

**Adiantum farleyense.**—This lovely variety of *A. tenerum* (according to Mr. Baker in "Synopsis Filicum") is too well known to need any description, for once seen in perfection it is not easily forgotten. The majority of the plants of it with which we meet do not exhibit luxuriant growth, though it is a much easier plant to grow than some other species of this genus. Some time back I saw, beneath a stage in an Orchid house, some fine, healthy plants of it which many growers would have been pleased to have had in pots in a more prominent position. The reason why they looked so well was, the place was well drained. The compost best suited for producing fine, healthy specimens is good, fibrous loam, lumps of charcoal, and coarse sand, mixed together, but on no account should it be sifted. In potting never ram the soil down with a stick; simply press it moderately firm with the fingers. We have some fine, healthy specimens of it to which at the present time we are giving rather weak liquid manure water twice a week.—H.

**Acrostichum (Stenochlæna) scandens.**—The rhizomes of this Fern seem to delight in rambling over a wide surface, and if grown in pots prove a source of much annoyance to the cultivator who tries to keep them within bounds. The best way is to

plant it out on a rockery, where it will give no trouble and produce a very ornamental effect. The barren fronds are simply pinnate, and when treated as above often attain a length of 5 feet to 6 feet, and from a foot to 2 feet broad. It is a native of the Himalayas, and requires to be grown in a warm house.—H. C.

**Ferns and Fuchsias.**—These succeed admirably in places where a vinery has to serve the purpose of both fruit and plant house. The Ferns furnish abundance of graceful foliage, and the Fuchsias supply flowers of various colours. Of course, greenhouse Ferns only should be selected, but that is no drawback, as amongst them may be found many of the most beautiful and easily grown varieties in cultivation. I may mention *Pteris serrulata*, *P. tremula*, *P. cretica*, *Adiantum Capillus-veneris*, and *A. formosum* as amongst those most frequently met with in really good condition. Several varieties of *Lycopodium*, or Club Moss, are also useful. Amongst Fuchsias, Mrs. Marshall is probably the best kind in cultivation; I find it everywhere in full bloom. Then there is Rose of Castile, Guiding Star, and Avalanche, all kinds which bear medium-sized flowers; and the plants are good in habit of growth, far better than many of the new kinds that have size of bloom only to recommend them; but in this way a sort called Phenomenal is well worth growing for contrast. This is a good time to re-pot any Ferns that are getting pot-bound, so that they may get well established before winter sets in. In cool houses, all plants to stand the winter should be well rooted—in fact, they are safer in a starved condition than with a mass of inert soil about their roots.—J. G., *Hants*.

## NOTES OF THE WEEK.

**Lobelia lutea.**—This old-fashioned greenhouse plant is perfectly hardy in dry, warm situations, which should be selected for it, as it is very susceptible of stagnant moisture. It throws out numerous spreading shoots from the crown, covered for half their length with bright yellow flowers about an inch long, and is easily increased by means of cuttings.

**More open spaces.**—On Monday last Lady Marian Alford formally declared the enclosure of Red Lion-square, High Holborn, to be open to the public as a garden and place of recreation. The space which is thus thrown open has been secured by the Metropolitan Public Gardens Association on a peppercorn rent for a period of twelve months.

**Campanula Haylodgensis.**—This is a very pretty dwarf variety, an abundant flowerer, and neat in growth. The flowers are erect and of a soft blue-purple. It seems to be a cross between *C. muralis* and *carpatia*. Messrs. Paul, of Cheshunt, have sent us good specimens of it, together with *C. turbinata* pelviformis with flatter flowers than the type, *C. isophylla*, and the white variety of it, both pretty plants for the alpine garden.

**Platycodon grandiflorum Mariesi**, known also as *P. pumilum*, is undoubtedly one of the finest acquisitions of recent years. It is much dwarfer than the other, and, if anything, a freer flowerer. It grows about 9 inches high, and produces from three to nine large flowers on each stem, of a much better colour than those of the type and with better substance. It has been flowering for the last month, and promises to produce a plentiful supply of seed.

**Monarda didyma.**—For brilliantly coloured flowers this *Monarda* is not equalled by any plant at present in bloom. It is very impatient of drought, and should be grown in damp boggy soil in full sunshine. It attains 3 feet or more in height, and produces abundance of large heads of intense scarlet blossoms. It is increased by division. *M. fistulosa* purpurea, a variety with large purple flower-heads, also deserves a place in gardens. It grows about 4 feet in height.

**Montbretia crocosmæflora.**—This bulbous plant, as sent to us by Messrs. Paul, of Cheshunt, has really beautiful flowers as large as those of the well-known *Tritonia aurea*, one of its parents, but much brighter in colour; indeed, it may be said to have borrowed the size of its flowers from *T. aurea* and its rich colour from *Montbretia Pottsi*. It flowers

earlier than *T. aurea* and is, we believe, equally hardy. The flower-spikes are branched, and the blooms begin to expand from below upwards in succession.

**Saxifraga mutata.**—This rare biennial Saxifrage, though more interesting than beautiful, has a fascination peculiar to itself. The flower-spikes are arranged, after the fashion of those of the Pyrenean *S. longifolia*. They grow about 18 inches high, and the flowers range in colour from pale yellow to deep gamboge. It is best raised from seed, which it ripens freely.

**Rubus Hoffmeisterianus.**—Under this formidable name some fruiting specimens of a distinct Raspberry or Blackberry have been sent to us by Messrs. Paul, of Cheshunt. The fruits, which are borne in clusters at the tips of the shoots, are smaller than averaged sized Blackberries, and reddish black when ripe. They are pleasantly acid and not by any means badly flavoured. The leaves are whitish beneath. Perhaps some of our readers can furnish some additional information respecting this shrub.

**A prolific Lily.**—Last summer I collected a number of bulbs which had fallen from my plants of *Lilium tigrinum*, and, having prepared a seed-bed, sowed them at once, with the result that this year I have a fine crop of young Lilies, many of them now grown a foot high, and producing the first year as many as six bulbs on the stem, showing how rapid it is of increase by this means, which is possibly a compensation for its slower increase of true bulb growth, as is my experience of it during many years.—J. T. POE, *Riverston*.

**Amaryllises out-of-doors.**—Flowers of an *Amaryllis* similar to *Ackermannii* have been sent to us by Mr. Kingsmill, of Pinner, who states that his plant of it has flowered out-of-doors the second time this year. The colour is very bright, which may, no doubt, be accounted for by the full exposure. The high-coloured *Disa* which Mr. Kingsmill sent us last week was also from an out-of-doors plant, and he is so convinced that exposure heightens the colour of flowers, that he intends to further experiment in that direction with other plants.

**Seedling Carnations.**—Mr. Lloyd Evans, of Warwick, sends us flowers of two pretty seedling Carnations raised by Mr. Greenfield, of The Priory, Warwick. One named Robert Greenfield is a brilliant scarlet and a first-rate flower; the other, Lloyd Evans, is a delicate salmon and pink, different from any other hue that we can bear in mind. We noted recently a fine scarlet called H. G. Smyth. Mr. G. F. Wilson has sent us flowers of a seedling very similar if not identical with Mr. Smyth's seedling. The Robert Greenfield variety is in the same way.

**Sidalcea oregana.**—This makes a handsome rockwork plant. It grows about 3 feet in height, has a loose, graceful habit, and yields abundance of large, light rose-coloured flowers. Rubra, a dwarf, erect-growing variety, not more than 18 inches high, produces a spike of closely-packed, deep red or pink flowers earlier than *oregana*, and is altogether handsomer. *S. oregana alba*, known in gardens as *S. candida* and *S. californica*, is less robust than the type, and has pure white flowers. These plants are natives of North America.

**Californian Fuchsia.**—Cannot this name be substituted for that dreadful one *Zauschneria californica* for this pretty Californian plant, seeing that it resembles a true Fuchsia, and that no Fuchsia is a native of California? It is, indeed, as just stated, a pretty plant, of elegant dwarf growth and bearing long tubular flowers of vivid scarlet. As the blooms expand in succession they remain showy a very long time. In light warm soils it grows and spreads so freely, as to become almost a weed, but one easily tolerated. When once it has obtained a foothold it is not easy to eradicate it, as its roots spread in all directions. Messrs. Paul have sent us some capital specimens of it from their Broxbourne nursery.

**Autumn Gentians.**—These have just commenced to flower, and verna and *acaulis* are producing a second crop of blossoms. *G. ornata*, a handsome dwarf Himalayan species, is loaded with bright blue flowers, and *G. septemfida* and its variety cordi-



*folia*, the *G. gelida* of Paxton's "Magazine," are now open; the latter has slightly broader leaves and larger flowers than those of the type. *G. affinis* grows about 18 inches high, and bears plenty of rich blue flowers, which are very handsome. *G. tibetica* is rather a deceptive plant, as from its large handsome leaves one expects fine flowers; but no; on the contrary, they spoil the plant altogether. *Asclepiadea*, *cruciata*, and others are just opening.

**Turner Memorial Dahlia Prize.**—The committee of the National Dahlia Show have decided to offer a special prize as a memento of the help rendered in the establishment of this show by the late Mr. Charles Turner, of Slough. The prizes to take the form of a silver cup, value ten guineas, to be competed for by amateur cultivators only, and to be offered for twelve show and six fancy Dahlias. The cup is to be competed for annually until it has been won three times by the same exhibitor, when it will become his property. In the meanwhile the winner of the cup at each competition is to hold it for one year only. Intending competitors must send in their entries before August 28, in accordance with rule 2 of the published schedule, to the hon. secretary, Mr. T. Moore, Botanic Garden, Chelsea, London, S.W.

**Notes from Newry.**—As you had a word of praise the other day for *R. rugosa alba*, I think it only right that you should be made acquainted with the existence of the beautiful *R. rugosa splendens*. It is rather less robust than the rose-coloured sort, and, at the same time, a more continuous bloomer, while the colour, a brilliant carmine-crimson, is most distinct. Of *Spartium junceum* fl.-pl., I send you flowers from a bush now coming into full blossom here. It is interesting, not alone for its rarity, but as being one of the very few instances of the occurrence of double flowers amongst the Brooms. *Dianthus superbus nanus*, a beautiful little fringed Pink, and dwarf in stature, blooms freely the second year from seed. The seedlings vary much as regards the central marking, but none at all in delicious perfume.—T. SMITH.

\* \* The flowers sent by Mr. Smith fully bear out what he says respecting them.—ED.

**Double Oleanders.**—Some uncommonly fine examples of Oleanders have reached us in response to our request for material to illustrate. The finest came from Mr. Barron, the gardener at Meldrum House, N.B. The trusses from this garden are very fine, and the flowers are dense rosettes. The plants are grown in a greenhouse. Another fine gathering from Mrs. Tredwell's garden, at Leigham Court, Streatham, is sent by Mr. Butts, who grows Oleanders well in an orangery. Surely there are no lovelier flowers at this season in the greenhouse than these Oleanders, and it is a wonder they are not more popular. Continental raisers have succeeded in raising varieties varying considerably in colour. The best of these are grown in the Horticultural gardens at Chiswick. A prize should be offered at some of the leading shows for the encouragement of these simply grown, most beautiful, and most valuable flowers.

**Mandevilla out-of-doors.**—I have had a plant of *Mandevilla suaveolens* against the front wall of my house for the last ten years, and can count some forty spikes of flowers on it this morning, some of them with six and seven flowers on each spike. It has been in flower more than a month, and there are still buds coming on. The plant came from a greenhouse in a place where it did not thrive, and it did not flower with me the first two or three years, but it grew vigorously and soon reached the bedroom window above, which it surrounds with its white clusters. It has never been matted over in winter, nor has it the advantage of a kitchen flue behind it, but the house faces south, and is sheltered in other directions; we are only 326 feet above the level of the sea instead of 700 feet, and at the foot of the Mendip Hills, some twelve miles south of Bath. I omitted to say that last year I gathered a quantity of seed-pods from it, some of them 16 inches to 18 inches in length.—MELLS, *From*.

**Fuchsia triphylla.**—This pretty Fuchsia is again blooming in the temperate house at Kew. It is a bushy plant a foot or so high, and each shoot

is terminated by a cluster of long, pendent, orange-scarlet blossoms. The freedom with which it flowers renders it very desirable for greenhouse decoration, while its distinct colour, shape, and general characteristics point it out as a likely subject for the hybridist, forming, as it may do, the foundation of a new race of garden Fuchsias. Besides this, several other species of Fuchsia are just now very beautiful, notably *F. corymbiflora*, with its pendulous clusters of long crimson blossoms; and *F. fulgens*, a more bushy kind than the last, and lighter in colour; both of these are also in flower in the temperate house. Notwithstanding the beauty of some old species of Fuchsia, they do not seem destined to ever become popular, while we are inundated every year with so-called new varieties of the florist's type. The latter, though not one whit better than others already in cultivation, appear to meet with a ready sale.

**Campanula Tymonsi.**—As I happen to be responsible for the specific name of this Bellflower, perhaps I ought to say a word thereon. My first acquaintance with the plant came about exactly as Mr. Tymons explains, but he does not tell quite the whole story. He did not happen to have either of the reputed parents of *C. Hendersoni* anywhere near where this hybrid came up, and one of them not at all in the garden. Therefore, I knew at once it was not *Hendersoni*; and further, as there happened to be two hybrids, one scarcely a foot high and the other 2 feet high, growing in equal proximity to the evident parents, *C. turbinata* and *C. pyramidalis*, and both alike in foliage and flower, differing only in stature, I called the tall one *Tymonsi*, and the dwarf one *Tymonsi nana*. I always took the statement of parentage of *C. Hendersoni* to be true (I quite admit that *C. Tymonsi* and it are very similar); still, if true, they cannot be the same. That plants so similar should be raised from such widely different parents is a very remarkable case indeed, and a substantial reason why both names should be retained. The case of *C. G. F. Wilson* is a widely different one. This was distributed as *C. Balfouri* long before it was distinguished by its present name.—T. SMITH, *Newry*.

**Impatiens Episcopi.**—This plant has been spoken of as a rival and possible supplanter of the now common *I. Sultani*, but so far as we have been able to judge after growing it and after seeing what others have been able to make of it, we suspect it is nothing more than a mere variety, and that a poor one, of the Zanzibar Balsam. Does anyone know the history of *I. Episcopi*? Has it been introduced direct from Tropical Africa, or is it a garden sport which has originated in European gardens? Mr. Lynch has, we believe, obtained a cross from this and *I. Sultani*, but the cross is only a nearer approach to the better characters of the last mentioned, the other parent being not so bright in colour nor so floriferous as *I. Sultani*. When we remember that all the plants in this country of *I. Sultani* are descendants from one plant which found its way to Kew by means of seeds scattered in the soil used for packing a Wardian case, it is easy enough to believe that a second plant introduced direct from Zanzibar would possibly differ more or less from the first introduced. We offer this as a probable explanation of the slight difference observable in the characters of the two plants now known as *I. Sultani* and *I. Episcopi*.

**Crinum Sanderianum.**—This is a distinct and pretty new Crinum, which was introduced last year from Sierra Leone by Messrs. F. Sander & Co., of St. Albans. It is a dwarf species and apparently very free flowering, as a plant in the Kew collection produced flowers only about eight months ago, and is now again nicely in flower in the Cape house. Although the name of the country from whence this species hails suggests tropical treatment, we may conclude from the effects of cool treatment on the Kew plant that it is found at a very high elevation in Sierra Leone. Plants grown under hothouse treatment have not made as healthy growth as those grown in the Cape house. The bulb of this species is brown, Onion-shaped, 2 inches through, with a 4-inch neck bearing a few green, rather narrow leaves. The flower-scape is 18 inches long, slightly compressed, brown at the base and green above. The sheaths are green, with brown stripes, and the flowers, which are borne in an umbel of four, are on

curved stalks 6 inches long; the sepals are narrow, 4 inches long, curved outwards, and white, with a purple-brown band down the middle of each. The nearest ally of this species is *C. zeylanicum*.

**Eucharis Mastersi.**—This plant is figured in the last number of the *Botanical Magazine*, where it is named as above by Mr. Baker, who considers it specifically distinct from the now popular *E. Sanderi*, between which and *E. grandiflora* (amazonica) it is said to be intermediate. Mr. Baker is so careful not to multiply unnecessarily the specific names of garden plants, that we are inclined to wonder how he came to consider as a good species a plant which, so far as we can make out after comparing it with some of the forms of *E. Sanderi*, is not more than a variety of that species. In Mr. Bull's nursery last year we saw a series of forms of *E. Sanderi* in flower, which included not only this form now named *E. Mastersi*, but seemed to show all the transitory stages between *E. Sanderi* and *E. grandiflora*, some of them having the staminal cup totally suppressed, while others had a cup almost as deep as we have seen in any flower of *E. grandiflora*. We suspect that as in the *Narcissi* so in the genus *Eucharis*, the depth of the cup or corona is not a safe character on which to create species. Of course, *E. Mastersi* is as good a garden plant as either of the species here mentioned, as it is practically the same. It is now in flower at Kew.

**Watsonia spicata.**—The genus *Watsonia* contains some very large-flowered, handsome garden plants, and also several species which, either in character of leaf or of inflorescence, may be considered as anomalies in the family. Such is *W. aletroides*, which has tall spikes with short-tubed, regularly funnel-shaped flowers, distichously arranged on the spike, and the curious, though pretty, *W. Meriana* recently noticed in THE GARDEN. Then comes the section named *Micranthus*, the species in which are tiny as compared with the largest kinds, and which are singular in having the small flowers arranged in dense spikes, suggesting those of the British Plantain. To this section belongs *W. spicata*, but in addition to the very un-Watsonia-like flower-spike borne by this species, there is the very remarkable bladder-like leaves which it bears, the whole blade being puffed out in the form of a long bladder. It is figured in one of the earliest numbers of the *Botanical Magazine* under the name of *Ixia fistulosa*. Certainly this plant has not much beauty to recommend it to gardeners, but it is a very curious member of a genus which is known generally only as one with characters which have much in common with our large garden *Gladioluses*. *W. spicata* is now flowering in the Cape house at Kew.

**Old-fashioned Roses.**—Of these we have received a grand boxful from Mrs. Maxwell Witham, of Kirkconnell, New Abbey, N.B., full of beauty and fragrance, the fine condition of the blooms clearly indicating that the climate of Ayrshire is peculiarly favourable for the growth of the Rose. Mrs. Witham says "They have been grown in her garden there more than eighty years. They grow in heavy soil, and have not been manured for years; they have all been a mass of bloom. The Dundee Rambler covers the front of this house facing the east, and is a mass of bloom, many branches having twenty and more flowers on them. Planted about fifty years ago. The Maiden's Blush grows about 6 feet high, and never fails to bloom. Carmine Rose is a large bush and is about 8 feet. The Swiss Boy is a pretty Rose, and when full blown the flowers are very large. St. Margaret's Rose (white) grows to be a tall bush, 6 feet, and always flowers about June 10 (St. Margaret's Day), and continues onwards. The Kirkconnell Favourite is a splendid bush, one being 16 feet in circumference and 5 feet high, a perfect pink mass. This Rose I have never seen elsewhere. It flowers on till late in autumn. I may mention that the Ayrshire Rose grows and climbs nearly wild in great masses. I may say that I have four varieties of the Scotch Roses—white, blush, marbled, dark pink, and also the yellow. These are over now. I have growing in a hedge the little Cinnamon Rose, which came out a month ago, and also two varieties of the Thornless Rose. The garden in which these Roses grew faces the south." Among the others in the gathering not mentioned by



Mrs. Maxwell Witham are the York and Lancaster, White Provence, and a beautiful white spicy-scented variety called Plum Cake, which is well worth growing if only for its fragrance. Rose Celeste and Maiden's Blush are both lovely sorts, the first being one of the most deliciously scented of all Roses. After seeing such a fine gathering as this we are more than ever convinced that too much attention is paid to Hybrid Perpetual and Tea Roses, to the exclusion of these old varieties, particularly the climbing sorts, which are capable of producing effects that no other section can.

## SOCIETIES.

### ROYAL HORTICULTURAL.

AUGUST 11.

THE chief features of last Tuesday's show were the splendid collections of hybrid Gladioli, which, as usual, brighten these August meetings. There was also an extensive array of hardy flowers, but the competition show was, as on previous occasions, below mediocrity. Numerous new and interesting plants were submitted to the floral committee, who made the following awards:—

First-class certificates to—

**SARRACENIA PATERSONI**, which is unquestionably the finest hybrid that has as yet been raised. It is a cross between *S. purpurea* and *S. flava*, and was raised by Dr. Paterson, of Fernfield, Bridge of Allan, who exhibited a splendid specimen of it, the perfection of skilful culture. The pitchers are about 2 feet high and far larger than those of any other kind. The colour is a deep blood-red, the upper part of the pitcher being mottled with deep-coloured veins. It is a very handsome plant, superseding all others. It is, moreover, very rare, as there are but nine plants known to exist in this country, and the plant exhibited was presented by Dr. Paterson to the Royal Gardens, Kew.

**ARISTOLOCHIA ELEGANS**.—A most remarkable new species, and, moreover, one of the most desirable, as the flowers are extremely pretty and quite devoid of the vile odour which usually characterises *Aristolochia* blooms. The flowers are handsome in form, oval in outline, and shell-like. The centre is a pale yellow; then there is a deep velvet black blotch, the rest of the flower being white, heavily netted and mottled with brownish black. It is a stove climber, and the leaves are of the usual heart-shaped form. It was exhibited by Mr. W. Bull, Chelsea.

**CATTLEYA HARDYANA**.—A magnificent variety of *C. gigas*, but differing from all others in having bright yellow blotches on the side of the labellum instead of white; the flowers are large, the lip particularly broad and shallow, and of the most intense carmine-magenta. A fine specimen with a spike bearing four flowers was shown by Mr. Hardy, Pickering Lodge, Timperley.

**CYATHEA DIVERGENS**.—A graceful Fern, one that cannot fail to become popular, inasmuch as it is one of the handsomest drooping basket Ferns that has ever been introduced. The fronds are several feet in length. The pinnæ are stalked and pale green, a contrast to the black stalks. The plant shown by Messrs. Veitch, who have introduced it, was a fine specimen, having drooping fronds on all sides. The committee were unanimous in certifying it.

**ALOCASIA SANDERIANA**.—A handsome and most distinct species recently introduced. It has large leaves, a foot or more in length and deeply cut into rounded lobes, which give it such a singular appearance. The colour is a deep metallic green, while the main ribs are broad and silvery. It is without question one of the most valuable introductions among fine-foliaged plants that has been introduced for years. Exhibited by Mr. W. Bull.

**MORMODES LUXATUM PUNCTATUM**.—A beautiful Orchid having short fleshy bulbs, long ribbed leaves, and curiously-shaped flowers borne about a dozen together on a short spike proceeding from the base of the bulb. The flowers are about 2 inches across, wax-like in texture, white and minutely spotted with chocolate-red. Shown by Mr. B. S. Williams, Upper Holloway.

**GLADIOLUS MELTON**, cherry-carmine, violet tinged lower petal; **ABAS**, carmine, white lower petal; **LORNA**, fiery scarlet, one of the brightest colours yet raised; **GALATEA**, pale lilac bluish with sulphur-yellow lower petal. These all have massive spikes, large and finely shaped flowers, and otherwise possess all the points of perfect Gladioli. Exhibited by the raisers, Messrs. Kelway, of Langport.

**MORMODES LUXATUM DORMANNIANUM**.—A superb variety different from *punctatum*, but resembling that variety more than the type. The flowers are about the usual size, copiously blotched and spotted with chocolate-purple. Shown by Mr. Dorman, The Firs, Sydenham.

**GLADIOLUS ANDRÉ CHENIER, HENRI CONSCIENCE, AND LA FRANCE**.—Three varieties of the new race of hybrid Gladioli obtained by intercrossing *G. purpureo-auratus* and others. The flowers are smaller than those of the *gandavensis* varieties and not so perfect in form, neither are the spikes so large. The first named variety has flowers of a rich crimson-lake flushed with purple; the second is of a rich rose-purple with some of the petals blotched with white, and *La France* has pale pink petals flushed with crimson, with the lower sepals of a deep maroon-crimson broadly tipped with yellow. Exhibited by Messrs. Veitch, Chelsea.

**RIHODODENDRON INDIAN YELLOW**.—One of the Javanese race, having large trusses of finely shaped flowers of a rich reddish yellow. Shown by Messrs. Veitch.

**EUTERPE PLUMOSA**.—A Palm having long pinnate leaves, which gracefully droop on all sides of the plant. The pinnæ are long and slender, which add to the elegance of the plant. Shown by Mr. W. Bull.

**GAILLARDIA ST. BLAISE**.—A variety of *G. pulchella*, having regularly formed circular flowers of a deep red tipped with yellow. Probably the finest of the now numerous varieties of this *Gaillardia*. Exhibited by the raisers, Messrs. Kelway, Langport.

**BEGONIAS GABRIELLE LEGROS AND BLANCHE DUVAL**.—Both double tuberous varieties, with large rosetted flowers. The colour of the first is a pale sulphur, the latter bluish white. Both possess the points which constitute first-rate double Begonias. Shown by Messrs. Cannell.

**CHYSIS LEVIS SUPERBA**.—A variety having larger and brighter coloured flowers than the original, which itself is a rarely seen plant. The flowers are produced in clusters on short spikes, and the colour is a rich reddish yellow. Exhibited by Mr. B. S. Williams.

**BEGONIA KING OF THE CRIMSONS**.—A single tuberous variety, having unusually large and finely shaped flowers of the richest crimson imaginable, while the habit of growth and floriferousness are all that can be desired. Shown by Messrs. Cannell and Sons, Swanley.

**CAMPANULA PYRAMIDALIS BICOLOR**.—A variety of the well-known Chimney Campanula, having pale porcelain-blue flowers with dark purple centres. It is apparently midway between the ordinary form and the white variety. Exhibited by Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

**PELARGONIUM SOUVENIR DE CHARLES TURNER**.—A double-flowered Ivy-leaved variety, remarkable for the rich colour of its flowers, which are fully double and borne in good-sized trusses. The colour is a pleasing carmine-magenta distinct from the ordinary double Ivy-leaved forms. Exhibited by Mr. Owen, Floral Nursery, Maidenhead.

Other plants of interest shown included the following: Among those from Mr. Bull's nursery were *Cycas siamensis*, a handsome, long-leaved species of graceful growth; *Lælia amanda*, a beautiful species, with flowers somewhat resembling those of *L. elegans*, the sepals being white, and the lobe of the lip deep amethyst; *Kentiopsis macrocarpa*, a noble pinnate-leaved Palm, with the young foliage of a rich coppery hue; *Mussaenda theifera*, a dwarf plant with white, starry flowers like a Jasmine; and *Alocasia excuspa*, having lobed, heart-shaped leaves in the way of *A. Sanderiana*, but without silvery veins. From Messrs. Veitch came *Davallia retusa*, an elegant and distinct Hare's-foot Fern,

with long, finely cut fronds; *Hypericum empetrifolium*, a neat little Heath-like bush, covered with small yellow flowers; *Platycodon Mariessi*, the dwarf form of *P. grandiflorum*; *Berberis trifoliata*, a neat little shrub with prickly foliage of a bluish glaucous grey tint; *Pavia macrostachya*; *Rhododendron Queen of Roses*, a greenhouse variety with delicate rose flowers; and a flowering plant of the little *Lælia monophylla*, which has flowers about the size of *Sophonitis grandiflora*, and of a bright orange-red colour.

Messrs. Sander, of St. Albans, showed a flowering specimen of the extremely rare *Phalænopsis Reichenbachii*, which is intermediate between *Luddemania* and *sumatrana*, the flowers being similar in shape and marked in the same manner. A fine variety of *Galeandra Devoniana* was shown from Redleaf, Penshurst, and Mr. B. S. Williams showed besides several Orchids, a splendid example of his new hybrid *Amaryllis Mrs. W. Lee*, one of the *reticulata* group, with large pink flowers beautifully netted. The spike bore five expanded flowers.

Messrs. Laing, of Forest Hill, exhibited several new Begonias and Caladiums; among the latter those named *albo-luteum rubro-maculatum* (yellowish green leaves with red spots), Raymond Lemonier (crimson leaves, broadly edged with white), *Duchesse de Mortemart* (pale yellowish green), *Comte de Germiny* (crimson and white-spotted), and *Auguste Carpentier* (large leaves of a rich carmine-crimson). Among the Begonias, which were all double tuberous varieties, those named *Mdme. Dubois* (crimson), *Léon de St. Jean* (bright crimson), we thought the finest. The New Plant and Bulb Company, Colchester, again exhibited a fine array of *Lilium eximium* and *auratum* spikes, some of the latter representing superb varieties, and one we noticed had banded blooms almost as good as the variety *pictum*. Besides these the same firm had finely bloomed specimens of *Cattleya Gaskelliana*, one, a very pale variety, being particularly pleasing at this season, when so few Orchids are in bloom. They also had an uncommonly fine form of *Vallota purpurea*, named *eximia magnifica*. The spikes were about 2 feet high and bore very large flowers of a brilliant colour. Mr. Owen, of Maidenhead, sent some new double Begonias, those named *A. F. Barron*, *Harry Veitch*, *Dr. Hogg*, and *Shirley Hibberd* being all first-rate sorts, with large and full flowers of good distinct colours. Messrs. Cannell, of Swanley, contributed several good Begonias, a few of which were certificated. All were new seedlings selected from a large collection.

Messrs. Rivers, Sawbridgeworth, were awarded a bronze Banksian medal for six boxes of Rose blooms, including fine flowers of Charles Lefebvre, *Magna Charta*, *Star of Waltham*, and *Felix Genero*. Mr. J. Douglas showed twelve fine blooms of seedling Carnations. Messrs. Kelway & Son showed four blooms of each of the following seedling Hollyhocks, namely, *Marjorie*, a very fine pale yellow; *Clarence*, crimson; and *Delia*, rose.

A silver-gilt Banksian medal was awarded to Mr. John Henshaw, Harpenden, for a collection of British wild flowers and Grasses. Mr. P. Parker was accorded a vote of thanks for a fine plant of *Campylosiphium pyramidalis*.

Dahlias were shown well by Mr. Ware, of Tottenham, his collection comprising *Pompones*, single, and Cactus-flowered varieties; among the latter were sixteen fine blooms of the new Mrs. C. Hawkins, yellow, lower petals tipped with light rose, which were accorded a vote of thanks. Among the singles the following were noticeable: *Pantaloon Improved*, white, edged with crimson; *Little Nob*, dark maroon; *Mrs. Langtry*, light scarlet; *Thereis*, white, flaked with rose; *Alfred Smith*, maroon, light edged; *Paragon*, maroon, light edged; *Lizzie Webster*, bright scarlet, yellow disc; and *The Clown*, light rose, flaked with magenta. Among the other collections shown by Mr. Ware was one of two dozen bunches of Carnations, including such beautiful varieties as *Fedora*, *Corney Grain*, *James Bailey*, *Romeo*, and *Mary Morris*. His collection of *Phloxes* comprised two dozen of the best sorts, such as *Independence*, *Edith*, *Boule de Feu*, *Ruby*, and *Queen Victoria*. Besides all these Mr. Ware had an extensive array of



miscellaneous hardy flowers, among which the Lilies now in bloom were the chief features. There were grand groups of *L. auratum*, *tigrinum*, *Humboldtii*, *superbum*, *chalcidonicum*, *colchicum*, which made a beautiful show in themselves. Conspicuous among the other hardy flowers were *Veronica subsessilis*, undoubtedly the finest of all the large herbaceous perennial species; the golden *Harpalum rigidum*, one of the brightest and most refined of all the large yellow-flowered Composites; *Helianthus multiflorus maximus*, *Gladiolus Saundersi*, *Vallota purpurea*, and a collection of New Zealand shrubby *Veronicas*.

A collection of new hybrid Gladioli from Messrs. Veitch, of Chelsea, was a great attraction, the flowers being so distinct from the ordinary *gandavensis* group, and so remarkable for richness and diversity of colours. The race apparently had its origin in the hybrid sorts produced by intercrossing *G. purpureo-auratus* and others, the earliest production being the Lemoinei sent out a few years ago. Now there is a great variety of colour, and exceedingly rich. Among the sorts shown we selected the following as being the most distinct: *Guerrier de Dumast*, vivid scarlet; *Amiral Pierre*, carmine-crimson; *Enfant de Lorraine*, white; *Mars*, rose-crimson; *Enfant de Nancy*, deep crimson, striped black; *Ferdinand de Lesseps*, flowers small purple, yellow blotched; *Gambetta*, blush, blotch crimson; *President Grévy*, cherry-crimson, sepals blotched; *La France*, pale pink, flaked with crimson, lower sepals deep maroon-crimson, broadly tipped with yellow; *Lafayette*, flowers large, pale flesh tint, lower sepals blotched with crimson; *Alsace*, sulphur-yellow, lower petals blotched; *André Chenier*, crimson-lake, flushed with purple; *Emile Lemoine*, scarlet-crimson, yellow blotched. The competitive show, as on the previous occasion, was of a poor description, although liberal prizes were offered for *Fuchsias*, *Caladiums*, *Celosias*, *China Asters*, *Verbenas*, *Gladioli*, and *Hollyhocks*. Of these only *Caladiums*, *Gladioli*, and *Asters* were shown at all creditably.

Gladioli were represented grandly by Messrs. Kelway, of Langport, who had a fine collection of ninety-six sorts, massive spikes, with large and perfectly shaped flowers of an infinite variety of colour. Among them the following sorts were conspicuous: *Julia*, creamy white, edged with rose; *Neocles*, white, edged with rose and blotched with crimson; *Calephon*, salmon-crimson, white centre; *Lord Burghley*, salmon, sparsely streaked with crimson; *Lord Leigh*, crimson, white centre; *Irex*, creamy white, tinted with rose and lip blotched with crimson; *Mr. Thornton*, bright carmine, white centre; *Lynceus*, salmon, streaked with maroon; *Countess of Pembroke*, crimson, white centre; *Heroes*, light crimson, white centre; *Lady Carrington*, light maroon; *Dr. Woodman*, salmon, white centre; *Pictum*, scarlet, blotched with purple; *Milton*, bright scarlet, blotched with maroon; *Galatea*, white, faintly flushed with lilac; *Abas*, crimson, white centre; and *Lorna*, deep scarlet. This was the only collection of Gladioli shown and was deservedly awarded the first prize.

*Caladiums* were shown best by Messrs. Laing, of Forest Hill, who took first prize for six varieties. They had fine plants a yard or more through of *Mithridate*, *Elsa*, *Candidum*, *Ornatum*, *Ferdinand de Lesseps*, and *Mdme. Fritz Koechlin*—all fine sorts. Only three collections were shown.

Only one collection of six *Fuchsias*; these came from Mr. H. W. Segelcke's garden. There were good large specimens of *Scarcity*, *Lustra*, *Conspicua*, *Warrior Queen*, *Rose of Castile*, and *Rhoderic Dhu*. The same exhibitor also showed the only collection of four plants, *Scarcity*, *Conspicua*, *Gipsy Queen*, and *Mrs. Marshall* being the sorts. Two collections only of twelve *Fuchsias* were shown, Mr. Lambert being first with good plants of *Scarcity*, *Earl of Beaconsfield*, *Wave of Life*, *Lady Heytesbury*, *Rhoderic Dhu*, *Conspicua*, and *Mrs. Grant*.

### Fruit and Vegetables.

The chief exhibits among these was an extensive display from Messrs. Rivers, of Sawbridgeworth. It included over 100 named sorts of Gooseberries, fine dishes of each, and numerous small Plum and

Cherry trees in pots, and covered with fruits. Among the Plums were *Late Transparent*, *Grand Duke*, *Jefferson's* and *Lafayette*. These Plums, as well as the *Cherries*, were models of pot fruit tree culture. Besides these, Messrs. Rivers showed numerous dishes of other fruits, such as *Golden Eagle*, *Sea Eagle*, and *Lord Palmerston Peaches*. The first and last-named are handsome yellow-fleshed sorts, while the samples of *Sea Eagle*, a variety by the way which is becoming very popular, were about the best we had seen. Messrs. Rivers' collection of early Apples included fine dishes of *Early Harvest*, *Gladstone*, *Red Astrachan*, *Red Juneating*, and *Duchess of Oldenburg*. Among the *Cherries* shown there were extremely fine dishes of *Late Duke*, a fine red fruit; *Early Rivers'*, black; *Noir de Guben*, black; and *Bigarreau Monstreuse de Mezel*, the largest fruited of all the *Bigarreaus*. Among other exhibits placed before the committee were about a score of seedling Gooseberries from Mr. Eckford, but none seemed to be distinct from named sorts. Mr. Laxton sent two seedling Gooseberries, one called *Transparent Champion* being the best. Berries (not bunches) of the seedling white Grape shown some time since by Mr. Bannister, of Westbury-on-Trym, Bristol. The berries are roundish, of good size, and of a bright amber colour. The flesh is firm and of true Muscat flavour. A few seedling Melons were shown, but none were considered worthy of certifying.

Tomatoes in pots were poorly represented, only one collection of four small plants in big pots being staged, and these moderately fruited. The judges were generous in awarding these a first, as close by were four plants sent up from the society's gardens at Chiswick in 10-inch pots that were well grown and very finely fruited, the two of *Chiswick Red* bearing grand crops, whilst those of *Wheeler's Prolific*, a richly coloured, but slightly ribbed kind, were also excellent.

**SPECIAL PRIZES.**—Messrs. Sutton's (of Reading) capital prizes for three dishes of Tomatoes, to include their *Chiswick Red* and *Reading Perfection*, brought only two lots, *Chiswick Red* in both cases being the best dishes; but the fruits were so abnormally large that they resembled double ones, a deep suture running round each. This was not seen in the samples on the *Chiswick* plants, and indicated that the fruit had been specially thinned for the purpose. Mr. Beckett, of Penn, Bucks, had in his lot also very good *Perfection* and capital *Stamfordian*, evidently a very handsome variety which more recent kinds does not excel.

Messrs. Webb & Sons, Wordsley, offered good prizes for collections of vegetables not less than eight kinds—a limitation which failed to attract growers, as only two lots were staged. It is very evident that gardeners do not care to enter into competitions in which the quantities to be shown are not clearly specified. Mr. Waite, gardener to Colonel Talbot, Glenhurst, Esher, who is one of our leading vegetable exhibitors, was a good first with twelve kinds, all first-class quality, including *Woodstock Kidney* and *Snowdrop Potato*, *White Leviathan Onions*, *Girtford Scarlet Runners*, *Stamfordian Tomatoes*, good *Intermediate Carrots*, *Ne Plus Ultra Peas*, *Canadian Wonder Beans*, fine Autumn Giant *Cauliflowers*, *White Marrows*, &c. Mr. Beckett, the only other exhibitor, had twelve dishes of fair merit, including four kinds of Potatoes, good *Telegraph Cucumbers*, two dishes of Tomatoes, *Leviathan Onions* (these being by-the-by the same as *White Elephant*), and other useful varieties.

**Royal Botanic.**—The forty-sixth anniversary meeting was held on August 10, Mr. J. P. Gassiot (vice-president) in the chair. The reports of the council and auditors show that the receipts have been £6453. 3s. 10d., while the expenditure, notwithstanding a heavy outlay for building, has been £300 less than that of last year. The attendance of visitors at the exhibitions held during the spring and summer months continues on the increase, though marred on one occasion by unfavourable weather. More especially was this noted as regards the evening fête, when the numbers reached 8450, an increase of 500 over last year, which had hitherto been considered the best. In the society's special department of botany

and an encouragement of the arts and manufactures, the results prove the value of the facilities offered by the society to artists, students, and teachers. During the last five years 3824 free orders of admission of from three to six months have been given, and 245,426 cut specimens of plants and flowers distributed to the various medical and art schools of the metropolis. In the forty-six years of the society's existence, over £50,000 has been given away in prizes.

**Alstroemerias.**—I lately saw some of these in a more thriving condition than that in which they are generally to be found in the open ground. They were planted some years ago on a sloping bank under a hedge in full exposure to the sun, and, judging by the quantity of flowers they produced, the conditions of growth were quite to their liking. In heavy soils and in low-lying situations *Alstroemerias* are not happy and generally die away in the course of a year or two, but in light porous soils and where they are secured against stagnant moisture at the roots they seem to be at home. I believe the way to succeed with this fine family of hardy flowers would be to plant them on a bed of soil raised rather above the ordinary ground level, choosing a sunny place and covering the roots with ashes or leaf-soil in winter. Even the more tender kinds, which have not sufficient natural hardness to live for any time under ordinary circumstances in the open, would probably do well in this way. *Alstroemerias* are so distinct, and when they do well furnish such a large amount of bloom for cutting, as to render them worthy of some pains. Those who can command a site at the foot of a sunny mound might do worse than devote it to *Alstroemerias*. —J. CORNHILL.

### LATE NOTES.

**Twin Cucumbers** (*E. H. D.*).—These are by no means rarities. Their skins when young and tender readily unit if by accident or otherwise the two Cucumbers are brought into close contact.

**Origin of *Bryanthus erectus*.**—This was raised in the late Mr. Cunningham's nursery at Comely Bank; it is a hybrid between *Rhododendron Chamacistus* and *Menziesia coerulea*, so Mr. Cunningham told me himself, but I fancy he wanted to puzzle the botanists, so it was given to Dr. Graham, who was then Professor of Botany in Edinburgh, and after ransacking his herbariums, he fixed upon the name which it now bears.—ANDREW TURNBULL, *Bothwell Castle, Lanark*.

**Stephanotis** (*G. C.*).—There is nothing about the *Stephanotis* leaves to enable me to tell why the shoots are dying off. I can only suggest that they may have been attacked by the black Vine weevil, which sometimes gnaws the shoots of plants, or that the young growths may have grown into some position where they are exposed to too much sunshine or draught.—G. S. S.

**Seedling *Pelargonium*** (*A. Campbell*).—Certainly worth a name, as the variety is good in every way, large in truss, brilliant in colour, and if, as you say, it is a first-rate winter flowerer, it is all the more valuable. How far it is distinct from other sorts we are unable to determine without actual comparison.

**Carnation *The Governor*.**—This, Mr. Howard, of Southgate, says, is a new name for *Carnation Fisherton*, a variety that was popular more than twenty years ago. It was raised by the governor of Fisherton Asylum. "Messrs. Steer and Cross," he says, "had no more right to re-name the plant and call it theirs than any of us have, and Mr. Cannell was, I think, quite justified in showing it for a certificate."

**Miscellaneous** (*Sub.*).—Dip the infected parts of the shoots of your *Morello Cherry* in tobacco water. If your Vine leaves are getting ripe, that would cause them to turn yellow. Your Peach and Nectarine trees are evidently exhausted through having been over-cropped last season.

**Peas** (*W.*).—A good looking Pea with well-filled pods, but much too old for us to judge of its merits as a table Pea.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*Etterheim*.—False Dragon's-head Plant (*Physostegia imbricata*).—*Subscriber* (*Cork*).—*Acanthus longifolius*.—*R. Curtis*.—Next week.—*Botanist*.—Fuller's Teasel (*Dipsacus Fullonum*), a cultivated form of the wild Teasel (*D. sylvestris*).—*L. A.*—Next week.—*West Highlands*.—1, *Mimulus luteus*, an escape from gardens; 2, *Stellaria uliginosa*; 3, *Linum catharticum*.—*Burton* (*Gainsborough*).—1, *Althaea rosea* var.; 2, *Liatris scariosa*; 3, *Aplopappus pulchellus*.—*S. K.*—Next week.—*Anon.*—1, *C. rotundifolia Scheuchzeri*; 2, *C. pusilla* var. *alba*; 3, *C. pulla* var.; 4, *C. pusilla* var.; 5, *C. tenella*; 6, *C. carpatia* var.; 7, ditto; 8, ditto (hybrids). Please note that our rule is to name but four plants at a time.—*J. W. K.*—*Digitalis ferruginea*; *Viburnum Lantana*; *Saxifraga diversifolia*; *Stanhopea oculata*.—*R. Marsden*.—1, *Doodia dives*; 2, *Hydrangea Hortensia* var.; 3, *Jasminum revolutum*; 4, *Agrostemma coronaria*.



## WOODS & FORESTS.

### VALUE OF THE AUSTRIAN PINE.

THIS Pine (*Pinus austriaca* or *nigrescens*) partly covers the plain of Austria south and east of Vienna. It also occurs between Neustadt and the foot of the mountains that divide Austria and Styria, and on the hills near Baden; but, in ascending the range, it is soon displaced by the Spruce and Scotch Firs. Considering the elevation and geography of these habitats, it is thought that it must be placed in the zone below *P. sylvestris*; at the same time there is no question that it is sufficiently hardy to resist any cold to which it is liable to be exposed in Great Britain. This species is very nearly connected with *P. taurica* or *Pallasiana*. From the quick growth of this tree, the great beauty of its foliage, which is long, thick, and tangled, and of the deepest green, as well as the great value of the timber, which the Austrian woodmen consider superior to that of *P. sylvestris*, it cannot be too strongly recommended to the attention of planters. It is equally fitted for the forest or the park, for use or for ornament, and its deep tints would form an admirable contrast with the light and transparent foliage of the elegant *Pinus pyrenaica*; and it cannot be too generally used as a substitute for the Pinaster, which has rather unfortunately been tried in some parts of the west of England, the timber of that species being comparatively valueless, and in every other respect inferior to *Pinus austriaca*. In making Fir plantations for future utility, it is advisable to plant the Evergreens which are to remain at the requisite distances, and to have the fillings up entirely of Larch. By adopting this method several advantages accrue. The woodmen make no mistake in selecting during the process of thinning, and no spaces are left too open or too close. The Evergreens, which require more or less care when young, are more readily looked after, and their places supplied where necessary in case of failure. The Larch should be planted a year or two before the Evergreens, by which time the Grass is grown, and affords a shelter and protection against the destruction of game, &c. The trifling difference in the shelter between the evergreen and deciduous species is more apparent than real, and is more than compensated by the superior value of the Larch thinnings and the additional fertility imparted to the soil by the fall of the leaves. By having only a definite number of Evergreens, the landlord can afford to have better sorts, and expend more care upon the rearing of them.

**Trees for poor soils.**—Where hardwoods are planted to form the permanent crop on thin poor soils, the Beech, Sycamore, and Sweet Chestnut are the best sorts to select. Where the soil is of a loamy nature and resting on clay, the Oak and Ash should be planted; the latter particularly will prove a profitable tree to plant extensively where the land is suitable to its healthy growth, as the supply of copse or maiden Ash timber is at the present time not equal to the

demand, and likely to be still more scarce in the market. I would therefore say plant Ash in preference to any other hardwood when forming new plantations or filling up copses wherever it is found to thrive. In copses on poor hilly ground, Sweet Chestnut and Hazel should be planted where blanks occur; in wet bottom land, Alder, Willow, and Poplar are the most suitable sorts to plant. On chalky lands the Hazel alone is sure to succeed best; it is a most accommodating plant, will thrive in almost every kind of soil, and is very profitable as underwood, always commanding a good price and ready sale where there is a demand for crate and hurdle wood.—OLD FORESTER.

### FORESTRY NOTES.

**Replanting land with Conifers.**—The paper by "Irish Forester" on this subject shows how easily one may err by pinning their faith to fixed rules. Speaking generally, I believe this replanting should be avoided where possible, but the remarks of your correspondent prove that this is not always good policy.

**The Black Walnut.**—There is a deal said now about this tree, but I fail to see in what its superiority over the common Walnut (*Juglans regia*) consists. It may, perhaps, grow rather more rapidly, but beyond the idea that Black Walnut is the "correct thing," its claim to greater value is very shadowy. On comparing the trees in an ornamental sense the common species is at any rate its equal.

**The size of the Beech.**—My experience differs from that of Mr. Webster as to the size of this tree. This may arise from his selling in a different market. In this part of the country a ready market can be found for trees of much smaller size than that which he mentions. The great essential is quality; the size is of relatively less importance. With regard to the Sycamore the case is different, as it goes for other uses.

**A good wind-break.**—As a wind-break in very exposed places the White Beam (*Pyrus Aria*) is a very suitable tree. It thrives on shallow soil, is a free grower until it reaches a height sufficient for this purpose, and is very erect in its habit. I do not know that it grows large enough for timber, but its wood is hard and compact. Being a deciduous tree, its foliage of course would be gone in the winter, and therefore it would not afford the shelter of an Evergreen, but as it would grow where other trees often would not, it is deserving of the notice of the planter for shelter.

**Cover beneath Beeches.**—A paragraph respecting this attributes the absence of undergrowth beneath these trees to the fact that they form a canopy to the exclusion of the light. I do not think this is the reason why the ground is usually clear, but that the real cause is the habit of the roots of drawing all the nourishment from the soil in consequence of their forming a network so near the surface. The careful observer will see that this absence of underwood occurs where trees of this nature are planted in sufficient proximity to occupy the whole soil. If the theory of the exclusion of light was correct, cover would not grow underneath the Oak when planted closely, but still it does so.

**Turkey Oak.**—I noticed recently, in a review of a Government work on the United States forests, that the writer advocated the planting of this tree. This advice I have no doubt whatever was tendered in good faith. It is nevertheless a mistake, as for timber the wood is practically useless. By recording the fact, for the benefit of such as do not know the wood, it may save them from loss and disappointment. I have nothing to say against it as an ornamental tree, but for timber my knowledge of the wood is sufficient to condemn it.

**Rod for measuring.**—A very handy appliance when one is surveying timber is the 5-foot rod. The one I generally use is merely a straight planed strip of wood a little over an inch wide and about three-quarters of an inch in thickness. It is marked with the feet and made slightly tapering. For 30 inches from the smaller end it is marked with the inches and

fractions of an inch. It is thus useful in reading off the quarter girth of any particular tree without having recourse to a rule. The rod is also useful as a walking staff, and can be employed in estimating heights. It occasionally is very helpful to be able to fix a point some 10 feet or 12 feet from the ground, and this the rod enables one to do. After some years' experience with tape and rule I have gradually abandoned them for the 5-foot rod.

**The Acacia as a timber tree.**—The rage which existed some forty years ago about this tree (*Robinia Pseudacacia*) seems to have entirely died out; at any rate, it is rather a rare thing to see a tree of the kind now in this neighbourhood. Whether it was ever planted here to any extent I do not know. From what was written about it at the time it appears that many looked upon it as a veritable gold mine. There is no question that the wood of the tree is very durable, and apparently it would grow well in this climate. I suppose one objection to its use as an ornamental tree is the liability of its branches to be shattered by the wind, but I have never heard, so far as I remember, any reasons of its failure as a timber tree. The habit of its roots is similar to that of the common Ash, but this would scarcely be a sufficient reason.

**Mining timber.**—This is a purpose to which much of our smaller trees and thinnings of plantations are adapted. When within reach of a colliery district much of what would otherwise be a waste product may thus be turned to account. Probably, of all woods grown here, the Larch is the most suitable for mining timber. A plantation or the thinnings of a plantation of this wood composed of poles, say, not exceeding 6 inches in diameter, would generally find a ready sale and at the best price. There are other woods, however, such as Scotch or Spruce, which may be turned to account, and Oak poles again make good mining props. The longer the poles, probably the better they will be liked; but as they are ultimately reduced to 6 feet or 7 feet in length, pieces as short as this will make good propping. When wood of this description is within reach of a colliery district, and in proximity to rail or water, inquiries should be addressed to the colliery owner, as where there is no use for it on the estate this will probably be the next best market. Thousands upon thousands of tons of this class of wood are weekly brought into this country from France and similar places, and the only reason why our own woods are not used must be the difficulty of getting it to the market. Taken quality against quality, here again what is grown at home will hold its own. I know, as a fact, that colliery owners would prefer good clean-grown Larch to any wood imported.

**Consuming forest produce.**—Whilst upon this subject of substituting our home-grown woods for those growing abroad, one can scarcely refrain from again referring to the whole question in its broadest sense. The gentlemen who are now urging the necessity of more extensive planting seem rather to base their ideas on what will occur in the future than on what is really transpiring now. In a certain sense we must, of course, look into the future, but this of itself is not sufficient. There are real reasons why planting should be undertaken, but they are other than those usually advanced, viz., that if we do not plant, there will, in the course of a generation or two, be a timber famine. I do not think anything of the kind, as this same cry has been going on for generations already, and the market is still overloaded with wood. The really essential thing is to get our eyes open as to the uses of the wood when it is grown. Almost all that is said on the subject seems to be about planting and cultivation, but when the time comes for the tree to be used, then the very people who have been so interested in growing it discard it and use other material. Is there any cause for surprise that timber growing is not profitable? If the very individuals who grow it do not believe in it, have we any right to expect that anyone will? The reason for this, however, does not lie so much in the fact that the grower doubts its suitability for his purposes as it does in the almost helpless place the ordinary estate owner finds himself with his woods. With no conveniences for shaping it



into usable form,<sup>1</sup> it either lies about and spoils or goes to the merchant at an unremunerative price. The real solution of this is the sawmill. Where timber grows on an estate every shilling spent on buying foreign building wood is sumpence wasted. In the economy of the estate, if timber has to be used, the using of his own produce is as much a source of profit to the owner as though he had sold it. If he sells it, it is only taking the money from one pocket and placing it in the other, with the important difference that he loses 50 per cent. on the transaction. What is wanted in order to raise the value of our home-grown woods is not to put any artificial restriction on the foreign woods, but rather to lessen the demand for them by more extensively employing our own. That there is no real reason why this should not be will be apparent by giving the subject a moment's thought. Notwithstanding the low price at which these goods are sometimes sold, properly managed, there is a sufficient margin between the cost of preparing the timber grown on the estate and the price at which the foreign timber is bought to allow a remunerative sum for growing the timber itself. This was shown in a recent paper in *THE GARDEN*, and it is a fact that deserves careful attention. Theories of prospective returns are very taking, but what we really want is to see a demand arise for what we wish to grow. Failing this, the whole project is not worth the time spent upon it, as if we have to wait for better things until the foreign supply falls short, I very much fear that neither we nor our immediate successors will derive much benefit from timber growing in this country.

**Thinning.**—It is undoubtedly true that allowing young trees to grow up too closely in plantations renders them less ornamental and less useful as shelter, but so long as they grow up well together and keep up an equality in the race, so far as timber is concerned, in many cases they are more valuable, and would probably produce more measurement in a given time. It is no doubt bad policy to allow too many to remain when the stronger trees tend to dwarf the weaker ones, as the latter will have no further chance to grow, and should be cleared away at the earliest moment, but when, as remarked, they all keep equal in the struggle for ascendancy, it is a mistake to thin them merely because they are not at a given distance apart. One of the errors of what is called scientific forestry is the notion of reducing everything to a cut-and-dried rule. This is bound to fail, as Nature must be followed and served, but not controlled. The subject of forestry cannot be too far written about and ventilated, but at the same time it must be rather in a suggestive than a definite way, as details can only be decided by actual observation of individual cases. This is so with thinning, as what would be good advice in one position would be ruin in another. Another error with thinning is looking upon it too much as a fixed date, whilst the process should really be gradual. It is remarked above that timber growing closely is of more value than that which grows more in the open; this may appear to need a word of explanation, but it is nevertheless true. Having had to do with the sawing up of timber for many years, the result of my experience is that wood growing closely is much freer from knots, straighter in the grain in consequence of the straighter growth of the tree itself, and therefore of more value for constructive purposes. The timber of isolated trees would possess these qualities up to the point where the branches commence, but above this the clearness and straightness is impaired by the presence of these limbs. This is not so with trees growing closely, as the bole is generally clear almost to the top, and the wood is consequently of the best quality throughout. This is particularly the case with such trees as the Ash and the Beech, and is a strong argument for their being grown in plantations or woods rather than as isolated trees. In the latter case they would probably grow and live to a greater age, but would become ungainly in the shape of the trunk, and the wood of much less value for the market.

**Flooring boards.**—The quantity of British wood used for flooring is extremely small when compared with the amount of foreign imported for this purpose, yet there is no wood brought into the country that is so suitable as that which is grown

at home. There is no reason to wonder why so much should be used in London and other of our large seaports, as the facilities for obtaining cheap foreign woods are greater than they are for getting those grown at home. What may reasonably be looked upon as surprising is that the use of these woods has penetrated to almost every place, however remote from sea and rail. It may seem to some that the British Oak, like the British lion, must show itself everywhere, but whether this is so or not, there is no wood used for flooring with which I am acquainted that will stand comparison with English Oak. It may be well to say at the outset that this can only be used for the best purposes, as the comparative scarcity of wood of a sufficiently clean growth, its consequent value, and the greater cost of working militate against its general use. For purposes, however, where the most durable, and in every respect best possible, floor is desired rather than a small saving in outlay, I say use English Oak. I have, of course, seen many floors laid with this material, but I do not remember a better example than an upper floor in one of the colleges at Oxford. It is some years ago that I saw this floor, but as nearly as I recollect it was composed of boards some 4 inches or 5 inches in width, and not a nail was visible throughout. Judgment is necessary in selecting woods for any purpose, but this is specially so with Oak for flooring. Not a particle of sap must be admitted; the wood should be cut, as was explained in a recent paper on sawing wood for fences, in the line of the medullary rays, and, what is still of more paramount importance, it must be thoroughly seasoned. If possible it should not be used for four or five years after it has been sawn. So much for British Oak for the best class of floors, but what of the cheaper kinds? I reply, that, properly treated, there are woods growing in this country suitable for constructing every class of floor down to the very cheapest. Even our common Elm properly selected and seasoned will make a capital floor, but for ordinary purposes good floors may be made of the Larch and Scotch Fir. Either of these kinds, if properly seasoned, are at any rate equal to the average Swedish or Norwegian woods. The Spruce or Poplar would not be so hard or durable, but for the more temporary uses even these woods are of value. Possibly one reason of the neglect of our home-grown woods for such purposes as these lies in the fact that time is taken to saw them up and season them; whereas the foreign woods may be obtained at a few days' notice. If this is so, there is no reason why it should be, as where on estates boarding is constantly wanted, by a little foresight a stock of seasoned wood may easily be kept on hand. I have spoken here of floorings only, but what is true of flooring is also true of many other purposes for which wood is used. I remember seeing at a trade exhibition in London early in the present spring a front door made from the wood of an English pollard Oak. A very fine door it was, and the innumerable small knots in the wood when polished had a capital effect. This, of course, is merely another instance, but will serve to show that, with a little looking into, many requirements for which preference is now given to imported woods can be as well supplied by those growing at home.

D. J. YEO.

**Autumn v. spring planting.**—Notwithstanding that it is now the custom to recommend autumn planting of deciduous trees and denounce spring planting, it is found in practice that in transplanting deciduous trees before the leaves are fallen the shoots are not ripened, and die back often to a considerable distance, in the same manner as if the leaves had been destroyed by early frost. The young fibres, also, will protrude spongioses more quickly in the spring from the fibre that has been well ripened than from that lifted before ripened. It can only be when the distance of removal is very short and the plants very small, and lifted with the earth adhering to the roots, that the transplanting of deciduous plants in autumn before ripening can be attended with any advantage. In the nurseries we have great experience in lifting and shouthing immense quantities of deciduous plants, and experience must say on this head that any process of growth which may be going on in the interior of the plant during winter has very

little if any outward appearance. Unless the winter is more than ordinarily mild, the spongioses are never seen to protrude, nor the buds to swell, till the spring begins to advance. Such as Thorns, Birch, Larch, &c., may begin in February or March; Beech, Oaks, &c., are later, and seldom begin to show much before April or May. Even the Mezereon, which often flowers in February, is seldom found to protrude new roots before that period. Of course the period will vary as to localities; some soils and situations are more than a month earlier than others within very short distances. Autumn planting is preferable where the soil is dry, as it washes the soil closer to the root; where the soil is clayey and the weather soft at planting time, it gets into a state of puddle and rots the roots in winter; and unless the weather is dry at planting time in autumn, such soils had better be deferred till spring.—F.

### NEGLECT OF PLANTATIONS.

WE so frequently see whole chapters devoted to detailed instructions respecting the management of timber trees, that a few remarks on the real state of plantations as seen by one who "gets about" may not be out of place if only to show what is in contrast to what might be.

The frequency of ill-managed plantations of forest trees in every direction all over the country may render any attempt to point out the neglect a little hazardous, and in many instances unsuccessful. It very often happens that all the sympathies of the proprietor are in favour of allowing all trees, in anything like a thriving condition, to remain. Few proprietors have had leisure or inclination to study the subject so closely as to enable them clearly to foresee the consequence either of judicious thinning or its neglect. In some cases, a wish to make something of the thinnings prevents the operation being entered upon till such mischief has occurred as even time, with skilful management, cannot altogether remedy. Hence the almost branchless skeletons of forest trees that in close order disfigure the demesnes around many a country seat where such management is scarcely excusable. In forests where very large masses have been planted in one or two seasons the supply of thinnings may exceed the demand in a contiguous market, and the forester's account of expense for thinning and pruning may, in such cases, exceed the proceeds of the sale.

From the same causes we often see on the lawn groups of trees planted with the full intention on the part of the planter at the outset that the nurses should be timely removed, to allow those trees intended ultimately to adorn the grounds to assume their natural forms; but these very nurses are, in nine cases out of ten, allowed to become robbers, excluding the light and the air from those trees which they were at first only intended to shelter while young, and sucking up the food from the soil which should go to foster the reserves; so that nurses and nursed soon indicate, by their tall, slender, and leafless shanks, that they have outlived the means of nourishment and entirely defeated the purposes of the planter.

It is very easy to point out many places where the lawn is disfigured by stiff outlines



of plantations, enclosing masses of miserable trees struggling for light and air till scarcely a leaf remains on the summit of the sapless pole to elaborate the sap, whereof the numerous matted roots of too many contending neighbours prevent anything like a full supply. There are a few exceptions, but they are still too few to furnish sufficient stimulating examples to proper management.

TRAVELLER.

#### NOTES ON CURRENT TOPICS.

**Spruce timber.**—Mr. J. B. Webster may or may not attach value to what I have written on this subject as best suits him, but that is not the problem between him and I and before your readers. I maintain that the forester who plants Spruce Fir, or advocates its planting, for profit when timber of better value can be produced instead, may be compared to a farmer who plants profitless crops where paying ones would grow just as well. Spruce is by far and away the poorest paying tree crop in these islands, and Mr. Webster and those who support him know it. If they dispute this, will they furnish an estimate of the value per acre of their Spruce plantations compared to those of, say, Larch, Corsican Fir, Sycamore, Poplar, Ash, Oak, or even Scotch Fir? Unless their experience is altogether different from that of other timber growers or dealers, they will have to fully admit all I have written about the comparative worthlessness of the Spruce. I am familiar with the finest plantations of Spruce in Britain, and I know the proprietors now rue the day they were led to plant it as extensively as they have done. At p. 73 Mr. Webster mixes up the Larch, Scotch Fir, and Spruce so much together in his observations, that I hardly know which he means, but Spruce is the subject under discussion and its worthlessness as a timber tree. It appears from his last communication that the ladder poles he sold, and which were described as Spruce in his first paper, are now "clean grown Larch and Spruce, and were sold for 1d. per lineal foot!" If that was the case, all I have to say is, that he received sadly too low a price for his Larch, for 1d. per lineal foot is too little even at present prices. I fear Mr. Webster put the Larch in to get rid of the Spruce—a not uncommon practice.

**Hedgerow timber.**—Mr. D. J. Yeo should air his notions on this subject among enlightened agriculturists who do not seem to endorse in practice the view of your correspondent, that "the evil is oftener the other way," viz., that fields without trees in or around them are the worst for agricultural purposes. The opinion of farmers is almost universally against hedgerow trees unless they are few and far between, and no wonder. By their roots they rob the crops of their food, and by their tops they injure what crop grows near them or under them, while they provide no equivalent in the shape of return worth speaking of to the farmer, and are of doubtful value to the proprietor, whose land invariably lets lowest when encumbered by trees which rarely make good saleable timber. The farmers hereabouts, even the smallest holders, will willingly stub large trees at their own expense for the sake of getting rid of them, especially Ash or Oak, which are liked worse because of their spread both at root and top. The solitary advantage of hedgerow trees to the farmer is the shade and shelter they afford the cattle and sheep, and neither of these are of much consequence—at least, so far as regards shelter—because single trees, whether in the fences or field, afford but little protection at the season when shelter is most needed, and the cattle know this and prefer the fields with lower hedges and fences to the trees.

**The Pines.**—Accepting "Glendye's" statements (p. 136) respecting the comparative value of the Scotch, Austrian, and Corsican Firs as the *bond-fide* expression of his experience, one can only conclude that the experience of different individuals differs greatly on the subject, for some of his assertions are not borne out so generally as he supposes. For example, it is by no means true, in any part of

England or in any nursery I know of, that the Austrian Fir is inferior to the Scotch, inasmuch as it requires to be "several times transplanted ere it is fit to plant out in the open ground, and that even after much care in seeking to supply them with plenty of roots the death rate will probably be very high." This is not the character of the Austrian Fir by any means, because it equals, if it does not surpass, the Scotch Fir as a good transplanter up to twenty years of age, whether frequently transplanted previously or not. No planter knows this tree better than myself, and I maintain that one of its best recommendations is its good transplanting qualities, for practically it never fails. "Glendye's" experience of its failure in this respect is certainly exceptional. Really he ought to tell us to what part of England or Scotland his experience applies. Neither the Austrian nor Corsican Pines, he further asserts, "will compare in a single quality with the Scotch Fir, except one, and that ornamental only." I need only say that hereabouts in every case the Corsican Fir grows foot for foot with the Scotch in height, and surpasses it considerably in bulk of trunk, so that allowing it to be of as good quality as the Scotch Fir as timber it must be the most profitable tree of the two to plant; but I would add that its timber is superior to the Scotch. "Senilis," in his "Pinacæa," correctly described the good qualities of the Corsican Fir twenty years ago, when he then wrote that "it is one of the most valuable and generally useful species of the genus which has yet been planted in the British Isles, being thoroughly hardy, sound in constitution, of tolerably large dimensions, and of very rapid and regular growth; and will not only grow, but will produce both quantity and quality of timber equal to any, and superior to many of its congeners when grown under the same conditions." He adds, "We have it in almost every description of loam, clay, sand, gravel, peat and compound earths . . . and in situations the most sheltered and exposed, in maritime or inland localities, on high and low altitudes, and everywhere—unless, indeed, in close, soft peat, and spongy marsh—it is doing well. I know of no Pine less subject to the attacks or ravages of insects, fungoid enemies, game or vermin, &c. . . . I am perfectly satisfied," the same writer concludes, "that for general utility as a forest tree, this Pine, if it did not surpass, would at least equal our native Scotch Pine, and be found to be one of the best and most suitable species of the genus *Pinus* for the planting the many thousands of acres of waste and unprofitable, nay, sadly neglected, lands so frequently to be met with in Albion's Isles." I may just add that I endorse this description fully. I hope "Glendye's" description is not taken from some of the spurious varieties not unfrequently substituted for the true Corsican Pine.

**Firewood.**—Mr. D. J. Yeo is just a trifle vague on this subject. So far as we are aware there is not the least objection or obstacle to his having "a share in the plunder" from the sale of firewood, provided he has the wood to sell and can find buyers for "Beech, Ash, or Elm wood" at regular market prices, which would probably be two or three times as much as the price of coal. Log fires are now fashionable in great houses, where fire-places are prepared for them, but the demand is not great for the logs among any other class of customers for an excellent reason.

#### Timber of seedling v. transplanted trees.

—Mr. J. B. Webster says (p. 75) that he thinks "no one" having experience on the subject will deny that the timber of transplanted trees is superior to that of trees raised from seed, but he may be surprised to learn that the same assertion has been denied many times by experienced foresters. I cannot give chapter and verse offhand, but the subject was referred to more than once in *Woods and Forests*. The truth is the question is one that has yet to be determined, and Mr. Webster's contribution to the subject is not very convincing. "On thinning plantations where the ground was partly stocked with natural seedlings of Scotch Fir," writes Mr. Webster, "the difference in the hardness of the wood was so clearly demonstrated, that the woodmen could tell at once, after cutting a few chips, whether the tree was planted or one of the original seedlings." All one can say to this is that

Mr. Webster's men must be experts in their way, for both seedlings and planted trees differ among themselves in toughness and hardness to the woodman's axe, and it must be a very discriminating axe indeed that could tell the seedlings from the transplanted trees when they reached the felling age under such circumstances. The hard texture of transplanted trees, Mr. Webster further adds, can be ascertained by comparing seedlings and transplanted trees in the nursery, which may or may not be, but who would rely on such a test for determining the value of mature timber trees? The fact is, this idea of the inferiority of seedling timber has had its origin in the minds of those who are interested in the transplanting practice, and the question is, to say the least, an open one. That the check to a newly transplanted tree has the effect of hardening the tissues temporarily by stunting growth, if that is an advantage, for a little while afterwards all tree and experienced plant growers are aware, but the effect is not permanent, and does not extend to scores and hundreds of years. Is such a thing credible, or would it be believed that on the strength of such evidence any experienced man would jump to the conclusion that trees "are improved in texture by transplanting, and, consequently, of much better value?" Mr. J. B. Webster's Scotch Fir plantation proves too much. If the difference between the two sets of trees was so great that the woodmen could pick out any tree by a few chips of them, the difference between numbers of the trees of both sets individually due to the varying conditions in any plantation must have been equally pronounced, and, if so, the fact utterly demolishes the men's idea even if it could be entertained from a reasonable point of view.

YORKSHIREMAN.

#### SOIL FOR THE SILVER FIR.

As a timber tree I consider that the Silver Fir (*Picea pectinata*) ranks in the first class. In this country, however, it has never been planted extensively as a forest tree, which may arise probably from the fact that it is not so well adapted for hill planting upon soil of a poor texture as the Scotch Fir, Larch, or even the common Spruce. On some properties, where the soil is of a loose, open texture, well mixed with organic matter or loose, pulverised clay, magnificent specimens of this tree are to be found; while, on the other hand, in places where the trees have been planted on soil resting upon stiff clay, hard impervious gravel, hard till, and poor inorganic shingle, the trees generally contract disease at an early stage of their growth, and if not a complete failure, they never attain a large size. On examining some mixed plantations on the latter kind of soil planted some thirty years ago, and where I introduced some Silver Firs for the sake of contrast and variety, I found the latter all affected, to a considerable extent, with the Coccus insect (*Adelges Picea*), which generally makes its appearance first upon the stems, and gradually extends to the branches. When trees are attacked in this way for a series of years, it is a sure sign that the soil and aspect are inimical to their growth and healthy development, so that the better plan is to weed them out gradually in order to give space for such as are found to be thriving better under the adverse circumstances in which they are placed.

In early life the common Silver Fir is liable to be cut down by late spring frosts, and although much has been said by different authorities on the advantages of acclimatation, yet I have found by experiment that trees raised from home-saved seed were not a bit harder than such as were raised from imported seed. I have raised both kinds on a piece of exposed nursery ground in order to inure them to the climate from infancy, but the progress of both kinds was so slow and alike, that after a fair trial for several years I was ultimately obliged to shift them to



another nursery on the same property where the ground was well sheltered, and in which position the progress of the trees was then in every way satisfactory. Young trees that have been cut down by frost generally produce several leaders at the top; these should be pinched or cut off, leaving the strongest shoot for the future leader.

THE TIMBER of this tree when cut up is of great value for a variety of estate purposes. I have known it last for a period of upwards of twenty years when used as flooring for a carpenter's shop, and where the work done on the premises was rather of a heavy nature—such as making carts, wheels, and other estate implements; and in all cases where the trees have been matured and felled at the proper season, and the wood thoroughly seasoned when cut up, the timber is not apt to twist or warp, which is a great recommendation in its favour.

AS AN ORNAMENTAL TREE, when planted on good soil on the lawn, it retains its side branches from the ground upwards, which not only imparts a warm, furnished appearance to the grounds, but also, from its well marked character and outline, adds contrast and variety to the landscape. When grown as a timber tree for utility, whether mixed or in masses, the thinning should be conducted in such a way that the side branches lose their vitality and fall to the ground without the aid of pruning; trees, however, along the margin of plantations where the dead branches become hard and carbonised, such should be removed with a saw or pruning chisel, and in all cases where the management has been conducted upon such principles the stems present fine clean columns of great height and uniform thickness throughout, or at least with very little taper, which enhances their value very much when offered for sale. Some, indeed, prefer trees grown in this way to such as retain their side branches, but, of course, much depends upon the position which the tree occupies, but certainly a Silver Fir with a fine clean stem, as straight as an arrow, and without a twig for a distance of some 60 feet or 70 feet from the ground, capped on the top with a canopy of verdant branches and spray, forms an object of admiration in any position, not to speak of the superior quality of timber produced, in comparison with such as are grown on the bush principle. As it likes shelter in early life, it is well fitted for filling up gaps in old plantations, and in all cases where the soil is suitable may be planted in such positions with advantage.

J. B. WEBSTER.

### TIMBER TREE CULTURE IN BELGIUM.

HAVING lately noticed various communications from some of the most experienced foresters on the planting and rearing of timber trees, I have been induced to cast my mite into the treasury of knowledge.

From my boyhood to the present moment I have uninterruptedly continued to cherish a great dislike to the general appearance of our hard woods, or what are commonly termed deciduous forest trees, particularly in their state of nudity, whether as solitary specimens, in groups, or in forest plantations. In the two latter cases, owing to the want of timely and proper pruning, the branches are often very unequal, and rob the trunk of much of its sustenance, and they invariably exhibit from every point of view such a reticulated mass of irregularity and confusion

as must ever be intolerable to those who have witnessed them in the opposite condition.

As single specimens in pleasure grounds or in park scenery, Nature may be allowed to frolic sometimes absolutely unrestrained; but in forest plantations, where timber or remuneration is the desired aim, art must be called in. My intention at present is merely to give a few hints on a method I never saw yet fully carried out in this country, but which is successfully practised in Belgium. The public roads of that country, except the railroads, have always been much admired by foreign travellers for their beautiful appearance, there being generally a row of trees on each side.

The trees, whether Oak, Ash, Elm, Poplar, or others, are taken from the nursery when they are 15 feet or more in height and about the thickness of a man's arm; the lateral branches are all cut off at from 3 inches to 6 inches from the stem, and of course close above the bud; if the lower ones have not been previously cut clean off for from 5 feet to 7 feet from the roots, they are cut off now; the top is also cut off in a slanting direction at about 10 feet from the roots. The trees are taken up in March and April, without balls of earth, and not remarkably carefully, but precisely after the ordinary manner practised in our nurseries, and they are planted in holes about 3 feet or 4 feet square. The first year they grow but little; the second year they may be said to commence their growth, when the uppermost shoot is trained for the leader. As the tree progresses, it is pruned every year, if necessary, in winter or early in spring, cutting out all the cross and unequal branches and thinning those that are or may become crowded. At first, the upper part of the tree is got at by means of a step-ladder, but as soon as it becomes stout enough, the pruner ascends by the assistance of a cord and climbing spurs. These spurs are fastened on by means of leather straps, which pass round the leg, and are attached to an iron rod reaching from the stirrup of the spur, up the outside of the leg to near the knee. Securing the hatchet in a belt round his waist, and passing the cord round the stem, the pruner climbs the loftiest trees with apparently the greatest ease, and cuts out all crooked and useless branches, which are pointed out by the foreman or superintendent, who stands on the ground below. The climbing appears to do no serious injury to the trees, the laceration in the bark being small, and almost immediately healing over.

It is astonishing how well the leading shoots of the decapitated trees blend with the older stem. I believe there would be found some difficulty in making anyone, who was ignorant of the fact, believe that the beautiful straight-stemmed trees along the roadsides, boulevards, &c., in that country had their tops cut off when they were planted; but, by very close inspection, the joint may be discovered in all of them, by

the bark being smoother and a little more shining than that on the other parts; the scar may be said to become entirely obliterated in twenty years.

This treatment causes the trees to present a more fastigate and uniform appearance than if they had been left unpruned; the branches are also much slenderer than they otherwise would have been; but when the object is to obtain straight and fine timber, it may be safely adopted. WANDERER.

### THE WEIGHT OF AN AXE.

I WELL remember my first axe, and my early experience with it. It weighed 4½ lb., being the heaviest one I could find at the time. I was fresh from school—fresh from a class in natural philosophy, one of my favourite studies.

I knew all about *inertia*, and had learned something of the force of gravity and the laws of falling bodies; had rightly guessed that chopping wood might be hard work, and determined that my knowledge of physics should help me out.

I would have a heavy axe, a long handle—would move slowly, and take strokes that would count when they fell. My axe handle was 34 inches in length, the longest one in the store. I had hired a tough little French Canadian, weighing about 120 lb., to help me in this work. When he came he brought an axe—a mere toy I called it. I think it weighed 2½ lb., with a handle only 26 inches long. I told him I had a fair-sized job for him, and thought it would pay him to buy a full-grown axe. He smiled and said he guessed his would do. I tried to explain to him the beauties of a heavy axe and the wonderful advantage of a long handle. But it was all in vain; I was only wasting time; he could not understand it.

"Poor fellow," I thought; "he knows nothing of the beautiful science of physics. It is too bad that he should thus waste his strength through ignorance, and be unwilling to listen to the voice of wisdom."

We went to the wood lot and began work. I had decided that we would work separately during the first day or two, in order that I might show him what I could do.

As I began to swing my axe I felt proud of its ponderous blows that rang through the woods, and rather pitied the poor fellow who was drumming away with his little axe, taking about two blows to my one.

Presently I had to stop to rest, and then again, and still again; but Joe, my man, kept pecking away quietly, steadily, and easily.

Every few minutes I would stop to take breath; but Joe seemed perfectly able to do all necessary breathing without stopping his work for the purpose.

When night came, we piled up our wood and measured it. Joe's pile measured 1½ cords; mine only three-quarters of a cord.

During the early part of the day I had planned giving Joe another lesson in the evening, to see if I could not make him understand the elementary principles of wood-cutting and the philosophical requirements of an axe.

But when night came I decided that perhaps it would be as well to let him go on in ignorance; and thereafter remained silent on the subject.

The next day I felt lame, and stayed at home. Joe put his cord and a half as usual.

When I went to the woods again, Joe and I worked together. Not many days passed before I found an excuse for buying a lighter axe and a shorter handle. And every axe and handle that I have bought since then has been lighter and shorter than its predecessor.

Whenever I use an axe now I select one very much like Joe's, both in weight and length of handle. I can use this without getting out of breath, and can hit twice in the same place. The result is, I can do more and better work, and save a vast amount of strength.

I write this as a word of caution to the inexperienced wood-chopper when about to purchase an axe.—*Albany Cultivator*.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## FRUIT GARDEN.

### OUTDOOR GRAPE CULTURE.

THE effect of two dry and warm summers following each other has brought into notice the condition of outdoor Grapes, and one feels a certain amount of satisfaction at being able to say that their present excellent condition is making a favourable impression on the minds of those who have hitherto looked upon the production of outdoor Grapes as a thing to be desired, but not easily attained. From observation and inquiries which reach us, there is not a doubt but that this fruit will receive an increased amount of attention. In offering some remarks on the management of outdoor Grapes, it seems necessary to say to those who are about to undertake their cultivation, that although outdoor Grapes will succeed better in warm summers than in cold ones, it is not the character of the season only that insures success; there must be a suitable selection of sorts, a favourable soil and judicious management, and if these conditions are not present, there is not likely to be a satisfactory return.

In regard to the sorts to be grown, the most reliable are the Dutch Sweetwater and the Espiran; the last named is a black Grape, and in character both hardy and prolific, but the Sweetwater is the most popular variety, as it is superior in flavour. I saw last year bunches of this sort grown by a cottager who grew them on the front of his house, which has a south aspect, and they were equal to some we sometimes see on Vines grown under glass. The bunches were a good size, and the berries perfectly ripened, and the flavour excellent. It is useless to attempt to grow outdoor Grapes in any other but a south aspect, and in regard to the border, if they have plenty of root-room and the soil is good, they will grow as well with their roots under a paved yard or walk as they will in an exposed border. But it will not do to plant them in any kind of soil, for if the medium for the roots is not of a feeding, substantial character, they will certainly fail, for one of the first essentials is a vigorous growth, and then bunches of fruit of a corresponding quality may be expected. I have lately had ample evidence in the case of an old and vigorous Vine which has borne fair crops of fruit for many years, and its appearance is such at the present time that I do not doubt it will continue to do so for many years to come. But in regard to soil, this particular Vine is favourably placed, for when first planted, I am told that the border for the roots was well made, that is to say, the staple soil was removed 2 feet deep and 10 feet wide, and soil from an old loamy hedgebank brought to fill up its place. Although such a course of preparation may be necessary in some cases, it is not necessary in all, and the Vine is such an accommodating plant, that it will sometimes thrive in places where it is least expected; but there is one rule that everyone must follow if they want to succeed, and that is the more limited the root-room the better the soil is required to be. I should not despair of growing outdoor Vines in a border 2 feet deep and 6 feet wide providing the soil was of a strong holding nature, but I should prefer to give them a root

run of 40 feet or more if the soil was fairly good, and then with plenty of space for the branches I know that I should be planting Vines that would serve for a couple of generations to come, providing the branches were well cared for.

### BEST SYSTEM OF TRAINING.

As to the best system of training outdoor Vines, I am fully persuaded that that question must be decided by the amount of skill brought to bear upon the management; with a limited space both for roots and branches and a thoroughly good soil, no doubt the long-rod system is the best, but this system is only adapted to a good holding border. Where there is a large wall space to cover the spur system is decidedly the best, and so it is when the after-management is likely to fall into unskilful hands, as it is more easily understood. In the long-rod system a new rod, or any number of young rods, according to the amount of space to be filled, are taken up from the bottom every year, and that after they have borne one crop of fruit they are cut away, so that every year a set of young rods has to be provided. The plan is right enough where the wall space and the soil is adapted for it, but it is a system that rarely answers long in unskilful hands, as it tends to overcrowding of the branches and failure results. The spur system is more simple, as the space once filled up with wood, the only pruning required is to cut away close back to a spur all the shoots which have been allowed to remain over from the summer pruning. The simplest way of training out-door Vines is to put in a strong plant in the centre of the space to be filled and to cut it down to within 1 foot of the ground, and in the spring of the year, when the Vines begin to grow, to rub off all but two of the young shoots and train them right and left a foot or so from the ground. When they have reached the end of the space the tops may be taken off during the winter. The next summer every bud on these branches will send out a shoot, but only a sufficient number must be allowed to remain to fill up the wall at 1 foot apart; the others may be rubbed off when quite young; the shoots left must be trained up the wall in a vertical direction, and when they have grown to a height of 5 feet they may have their tops pinched off, which will be the means of strengthening the shoot below. These shoots should be cut back to 3 feet during the winter and a leader from them taken up every year until all the space is filled, but 3 feet of young wood is all that they should be allowed to increase in one year, and then the Vines will gain strength equal to the space covered. A wall may be filled up much quicker than I have suggested, but if so it will be at the expense of a weak growth hereafter. Once fill up the space with firm, well-ripened wood of sufficient strength to produce good growth, there need be no further anxiety as to the crop eventually. It is the weak and over-crowded branches which fail to give satisfactory crops.

### SUMMER MANAGEMENT.

It is an undoubted fact, well known to those who thoroughly understand the requirements of Vines, that however carefully the border for the roots may have been made and the winter pruning performed, these features will avail but little if the summer management is neglected, and neglected it often is to an extent that quite destroys the crop. If we read the instructions given by any practical grower of Grapes under glass, we shall find that much stress is laid upon the importance of disbudding useless shoots and the tying down of those which are left to produce the crop, the timely stopping of such shoots, and the removal

of all superfluous growth from time to time during the summer. From such instructions we may gather that if Vines require so much attention when growing under glass, they must have a corresponding degree of care when cultivated in the open air. I do not mean to say that they must have exactly the same amount of attention; but they certainly must have more than what they commonly get if success is desired. The first attention necessary in the early summer months is to go over the Vines and remove all the young shoots but one from each spur; of course, the strongest shoot with the most promising bunch must be left, and as soon as it has grown long enough to require support, it must be nailed to the wall in the space between the old rods, and as soon as the bunch of Grapes has gone out of flower the top of the young shoots should be taken off, leaving two leaves above the bunch, and as often as any lateral growth is made by these shoots it must be cut away; no lateral growth should be allowed to remain after it has grown out from 10 inches to 12 inches long, for if this part of the detail is neglected the crop will suffer, as such useless growth will be robbing the crop of strength from the roots, which they ought to have. The chief cause of failure in this part of the management which we see about the country lies in the neglect of these details. Much of the strength of the roots is absorbed by supporting useless growth, which growth does a twofold injury, for besides wasting the force of the roots when it is allowed to remain upon the Vines, it shuts out both light and air, to the manifest injury of the crop.

I have made no reference to the Black Hamburgh as an out-door Grape, and I do not now wish it to be understood that I think it suitable for planting everywhere; but having watched the behaviour of a certain Vine of this variety in a peculiarly favourable position, I see no reason why other equally as favourable places could not be selected and equally as favourable results obtained; and in speaking of the results of this particular, but indifferently-managed, Vine, I may mention that I was told by the man who managed it that he got better Grapes from it last year than he did from Vines grown under glass and otherwise better treated. The Vine in question is trained to the front wall of a stable with a south aspect, and the roots are growing under a stone-paved yard, and when I saw the Vine in the beginning of August it was showing plenty of well-shouldered bunches that when ripe will not weigh less than three-quarters of a pound. The berries had already stoned and were of respectable size, and with a favourable autumn I do not doubt but they will ripen. What I contend for is this, that in nine cases out of ten out-door Vines are neglected; their capacity to succeed in the open air is not properly tested. If they had only half of the attention which is given to Vines grown under glass I am quite sure the results would be better than what they are. If the Black Hamburgh will ripen in favourable years in one place when grown under favourable conditions, why not in others? Disappointment there will be I am quite aware, as the results of untoward seasons, but let us treat the subject fairly before we condemn it altogether.

J. C. C.

**The Apple crop.**—Some recent and rather general storms have materially thinned the Apple crop, and the wind has been aided by the fact that owing to the drought at the roots the fruit has not a firm grip of the trees. In the London markets good windfalls were selling last week at 1s. per bushel, a pretty good indication of the low price at which good



gathered Apples may be purchased presently when the full crop comes in for disposal. The thinning is not an absolute evil, as some trees were too heavily laden, and a thinning will be good for trees and remaining fruits. Where the crop was thin before—and it was the case on many trees—there has not been so much harm done, because, without doubt, on heavily laden trees the fruits beat against one another, and thus many become bruised and fall. Still the earliest kinds have suffered most, notably Suffields, Juliens, Manks, and similar kinds. Such wind-storms coming from the south-west at this season of the year take us unawares and do much harm; still it is not at all easy to see how any check is to be given to their force, unless we plant with our orchards belts of trees to shelter them on the west side in summer and on the east for shelter at blooming time. At Chiswick there may just now be seen wonderful crops of fruit upon Stirling Castle, Lord Suffield, Cox's Orange Pippin, Cellini Pippin, New Hawthornden, and some others, all dwarf trees, and being so low, hardly 5 feet in height, at the best are, of course, easily sheltered. Such crops of Stirling Castle on dwarf trees has rarely been seen. Mr. Barron has given these trees a heavy mulching of long manure, and thus the roots are protected from drought and the fruit from injury if they fall. It is well worthy the consideration whether it would not pay well to plant between every two rows of standard Apple trees at least two or three rows of these dwarfed trees when laying down market orchards, as they seem always to produce a crop.—A. D.

#### FRUITS FOR VILLA GARDENS.

THE selection of fruits suitable for villa gardens is a matter that requires much attention. It is a custom with some builders of houses to plant the garden of a villa residence, and they put into it what they can buy cheapest, caring little about suitability. The tenant, if he plants, proceeds on much the same principle, or he in many cases buys the sorts recommended by a nurseryman. The result may sometimes be all very well—good fruit will be produced; but unless the varieties are generally selected with reference to their usefulness and free-bearing properties, disappointment will be the result. It must be borne in mind, when arranging a villa garden, that strict attention to the best kinds of fruit for general purposes becomes necessary, from the fact that, for want of space, only a limited quantity can be planted.

IN SELECTING APPLES a main consideration should be to obtain one or two varieties most valuable during the winter and early spring months, when little else is obtainable from the garden, either for dessert or kitchen purposes. Early sorts are scarcely so valuable in a villa garden, as other fruit is generally plentiful during the autumn months; and it is also desirable not to over-burden the garden with sorts of Apples or Pears that are of short duration—i.e., that have to be used quickly—in order to have a fairly good supply through the winter. Here are a dozen varieties of dessert Apples, which may be grown as espaliers, standards, cordons, or pyramids—viz., Irish Peach and Red Quarrenden, for July, August, and September; Summer Golden Pippin and Worcester Pearmain, September to October; Margil, Ribston Pippin, and Cox's Orange Pippin, for October to January; Ashmead's Kernel, December to February; and Redleaf Russet, Golden Harvey, and Sturmer's Pippin, from February to May. Of kitchen Apples, take the following dozen sorts: Gravenstein, August and September; Lord Suffield, Cox's Pomona, Blenheim Orange, and Stone or Loddington Seedling, for September and October; New Hawthornden, Golden Noble, and Wellington, for November and December; Warner's King and Lord Derby, January to February; and Calville Malingre, from March to May. The following dozen Pears will be found a very suitable selection: Beurré de l'Assomption, July and August; Louise Bonne of Jersey, Marie Louise, Pittmaston Duchess, Emile d'Heyst, Beurré Superfin, Winter Nelis, Doyenné du Comice, and Knight's Monarch, October to December; Josephine de Malines and Olivier de Serres, January to March; L'Inconnue and Easter Beurré, March to May.

SITUATION AND TREATMENT are points demanding attention, and as it should be the aim of the

villa gardener to economise space as much as possible, it is well to employ iron wire trellises or frames 7 feet high. By training branches of Apple or Pear trees along these space will be economised, and a pleasant interest maintained during the summer months. Such a contrivance is well suited to upright or oblique cordons. Care must be exercised in the treatment of the roots, from the fact of their importance and their being the measure of the extension of the tree. The trees should be had from a nursery the soil of which is favourable to the production of fibrous roots. The preparation of a suitable soil, if it does not already exist, and a good substratum is essential, as the roots of a tree, under proper treatment, should be as much at the will of the operator as the branches. Some regard must be paid to this particular, so as to insure as far as possible the certainty of a crop. If it is proposed to plant the trees in lines, a border 5 feet wide and 3 feet deep will be ample space to devote to moderately-sized trees. If the subsoil be one likely to be unfavourable to the well-being of the trees, it might be wise to have a layer of concrete at the bottom, to shut off the roots from penetrating in a downward direction; but it should have a fall in one direction to allow wet to escape. By the adoption of this mode where it is absolutely required—and it is both simple and inexpensive—the necessary means may be obtained for operating on the roots in any way that may be thought expedient. Should any tree be growing too freely, it may, under this system, be readily thrown into a moderate state of growth by cutting off some of its roots; or, in other words, curtailing the supplies. No well regulated tree requires much use of the knife. All the head pruning required is to take away any cross shoots that inconveniently crowd the tree at the end of the summer, and follow up during that season the routine of finger-and-thumb pruning, which is easily accomplished when the shoots are young. The best time for root-pruning is soon after the fruit is gathered.

PLANTING is the next matter. The best time to plant fruit trees is in autumn, say the last week in October, or a little earlier, care being taken not to put them too deeply into the soil. Planting should not be done at a time of frost, and the roots of the trees should not be allowed to become dry by wind or sun. In planting, the small fibrous roots should be carefully spread out, the coarse roots having previously been shortened back, or any injured roots removed, with a sharp knife. If the soil be good and generous, no manure need be added, but supplied after planting in the form of mulching. If the soil be poor, some well-decayed manure can be mixed with it at planting time. If the soil is wet, then the trees should be planted on the surface, and a mound of soil placed over the roots. The trees may be placed about 8 feet apart. "Bearing in mind," writes Mr. Bunyard, in his useful pamphlet on "Fruit Farming for Profit," "that the surface fibres are those that nourish fruit, it is advisable that these be encouraged. The chief mischief accruing to young trees arises from too deep striking of the large coarse roots, which, uniting with a badly-drained or unsuitable subsoil, causes canker, and apparently healthy trees die back wholesale; this has been frequent of late years. In a mild winter the sap scarcely leaves the trees, and, being charged with moisture, a severe and sudden frost ruptures the cellular tissues, and perhaps the damage is not seen until some months after, when the points of the shoots die back, and even main branches split. Such trees then make a mass of small shoots from the main branches, which should be thinned out in August, or the result will be more disastrous." R. D.

Orchard house fruits.—We have a large orchard house here (not heated, except by portable stoves just when the trees are in bloom) which gives us a good supply of fine fruit, consisting of Cherries and Plums of the best kinds, Peaches and Nectarines. The trees are all in pots with the exception of the Cherries, which are plunged in the earth and not removed winter or summer; they are surfaced with fresh prepared soil in the autumn, and given manure water freely when the fruits are swelling, and the crops yearly are most satisfactory. Plums out of doors are a wonderful crop, the only failure being the Washington, which is with us a very un-

certain cropper; being an early bloomer, it is often injured by spring frosts.—JOHN GIBBS, Bayfordbury, Hertford.

**Pear Summer Rose.**—I met with a very nice dish of this early Pear at the beginning of August and was rather taken with its neat and handsome appearance, for although the fruits were small, they were so uniform in size with a rosy cheek on the sunny side, that they were in quite a presentable condition. The flavour was fairly good, although not equal to Williams' Bon Chrétien or Beurré d'Amanlis in the month of September, but, considering its early character, it would find favour with those who like early Pears. The fruit I saw was the produce of a pyramid tree grown in the west of England.—J. C. C.

## INDOOR GARDEN.

### SARRACENIAS IN LONDON.

AFTER showing how to grow Filmy Ferns in towns without artificial heat, Mr. J. Cooper Forster, in his house at Upper Grosvenor-street, is able to show, after a series of trials as successful as they have been conscientiously conducted, that a similar kind of treatment is equally suitable to Sarracénias, with this difference, however, that whereas Filmy Ferns are deprived of every ray of sun, the Sarracénias are allowed to bask in the full sunshine during the summer months without even the slightest approach to natural shading by overhanging trees or the merest attempt at debarring them artificially from that strong light, the effects of which he has also taught us are so highly injurious to Filmy Ferns.

Not only are Sarracénias grown cool there, but they are during the winter kept outside in exactly the same quarters as those which they occupy all through the summer, and where all the year round, even during the winter months, the temperature is only the natural one, depending entirely and solely on the clemency of the weather, as there are no structures of any kind, greenhouses, frames, or any other structure erected for their culture.

The Sarracénias are grown at the back of the house, on the leads, in fact, with no other protection at any time than bell-glasses, some of which are necessarily very tall, in order to accommodate the full development of the pitchers. A plant of *S. Chelsoni*, probably the most beautiful of the several handsome hybrids raised from *S. purpurea*, has this year produced there twenty-eight pitchers, some of which measure 16 inches in height, and whose bright and cheerful colours are not in any way less attractive and pleasing than those of *S. purpurea* itself. This latter species, which is the oldest and also the best known of the American Pitcher Plants, is likewise represented by several specimens full of health and of great beauty. Its hardihood in this country is perhaps better understood than that of any other kind, for it is given as "hardy in England" in some old plant catalogues, and we well remember seeing some ten years ago in the Botanic Gardens, at Glasnevin, some magnificent clumps of it growing in a large pond which was then frozen hard all over.

It is mostly the hybrids which have had the hardy *S. purpurea* for one of their parents that are grown on the cold system at Upper Grosvenor-street. These, with the *Dionæa muscipula* (Venus' Fly-trap), the *Darlingtonia*, and such beautiful Sundews as *Drosera dichotoma* or *binata*, *spatulata* and *capensis*, form a group of utmost interest, which are also cultivated outside under bell-glasses by Mr. Cooper Forster, and he succeeds admirably by allowing them a very liberal supply of water during the summer



and autumn months, and watering them more sparingly, though never allowing them to get dry, during winter and spring time. He also manages, moreover, to grow in a very creditable and satisfactory manner, and under the same treatment, some of the Drummond section, whose hardiness is certainly not equal to those of the *purpurea* group.

#### SEEDLING PELARGONIUMS.

IN "R. D.'s" recent article on Pelargoniums he concluded with the remark that "we are not nearly at the end of the work in relation to the improvement of the Pelargonium." That there is a good deal of room for improvement cannot be denied, especially among that class to which he more particularly refers, viz., show Pelargoniums; for among the newer kinds more especially we find many extremely beautiful, but though the flowers are large the trusses are small, and most objectionable of all is that the plants possess a weak and leggy habit of growth. So debilitated in constitution are some of the finest flowered varieties, that if the top of the shoot be pinched off to induce a bushy habit of growth, they often break out so weakly that it is difficult to obtain a good shaped plant. For this reason market growers who make a speciality of Pelargonium culture do not grow the show varieties, as they are well aware that by so doing they could not compete with those who grow the decorative class, those with less perfect flowers, but of a more prolific nature. The question considered by the market grower in the case of a new Pelargonium is—Does it naturally form a good bushy plant with ample foliage, and are the flowers of a bright telling colour and freely borne in good massive trusses? Such are the first considerations, and the same rule brought to bear upon the newer show Pelargoniums would lead to many rejections, yet I venture to think that in most cases a plant in which the above questions could be answered satisfactorily would be more useful than another whose flowers conformed to the florist's ideal, and that point was the only good one about it. That some of the show Pelargoniums, with their richly-painted petals, are most beautiful no one can deny; and having got thus far the attention of the hybridist should now be directed towards obtaining a more vigorous and at the same time sturdy habit of growth. A show Pelargonium, such as one of those given in "R. D.'s" list, with the habit of some of the best market varieties (*Mermerus*, for instance) would be indeed an acquisition. In raising seedlings some sow the seed as soon as ripe, but I prefer to wait until the spring, as the young plants grow away then without a check; while in the case of those sown about the end of the summer, many are liable to damp off during the dull days of winter. The first season I do not flower them, but grow them on into 5-inch and 6-inch pots, so that in the following spring their true character can be determined. In selecting the seedlings, even when in flower, a good deal of consideration is necessary, as some burn very readily compared with others if exposed to sunshine, and there is a great variation to be found in the length of time the petals remain without dropping. The pretty little fancy Pelargoniums make good bushy plants when raised from seed, but after various trials I have as yet failed to intercross with the brighter-hued sections. Besides the above the various zonal and nosegay Pelargoniums seed readily enough and quickly form flowering plants, generally varying greatly from, if not superior to, any of their parents. The Ivy-leaved section has recently occupied a good deal of attention,

and of them I have raised a great number, the result being a pretty, but most miscellaneous lot, many of which are utilised for draping balconies and such purposes. Of this latter class I am in hopes of getting a good double white, which, as far as my knowledge extends, is still to be desired. H. P.

#### COOL TREATMENT OF GARDENIAS.

IN answer to "Novice," the Gardenias named respectively *Fortunei*, Florida, and radicans will succeed admirably in an exceptionally low winter temperature, providing that a few simple rules are observed in regard to the culture of plants intended for such low temperature treatment. They will submit in fact to a temperature as low as 45° Fahr., and probably produce more and finer blooms subsequently than if grown in a higher temperature in winter, as is usually the case. In order to insure such success, however, it is desirable to so treat moderate sized plants only—such in fact as have healthy bushy heads suitable for 8-inch or 9-inch pots. Previous treatment has, therefore, to be taken into account in connection with such. The plants must be well and carefully potted annually about the month of June, having been previously deprived, by careful pruning, of any long straggling or unduly strong branchlets. If attention is given to potting, plants so grown should be brought on from the cutting stage in comparatively small sized pots, being at each potting carefully divested of as much of the old soil as possible without breaking the ball, so that as much new soil as possible can be given to the roots at each potting within the very limited root space allowed. By following these simple rules the plants will develop short or numerous jointed heads, which in the case of Gardenias are more productive of flowers than such as are grown robust and large-leaved. By potting the plants somewhat firmly in a compost consisting mainly of peat soil during the month of June there will be ample time during the remainder of summer to form a sturdy renewal of growth and to well ripen the wood so formed, so that embryo flower-buds form abundantly. As autumn approaches keep the plants cool and airy at a warmth as little above temperate as is possible. When the natural temperature becomes too low to permit of this, the plants may then be placed in the sunken pits suggested by "Novice." When he has excavated the soil, however, to insure proper head room, I would advise that rough boards be placed against the bare soil at the sides caused by such excavation so as to avoid excess of damp or cold during the winter. Care must be taken when the pots are placed upon the floor within this pit to have a properly ashed bottom covered with slates or boards—preferably the latter. With the aid of good drainage, good roots, and careful waterings, Gardenias may be maintained healthy through the winter, after which a change of treatment should be given to the plants during the first week or two in the month of February. This time, of course, will be influenced more or less by the peculiarities of temperature of each spring season. As soon as possible, by reasonably slow gradation, raise the temperature to 60° and to 65°, and immediately activity in the matter of growth is observed commence to syringe, and in due time give manure waterings, and then fine blooms in abundance will be the result. W. EARLEY.

*Peaforitia splendens*.—This scarlet-flowered evergreen New Holland shrub produces a fine effect under glass at this season of the year. It grows well in a mixture of peat, a little loam, and coarse sand, and is well worth a place in every greenhouse.—H.

#### WORK DONE IN WEEK ENDING AUG. 18.

AUGUST 12.

ANOTHER thunder-shower this afternoon, 0.26 inch, and another day's release from the hose and watering pot. We had been watering shrubs, Pears, and wall fruits all the morning, so that these had been well prepared to receive the full benefit of the shower, but not so our slopes of turf, off which it ran to the damage of the gravel walks, which, however, is a small matter in comparison to the benefit that its forcible descent has been to orchard fruit trees that were getting smothered with blight, Plum trees in particular. Did the final pruning and thinning out of wood of Peaches and Nectarines, and all the shoots are now either nailed or fastened in with small twiggy sticks that are placed horizontally, and are fixed at ends behind shoots already nailed in. The new growths of Apricots are also now being pinched back for the last time, and new, or what I call permanent, shoots will for the present be secured with small twigs, as in the case of Peaches. Gathered Apples, Devonshire Quarrenden and Irish Peach; both these kinds are exceptionally well fruited, but are small by reason of drought. Keswick Codlin is the variety we are using for cooking purposes, and which we gather as required. Lord Suffield is also ready, and will be gathered in a day or two. In no respect does this last named variety equal Keswick except size, and in this it is a great advance. The first Moor Park Apricots we gathered this morning, and having been given plenty of water, they are large, and the heat has added quality. Fruit in late Peach house is now ripening too rapidly for us, and shading has been had recourse to. The house is never closed by day or night, but fine netting is placed over the front ventilators to exclude birds, rats, and mice, which are very troublesome if once they get a taste of the fruit; hence it is better to net over the openings before they have found them out. Put in cuttings of bedding Pelargoniums, Carnations, and Pinks. Tied up Lilies and Tomatoes in pots. Put in cuttings of double Primulas, and potted on the earliest Primulas.

AUGUST 13.

A dry, harsh wind that effectually neutralises the good effects of the shower of yesterday, and all hands we can spare for the purpose are again watering shrubs, principally *Rhododendrons* and choice Conifers, that were transplanted last winter, would otherwise die outright. Clipped Grass verges and rolled walks. Pricked out Strawberry runners that are intended for permanent planting as soon as the ground can be got ready for them, but which at present is cropped with Peas and Cauliflowers. Began to dig up all the early Potatoes; they are fully ripe and to leave them longer in the ground would be at the risk of supertuberation or disease, and perhaps of both. Late varieties are still so small, that one scarcely knows what to do for the best. In their present state the tubers are all but useless, and they can only be the same if disease and growing out sets in, and therefore they must take their chance. Tied up *Chrysanthemums*, potted on *Cinerarias* and *Campanula pyramidalis*, cleared out *Gardenia* pit, renewed leaves for plunging the pots in, limewashed walls and thoroughly cleansed the plants, a little paraffin oil being used with the clear water for syringing them and which we find an invaluable insecticide against the attacks of mealy bug, scale, and fly. Work in and about the houses is at present principally airing and watering; the former is of the greatest importance to late vineries that are now swelling off and colouring their crops; abundance of air free from cold draughts is, perhaps, the most important item of culture in the attainment of perfect colour and finish. We leave a little air on all night long, and as soon as the sun shines on the houses in the morning the ventilators, front and top, are opened to about a third of their width, the remainder being given as the sun increases in strength.

AUGUST 14.

The vagaries of our climate has often been discussed, but a better illustration has rarely been afforded than that of this morning, when our thermometer registered 34°, or but 2° above the freezing point, and in the valleys near there was ice, Vegetable Marrow, French Beans, and the common Bracken being quite blackened



with frost, and but three weeks since the lowest night temperature for several nights ranged from 60° upwards and the day temperature as high as 90°. Frost and drought in combination is a new experience that it is hoped may have been buried at its birth, as we have already more than sufficient difficulties to battle with without adding to the list. Watering, as usual, the same subjects and crops as have previously been mentioned. Flower garden, wall fruits—Pears in particular—and some few vegetables we keep well supplied with water and mulchings. Peas have at last given out, not so much through drought as from blight; myriads upon myriads of black fly are literally eating them up, haulm included, and to-day, I note, they have settled on dwarf French Beans that are just coming into flower, and the crops, I fear, will be lost, in spite of the heavy waterings we have given them. Sowed Giant Rocca and Tripoli Onions on a west border that was deeply trenched for early Potatoes, and has now been given a dressing of wood ashes and dug for the Onions. Nailing and fastening in with small sticks the shoots of Peaches. Pruned cordon Pears the second and last time over for this season. The only winter pruning they will now require will be the thinning out of any naked, weakly, or unnecessary spurs, and this will only be requisite in the case of old trees. House work has been much the same as for some days past—watering, potting of plants and bulbs intended for winter decoration, the thinning out of the wood in second Peach house, and stopping laterals in late vineries.

## AUGUST 15.

This has been a real summer's day, and with freedom from the harsh drying winds of the last few days, so that we have been able to sweep up roads and walks and under trees. Spanish Chestnuts and Limes required it badly, and the latter apparently will soon have shed all their foliage, which is simply one mass of insects. Flower garden, besides the daily watering that is now given, has all been looked over and bad flowers picked off, and Gold Feather Pyrethrum, Gnaphalium, Leucophyton, and variegated Mesembryanthemum pinched into form. Single Dahlias, Marguerites, Abutilons, Sunflowers, and such like we never allow to go longer than a week without picking off the seed-pods and bad flowers, and these, too, were all picked over to-day. Small Retinosporas, that we use as central and standard plants in some of the beds, were also slightly trimmed up, the points of the longest side shoots being taken out. Next to Pelargoniums the gayest plants in the garden are, at the present time, the single Dahlias, and our finest kinds are the pure white, Duchess of Westminster, lilac striped; Dorothy, deep purple striped; Paragon, bright scarlet; Gracilis perfecta, mauve coloured; Harlequin, purplish pink; Nora, yellow, Sunflower, and deep velvety crimson Queen of Singles. In regard to old-fashioned flowers, Carnations are the present favourites, and, considering the little artificial watering we have been able to give them, they are very good, and still throwing up fresh spikes of flower. The Japanese Anemones are, I think, bidding for the premiership in succession to the Carnations, and these are such deep rooters, that drought does not seem to have had any injurious consequences. I can say nothing as to our doings about the houses that has not been said before. The extra clean up on Saturdays is a matter of course; and watering fruit borders, plants, Cucumbers, and Melons in pits and frames seems a never-ending business this dry season.

## AUGUST 17 AND 18.

It is now eleven weeks since we had a rain worthy of being called such, and the barometer shows no signs of relenting, so that watering still goes on. Vine borders, Pears, Peaches, and our best Plums have all had liberal supplies, and so has Celery, Cauliflower, newly-planted winter greens, Broccoli, and Tomatoes, the latter have been tied up, for they are quite overweighted with fruit, having been kept continuously mulched and well watered on two or three occasions. The plants on walls were from a later sowing, and will give us a good succession of fruit to the plants above alluded to, which are growing on a south border, being supported by stakes just

in the same way as are Dahlias; Chiswick Red, Hackwood Park, and Reading Perfection are our best varieties. Began to prepare soil for top-dressing and extending border of early Vines, work that will entail the partial lifting of roots; hence our reason for doing it whilst the foliage is still on the Vines and the roots active, that new roots may get a hold of the fresh soil before the fall of the leaf. Our soil is good loam—not heavy or light—a little chalk, charcoal, wood ashes, and bones being mixed with it. The loam was dug in the spring time, and has been stacked in a large heap, and is nicely moist and decayed, sufficient for the turf to have been killed without loss of any of the fibre. Potted on Tomatoes for winter fruiting; also Cucumbers. Tied supports—pieces of netting—to Melons. Shifted several fruits of Smooth Cayenne Pines from fruiting Pine pit to a cool vinery to retard them, and drafted plants from other pits to fill up vacancies. Late Peaches we now shade thickly to retard their ripening. Apricots we look over daily for the purpose of harvesting; Plums the same; and the remainder of Jargonelle Pears and a few of the earliest Williams' Bon Chrétien and all the Irish Peach and Bristol Pearmain Apples have also just been gathered.

HANTS.

## HARDY FRUITS.

## VINES.

WORK in this department is now on the ebb, if such a term is at any time applicable to the practical Grape grower's position, and yet there is not a house in a well-managed establishment where roots, fruit, or branches do not require daily supervision, trifling it may be, but still there is always a something, the neglect of which may tell against the advancing or the next year's crop. Early houses in which the Vines are allowed to throw out laterals and sub-laterals during the season of active growth will require shortening back—not all at once, but piecemeal, to let in light and air, and at the same time to plump up and thoroughly ripen the lower buds. The evening syringing to keep the foliage fresh, clean, and healthy will also require attention, and last, but not least, the roots inside and out must be kept well covered, and occasionally watered to prevent the Vines from ripening prematurely. Air in abundance must, of course, be admitted by night and day, and by-and-by when the foliage is ripe the lights may be taken off altogether to undergo the annual cleansing and painting. These operations, simple in themselves, will form the substance of the daily routine until Vines in good condition are ready for pruning; but assuming that the borders are unsatisfactory and root-lifting has been decided upon, then the internal treatment will be somewhat different, as it will be necessary to keep the Vines in active growth until the roots have taken to the new compost. This condition can be secured by allowing all the laterals to grow; by constant syringing and shutting up early with sun-heat, and by keeping the house heavily shaded until the operation of lifting and relaying is complete. Dispatch being an important item, a sufficient quantity of new compost in a fermenting state should be in readiness and conveniently near for wheeling in before the old border is disturbed; then on a dull or damp day, armed with steel forks, a strong staff should set to work with a will, and out with the old, in with the new before the delicate fibres have time to suffer. If the roots have the run of internal and external borders, the Vines will hardly feel the check, and possibly the foliage will not flag. But in order to prevent mishaps on bright days, it will be well to keep the house close, moist, and shaded for a week or two, when they may be gradually inured to light and air, and eventually to drier treatment. Where top-dressing or surfacing with fresh compost is considered sufficient, all old covering and mulching, while the foliage is yet on the Vines, must be removed quite down to the main staple of the border; the latter may then be lightly pointed up with steel forks, well dressed with bone dust, and watered if necessary preparatory to the application of the new soil. This surfacing, sound, rich, and friable, but free from animal manure, may be laid on from 2 inches to 4 inches in thickness, and well beaten with the back of a fork to prevent it from drying out; a layer of good rotten manure or short stable litter will com-

plete the operation, and the border, if external, may be fully exposed to the elements until the time arrives for covering up with dry leaves or Bracken for the winter.

*Midseason houses*, in which the Grapes are now ripe or approaching that stage, must now have a liberal supply of air on all occasions, and an abundance when the days are very hot and dry. Summer Grapes are not improved by full exposure to the sun, but, on the contrary, lay on colour, and retain it best when well shaded with healthy foliage; a good canopy should, therefore, be constantly retained by the judicious stopping and regulating of the laterals over every part of the house, care being taken that the leaves are kept clear of the glass, and in no part are they sufficiently crowded to interfere with the free passage of fresh air, solar heat, and subdued light. With such a covering, every leaf being capable of moving and breathing under a free circulation of air, atmospheric moisture may be freely administered to the Grapes even after they are ripe, but a sharp eye must be constantly kept on large bunches, as the nights this season are unusually cold, and without the aid of gentle fires rapid condensation will favour mould and decay. The above remarks, it is hardly necessary to say, apply to black Grapes only, as white ones require plenty of bright sunlight to colour them properly. These, particularly Muscats, must therefore now have a gradually increasing supply of light let in by the steady reduction of laterals, so as to allow the sun to play indirectly through the openings between the main leaves upon the bunches. Where mixed kinds, including Madresfield Court, Black Morocco, Foster's Seedling, and others often met with in the same house at this season, are getting well advanced, the tendency to cracking is sometimes a source of anxiety. The three named are particularly subject to this disorder, sometimes immediately after a change from dry to damp weather, but most frequently after the internal borders have been heavily watered. Various preventives, such as allowing all the laterals to grow wild as a sort of safety outlet for the flush of sap, cutting the shoots half through or boring a hole with a gimlet behind the bunches, have been recommended, but the most natural course is an abundant supply of warm water when the Grapes begin to colour, followed by a heavy mulching that will keep the borders moist until after they are ripe.

*Late houses*, containing the favourite winter and spring varieties, have passed very favourably through the scalding period, a fair proof that an abundance of unconfined heat and liberal ventilation, which the tropical weather rendered imperative, are the main factors which should be employed for checking or preventing this troublesome disease. The berries are now colouring and swelling very fast, and promise to be unusually fine, another proof that Muscat treatment suits late kinds, notably Lady Downes and Gros Colman. Gros Maroc, a fine, handsome Grape, is very accommodating, as it colours well under hot or cold treatment. It is a rampant grower, enjoys good living, does best when trained on the extension principle, and requires plenty of dry heat to ripen up its vigorous canes after the Grapes are gathered. Where in this compartment a free growth of lateral has been allowed to go on unchecked, the gradual shortening back should now be commenced, and the pipes must be regularly warmed every night to prevent condensation of moisture on the berries, and at the same time to favour a free circulation of air, which is the main agent in laying on dense bloom and deep colour. All large bunches should once more be carefully examined, and if any of them show signs of becoming bound, timely relief must be given by the removal of a few of the smallest berries. The necessity for late thinning cannot be too strongly condemned, but the most experienced sometimes make mistakes, particularly when the season favours unusual size. In such cases it is always well to make a dexterous effort to retrieve an error.

*Maiden Vines* intended for fruiting next year will now require dry heat and air to harden and mature the canes in order to give them as long a season of rest as possible before they are again started into growth. If not already done, the laterals may now be removed from the lower main buds up to the bud to which it is intended to shorten back at pruning



time—that is, provided all the primary leaves are fresh and sound and capable of completing their offices; but where, through accident or other causes, any of them have been injured or destroyed, the shortening of the laterals back to one leaf will be preferable to cutting them entirely away. All laterals above the pruning bud may be left for some time longer to act as safety-valves as well as feeders to the main buds; but anything approaching a crowded mass of laterals and foliage against the apex lights must be avoided by judicious thinning, as such blocks only impede the outlet of vitiated air, favour the scalding of the main leaves, and form colonies for insects. Some moisture will be needed, but this must, however, be regulated by the state of the weather and the condition of the Vines, the main object being the perfect maturation of the wood, buds, and roots, the gradual arrest of growth, and the retention of the foliage in a perfectly clean and healthy state until it has completed its functions.

**FORCING ORCHARD HOUSE.**—If any early forced trees remain unpotted, they should be taken in hand at once, as the season is gliding rapidly away, and it is important that the roots get thoroughly established in the new compost before the leaves fall. In many instances it may be desirable to reduce the balls and return the trees to the pots they now occupy—an operation which can be readily performed by cutting off a number of the outside coiling roots and picking out a good quantity of the inert soil. In all cases the pots should be made perfectly clean and dry before they are again used and the balls thoroughly moist; otherwise, no matter how firmly the new compost is rammed, no after watering will so effectually penetrate them or favour such satisfactory growth as half an hour's immersion in a tub of warm water. If the weather continues very bright, it may be necessary to shade for a few days, but, aided by the warmth imparted to the balls and constant syringing with warm water, new roots and leaves will soon start into growth, when more air may be given. As many of the early potted trees will now be growing freely, they may be removed to a bright, sheltered situation out-of-doors, where, partly plunged or covered up with litter and regularly syringed, the roots will make better progress and take less water than if the pots were kept standing on the orchard house floor.

**THE COLD HOUSE** trees have thoroughly made up for the lost time in the spring, and where ventilation is not most liberally provided, many of the early kinds have ripened too quickly. Amsden June, Alexander, Hale's Early, A Bec, and Early Grosse Mignonne, under equally favourable conditions, ripen in the order named; then comes that excellent medium-sized Peach, Dr. Hogg, without which no collection of pot trees can be considered complete. The good old standard mid-season kinds are too numerous to be mentioned in this paper, but all being good, the amateur cannot well go wrong in making his selection. Stirling Castle is by many considered better than Royal George for cool house treatment, as it is never attacked by mildew. Dymond, a fine large, highly-coloured Peach, although old, is not so well known and so extensively grown as it deserves to be. Alexandra Noblesse is a great acquisition, and Sea Eagle, one of the very best late varieties, is a worthy companion to Walburton Late Admirable. With me it finishes its fruit better and keeps longer than Barrington; it is not, however, so highly coloured, but its fine size and exquisite flavour make up for this deficiency. Where trellis room is limited, all the pale Peaches and Nectarines attain their greatest perfection when potted up as maidens and trained fan-shape the first year, as every fruit can then have full exposure to the sun, and being flat sided the trees can be taken out of the house and secured to south walls in the open air to ripen up the crop through August and September. The principal work in this department will be watering, replenishing, mulching, and syringing twice a day, until the fruit begins to show signs of ripening, when water must be kept off the trees until after it is gathered. The next immediate steps will be pruning, if the simple operation of cutting out the few shoots that have borne fruit can be called pruning, cleansing with pure water, and potting on where the trees require fresh compost or more root space.

Cherries, Plums, and Apricots do best turned out of doors as soon as the fruit is gathered, as they thus have the full benefit of rain and dew, and their removal makes more room for Golden Drop, which requires plenty of light and air to ripen and colour the fruit properly. Late Gages and choice Pears, particularly the large heavy kinds, although perhaps not improved in flavour by being kept under glass, are certainly the safest there, as they are always liable to be injured by wind, wet, and birds when turned out into the open air.

W. COLEMAN.

## ROSE GARDEN.

### A FEW USEFUL OLD ROSES.

NOT only have the more fashionable Roses been exceedingly plentiful this season, but old-fashioned sorts have been equally so, and none more attractive than the white Provence, also known as the White Bath. This fine old Rose in point of purity of colour is not surpassed by any of the new ones, being of the most snowy whiteness, and in form by no means objectionable. In the bud state it is very pretty for button-hole bouquets. Grown in bush shape, plants of it are exceedingly attractive, its habit of growth being more compact than that of some others. In this form it requires no pruning, as ordinarily understood in connection with Roses. Two inches or 3 inches only of the shoots should be cut off, *i.e.*, from those which have flowered. It also does fairly well as a standard, but in that shape it is usually short-lived. It succeeds very well when budded on the Manetti stock. We have plants of it on that stock fifteen years old, and still vigorous. The copper Austrian Brier does fairly well as a standard, but it is best when allowed to grow into a large bush. I lately met with a single plant that had been allowed to grow its own way without any pruning whatever. It was about 4½ feet high, 5 feet in diameter, and as many yards in circumference, and as it was then in flower the peculiar copper-coloured petals had a very striking effect. There is another belonging to this family with single yellow flowers, and both are very pretty in the bud state. There is also the Persian Yellow and Harrison's Rose, very similar in growth, but with double flowers. In my opinion, none of these look well as standards. As large bushes they are less formal, and they all flower so freely, that when seen in blossom they cannot fail to make an impression. De Meaux is another old Rose now little grown, yet it is one of the prettiest of Roses and most fragrant. In habit of growth it is quite distinct, being dwarfer than any Rose with which I am acquainted. Thirty years ago it was not unusual to see it used as an edging to large beds of other Roses. The flowers are small, but well formed, of a rosy pink colour, and freely produced when budded on the Manetti. The growth is more vigorous at first than when on its own roots. Those who possess large plants of this may take them up in the autumn and divide them. Rose Celeste is a charming little Rose; until quite recently I did not know where it could be purchased, but I was fortunate enough to meet with it amongst many other old favourites in a Rose nursery at Exeter. In foliage it is distinct from all other Roses; it is so glaucous as to be quite conspicuous in that respect. As regards flowers in the bud state, it is positively the most lovely of all Roses; a charming pink hue pervades the whole flower, and the base of the petals shades off to a lovely peach colour. This Rose is only adapted for bushes, which may be either on their own roots or budded on any other stock, but, like many more old garden Roses of a similar character, old plants of it may be taken up and divided without much risk.

Of Scotch Roses, it is not necessary to say much, but it may be useful to mention that, for the wild garden or the shrubbery border, they are well suited, and in such positions they do not fail to find admirers. There are two varieties, the white and pink, both of about equal merit, and admirable subjects they are for covering banks or filling in odd corners where more delicate Roses would not thrive. All that is necessary in order to get them to grow and flower in a satisfactory manner is to plant them in fairly good soil and leave them alone. As to pruning, they want none,

as the soil must be very strong and the plants allowed to get very thick for them to get more than 4 feet high. I have been making inquiries lately for a white Rose that flowers in large clusters and is vigorous in growth. It used to be grown as a Rose for walls of moderate height. Its name is, I believe, Madame Plantier. I have no difficulty in finding the name in old lists, but the plants sent me under that name are not the Rose I mean. The most pleasing sight I have seen this season amongst these old-fashioned Roses was a border about 30 yards long, in which there were three rows. That next the walk was the old crimson China, the next Mrs. Bosanquet, and the back row the old blush or common China. These had been planted some years, and evidently in good soil, and they seemed to have been well cared for. They had received just enough pruning to prevent unruly growth, which left a broken, yet not an unsightly surface. Those who know anything of the free-flowering character of these Roses, and their capacity to continue to produce flowers all through the summer, will be able to understand the value of such a border as this; one, however, would require to see it to thoroughly appreciate its effect. The contrast in colour between the crimson China and Mrs. Bosanquet was sufficient to strike one with astonishment that such an arrangement was not more common. When not severely pruned, it is wonderful the number of flowers which Mrs. Bosanquet is capable of producing, and its pale flesh-coloured petals, which fade to nearly white, are very pleasing. The old blush or common China needs no description, being well known, but as a back row in such a border it was quite happy, and flowering in such profusion as only that old Rose can do.

J. C. C.

## KITCHEN GARDEN.

### SUMMER LETTUCE.

"A. D." (p. 172) says that market gardeners in his locality continue to transplant their crops of summer Lettuce, a statement that I can fully believe, as it is incredible how long it takes to overcome long-established customs, even when newer ones have been over and over again proved to be superior in every way. But the question of most importance is simply this, Which plan gives the best results? It may be of little consequence to those who enjoy a moist and showery climate which plan they follow, as with the most moderate attention to successional sowing a salad of some kind can be always secured, but in places where drought prevails and the soil is shallow, it takes some little attention to get good crisp Lettuce in a season like the present, and I can answer for it that if the market gardeners in "A. D.'s" neighbourhood cannot sell good Lettuces now at a profit, they would do well to consign them to any market in south coast towns, as they are not procurable from those who follow the old plan of transplanting; while those who adopt the plan of sowing thinly in drills on the best soil at command and thinning out like any other crop are being amply repaid for the little extra cost of seed, as they can get three or four times the usual price without difficulty. In fact, it is one of those simple questions that hardly admits of argument, as every gardener is aware that the more rapidly salading of all kinds is grown the better it is, and to get rid of all checks to growth is surely one of the first essentials of good culture. Transplanting, however carefully it may be performed, causes a serious check, so much so in hot seasons that plants left undisturbed in the seed-bed will be ready for use while the transplanted ones are getting over it, much less make any progress, and anyone giving it a trial will need no further argument to adopt it in future. "A. D." says there are very few Lettuces that will stand hot, dry weather. But the White Chavigné he grows is apparently benefited by it. I must confess that Lettuces that one could walk on and not make any impression are novelties that have not yet reached this part, and what they would be under extra culture it is hard to conceive.

J. G.

Gosport, Hants.

**Late Potatoes.**—If growers of late Potatoes will just now examine their stocks they will probably find them to be in a critical state. The fact is, the reac-



tion caused by some recent showers is telling upon the tubers, and although the plants and leafage have kept green and apparently vigorous, yet it is evident that the drought had inflicted upon them a severe check, and indeed upon the tubers also. Hence we find that instead of the newly quickened sap aiding to develop the already formed tubers, it is rather causing them to develop new ones—in fact, to super-tuburate. In face of this fact, growers will soon have to consider what course they will take, because super-tuburation simply means injury to the existing tubers, and the production of an inferior lot or succession of immature indifferent ones. As prices now rule fairly high for the season, no doubt many who grow for sale will push their stocks into the market as fast as possible, but any general action in that direction will but help to bring prices down, and thus stop lifting. What, then, can be done? and the only solution seems to be found either in getting the tubers temporarily into shallow ridge pits, or else to run rollers over the breadths, crushing down the tops and preventing further growth. If good-sized wam tubers are already formed, then they will be best if any further growth be at once checked. If, on the other hand, the tubers have only reached ordinary seed size and are growing out, it will perhaps be wisest to let them take their chance, as it is not unlikely that by the middle or end of October a really good crop of newly formed tubers may be found. Whatever course is taken should be acted upon soon. Where growth is being pushed rapidly by the already good-sized tubers, and lifting cannot keep pace with the needs of the case, it may prove best to top the haulm, but not too closely. The case is one which calls for diverse action under diverse conditions, and no one can tell what is the best course for all to adopt. Each grower will doubtless realise that the peculiar season has imposed upon him some difficulties, the which he must do his best to surmount.—A. D.

**Autumn-sown Carrots.**—I notice Mr. Muir recommends sowing Carrots in August. This system I have practised here for a number of years. I always sow them at the same time as Tripoli Onions, and have always been rewarded with a plentiful supply. We are not so particular as Mr. Muir as to thinning, because we find Early Horn Carrots cannot be too small when used for soups whole. The crop in question we find much better flavoured than old, or Carrots which have been stored through the winter. We usually treat the bed of Carrots with a covering of Bracken and pull from the bed when wanted all the winter.—R. GILBERT.

**Kidney Beans.**—We send you herewith two or three examples of a dwarf early Kidney Bean, with which we think you will be pleased. It is very dwarf, and therefore the rows can be closer than those of most other kinds. We have selected it carefully every year for about five or six years from a few plants which we noticed amongst a patch of dwarf Negro Beans.—EWING & CO., *Havant*.

\* \* The plants sent are dwarf, compact, and prolific, one being furnished with seventeen and the other with two dozen pods, each from 5 inches to 6 inches in length. It is evidently a useful variety, especially for small gardens.—ED.

**Veitch's Pearl Cauliflower.**—This variety has done us good service this season. We wintered a number of plants of it in a rough frame, and these were planted out in spring in common with earlier and later varieties of Cauliflowers. It forms an excellent succession to the Erfurt Mammoth, and at the present time (August 8) we are cutting large, close, and white heads. The growth is compact, and altogether it proves a decided acquisition to the list of Cauliflowers, though I must say it bears a very suspicious resemblance to Sutton's King of the Cauliflowers. I have not grown the latter for several seasons simply because our seedsman cannot supply it, and I may therefore be mistaken as to the similarity of the two.—W. I. M.

**William I. Pea.**—Opinions differ a good deal respecting the earliness of this Pea. Some consider it to be as early as any Pea, but that is not my opinion. I have grown it every year since it first came out by the side of the best known early kinds, and I find it to be quite a week later than Ringleader or any of

that class. No doubt soil and locality influence its merits as regards earliness a good deal. It is a very valuable Pea, and those who select it as a second early will not be disappointed.—J. C. C.

## GARDEN IN THE HOUSE.

### DINNER-TABLE DECORATION.

I DO NOT know whether the present system of dining is really due to Russia; it, however, goes by the name of *diner à la Russe*. It is this alteration which has led to the liberal use of flowers and fruit—to, in fact, at once lay the table for dessert, the dishes being carved at the side table. The banishment of the weighty plates left vacancies that must be filled, and it was a happy thought (whoever originated it) to substitute flowers and fruit. Since the introduction of this great alteration there have been various changes of fashion in decoration, some sufficiently absurd to cause them to pass away quickly; others novelty gave strength to for a while; others whose very costliness brought with them their own condemnation; and the question is now, Which is the best method of arrangement? Tastes may differ, but I rarely find anyone object to some which I have seen. When the idea of offering prizes for table decorations was started at South Kensington, many years ago, the stands exhibited by Mr. March obtained deservedly the first prize, and these, of which no description is needed, were almost universally adopted, and, with some modifications, have held their own up to the present day. After a time a change was absolutely necessary, in the opinion of some. I remember being asked to see some tables arranged for club dinners. In one case an enormous pyramid of the most rare and costly Orchids filled the centre of a round table—"expense being no object;" and although some disapproved of the lavish display, as offensive in its way as the ponderous plate of old times, yet it had to be carried out. After this, the suggestion was made—partly, I believe, to save trouble—that plants should be employed instead of stands of flowers, and it was suggested that tables should be used specially, in which holes should be made and plants in pots (the pots sunk beneath the tables) should be used. This was done; and in the other instances of club decoration to which I have alluded, one might think they were taking a picnic in a Palm forest, so umbrageous was the scene. It was soon found, however, that few people would stand this trouble and expense, and then small plants of Palms and other suitable plants were turned out of their pots, the roots spread round in a shallow pan, in which the earth was covered with Moss, and flowers or foliage placed round them. Other fashions have followed; leaves have been spread open upon the tables, even petals of flowers scattered over them, decorations all of one colour have been used; and the question to be decided is, Which is the most effective arrangement, due consideration being given to expense?

The first consideration must be the number of the party, the size of the room, and the width of the table. All who wish to enjoy a dinner party would say, never exceed twelve in the number of your guests, and that eight is a better number. This is the French notion; but then the French are what we are not—a conversational people; and yet, after all, there is a greater likelihood of a dinner passing off pleasantly where all can join in the conversation than where, as at a long table, it is broken up into disjointed fragments, and frequently comes to a dead stop. However, let us suppose covers to be laid for twelve. This will admit of either three stands of flowers for the centre, or three plants, Palms or otherwise. For my own part, I would always prefer flowers. The eye soon wearies of looking at one object just before you. Where there is a group of flowers the eye is always sure to catch some fresh object of interest. For a table of this size, a large March stand, with a trumpet top, forms, I think, the most elegant centrepiece. The stands at either end may be smaller examples of the same pattern, or vases not so large; and then, with specimen glasses either high, or, what is better still perhaps, the small low ones now so much used, the table will be, in my judgment, sufficiently furnished. But people are not

always giving dinner parties, and I think that most of the directions which I have seen given are for such occasions; I, therefore, think it may not be out of place to say something about the ordinary decoration of dinner tables when all are *chez nous*. I have, in truth, seen some remarkable plans adopted. I know, for instance, one house where, on the occasion of a fête, no end of money was expended in floral decorations; and yet, when the residents were alone, a big stand of artificial flowers was considered sufficient. But if flowers are desirable, surely we ought to have them for our own pleasure as well as that of our friends. Now, I am never satisfied unless we can have something on the table in the way of decoration. After trying various sorts of vases and stands, I have come to the conclusion that nothing answers so well as the foot of the March stand, with a trumpet-shaped vase in the centre instead of the long stem and tray, which is the normal form. This, with half a dozen small vases placed along the table, gives sufficient character to the grouping. When there is a difficulty in procuring flowers sufficiently light for the trumpet vase, it is removed, and the bottom stand alone is used. As I have but one small greenhouse, it is a matter of management to get sufficient flowers for this purpose; but, with the exception of perhaps a fortnight in January, we contrive generally to have the stand well filled.

The manner of arranging it is this: The stand is filled with mould well wetted, and a border of Ivy leaves is placed round; whatever green foliage is required is placed in front, and then the flowers. During the summer months there is no difficulty in filling it, for, as I grow a good quantity of herbaceous plants, there are always telling and interesting flowers to be had; and, by having a fair number of zonal Pelargoniums, there are always some bright pieces of colouring obtainable. A few pots of *Ixias* supply nice blooms for the centre vase, while *Asparagus plumosus nanus* and *virgatus* are always useful, and last much longer than the Maiden-hair Fern. *Schizostylis* also furnishes light and graceful flowers for the centre, and the *Marguerites* come in very usefully. I am not much of an advocate for setting up stands with one or two flowers only, but think variety is better. As the autumn advances, *Chrysanthemums*, especially those of the Japanese section, come in very well, and, with a few kinds of bright Pelargoniums, make a very pretty combination. I find nothing more satisfactory for giving a light and airy aspect to the centre vase than *Gypsophila paniculata*, while single Dahlias are invaluable. Thus, persons with but limited means at disposal need never be without decoration for the table; and with a little taste in arrangement they can make as effective a display as those who have more expensive flowers and a greater abundance of them to use.

DELTA.

### QUESTIONS.

5380.—**Peaches.**—Will some one oblige me by giving their opinion of the Dymond and early Alfred Peaches grown under glass and on the open wall?—P. S.

5381.—**Brompton Stocks.**—I raised some Brompton Stocks from seed in May, 1884, and this year they produced a very heavy crop of flowers and some are still flowering. They have made very strong shoots of new wood, and are very healthy. Now, to end the matter, I should like to know if these Stocks will bear in the spring of next year, as they have done this season, and how long they will bloom.—W. MARLEY.

5382.—**Seakale and its varieties.**—Perhaps some of your readers would tell us if there be varieties, and if so, which is esteemed the best; also the best mode of raising that delicious vegetable, and whether it is possible to keep a succession of plants throughout the winter fit for table; in a word, any information that can be afforded as to the plant, its habitat, and best mode of cultivation will be esteemed a favour. It is said the Seakale was first discovered on the coast of Mayo, in Ireland, where the peasantry were in the habit of eating it, but how far that is true it is difficult to say, and further it is said to be only known at the tables of the upper class about 100 years.—W. W. DICK.

5383.—**Cobæa scandens.**—I have a plant of this which I planted in the middle of June against the south side of my house, hoping it would flourish and soon cover the top of a bay window, instead of which some enemy attacked it; and though I examined it carefully, I have been quite unable to detect what it was that in a very short time destroyed all the leaves, and, of course, the plant, though not actually dead, will not produce any flowers. Can any reader tell me if they have had a similar experience, also if they were amongst the Roses, but I never saw them on this plant, and syringing with soap and water did not seem to have any effect. If you or anyone can enlighten me I shall be very much obliged.—YORKSHIRE WOLDS.



# ORCHIDS.

## CHOICE ORCHIDS IN FLOWER.

The following were among the most noteworthy Orchids in bloom on a recent visit to Mr. Bonny's nursery in the Downs Park-road, Hackney: *Oncidium nanum*, a pretty and most distinct species of dwarf growth. It has longish oval and pointed leaves of thick texture, and bears crowded spikes of small, bright yellow brownish-barred flowers. It must be rare, as it is seldom seen in even the best collections. *Burlingtonia candida* major, by far the finest form of this lovely Orchid that we have seen, the flowers being fully a third larger than usual. The flowers are pure white except a golden crest on the lips; the habit of growth is precisely that of the original. *Aerides Lawrenciæ* is without question one of the finest of a beautiful genus, and Mr. Bonny has been particularly successful in establishing and flowering his imported plants. To those who do not know this grand new species, it may be best described as having the flowers of *A. odoratum*, but twice as large and much more brilliantly coloured. The flowers, moreover, are very sweet scented. We look upon this as one of the best new Orchids introduced of late years. *Trichocentrum albo-purpureum*, a dwarf Orchid not often seen, but pretty and valuable on account of flowering just at this season. It has flowers very similar to those of *Oncidium Weltoni*; that is, the broad lips are half white and half a rich plum-purple. There is also another *Trichocentrum* in flower, a new species not named, but will probably be found to agree with *T. Krameri*, a very rare species. It is not so attractive as *albo-purpureum*, but collectors would be glad to possess it. *Mormodes luxatum* and its varieties are flowering freely. The ivory white-flowered *eburneum* has been particularly fine, and we consider it one of the handsomest of its kind. The *Mormodes* seem to delight in plenty of light, but not too much heat. Another rarely-seen Orchid which is grown admirably in this nursery is *Scuticaria Steeli*. Here may be seen plants with long thong-like leaves hanging quite perpendicularly for fully 5 feet in length, and of a deep green, scarcely a spot upon them, although they are imported plants. How it is that they have been imported so clean is unaccountable. Some of the plants are bearing three and four flowers, which are between 3 inches and 4 inches across and beautifully barred with chocolate on a light ground. This is really a handsome Orchid, such as those who do not grow curiosities because they are rare need not hesitate to add to their collection. *Oncidium bicolor*, a rare species, reminds one of *O. Rogersi*, as the flowers are yellow and produced in the same kind of branched panicle, and although it is not such a beautiful Orchid as *Rogersi*, it is valuable just at this season of the year; so also is *Oncidium macranthum*, which is grown to perfection. The large, yellow, and bronzy flowers of this species are extremely beautiful, and particularly those of the hastiferum variety, which has differently shaped centres to the flowers of a deep vinous purple. *Odontoglossum ramosissimum* is also in bloom, as well as a fine specimen of the richly coloured *Miltonia Moreliana*, so that even now, the dullest time for Orchids, a long list of good things could be made out even in a collection grown almost in the heart of London.

**Orchids in America.**—Mr. Kimball's rich collection of Orchids contains at the present time a few in flower that one rarely sees mentioned. Among them are the following: *Zygopetalum rostratum*, with two fine flowers; *Oncidium Limminghei*, a gem amongst small-growing Orchids, with four flowers; *Compactia falcata*, with a long spike of beautiful crimson blooms; *Promenæa stapelioides*, a small-growing plant with the flowers almost as large as the plant (*P. citrina* and *P. stapelioides*, as they take up so little room, should be grown in every collection of Orchids; they can be grown in a 2-inch pan suspended from the roof of any shady intermediate house, and will last three weeks in bloom); *Oncidium Lanceanum Louvrexianum*, a great improvement on the original, the flowers being richer in colour; *Odontoglossum vexillarium album*, a beautiful pure white variety; *Cattleya Aclandæ*, with four

finely coloured blooms—rather a delicate plant to manage, but worth all the care one bestows on it; *Celogyne pandurata*, very curious and distinct, with green and black flowers. There are many other Orchids in bloom, consisting of *Cypripediums*, *Phalænopsis*, *Cattleya gigas*, having twelve very fine coloured blooms, and *Leopoldi*, with fifty flowers on three spikes—making altogether a nice show for the time of year. Mr. Kimball has erected this spring a large aquarium exclusively devoted to the best *Nymphæas* and other aquatics. They are finely in bud and bloom, and are very attractive to visitors. Mr. Kimball's greenhouses are opened to all the country, so there are a great many visitors who appreciate his kindness.—GEO. SAVAGE, *Rochester, N. Y., U.S.A.*

**Saccolabium Blumei majus.**—A very fine spike of this Orchid measuring fully 16 inches in length, densely crowded with flowers, has been sent to us by Mr. Wheeler, gardener at Chapel House, South Shields. It was cut from a small plant grown in a mixed collection of Orchids treated in a temperature of from 58° to 60° in winter.

## NOTES OF THE WEEK.

**The Japanese Pink** (*Dianthus japonicus*) is one of those plants that promise well in bud, but when the flower expands they are small and of a dirty colour. All that can be said in its favour is that it is a distinct looking plant.

**Palestine Scabious.**—Next in beauty to *Scabiosa caucasica amœna* comes the rare species of *palestinus*, which, although only of annual duration, deserves to find a place in all good collections; the heads are large, pale rose blush, and very handsome. It grows from 1 to 2 feet, but variable in habit.

**Leycesteria formosa** is a shrub that stands dry weather well. It is in full flower at present; its pendulous racemes of white Honeysuckle-like flowers have a pretty appearance, accompanied by purple-coloured bracts. The leaves are broadly oval, and undulated at the margins. In habit it is not unlike *Keria japonica*.

**Magnolia grandiflora** has been a grand sight this year. We never remember seeing it so full of flower. It stands almost any exposure, although it seems to flower with most freedom when protected by a wall facing either east or west. It requires pruning back as soon as the flowers are over, when it will shoot near the principal stems, and fill up all weak places. It is in bloom now.

**The Pearl Berry Plant.**—The tiny white berries of the Pearl Berry, as *Margyricarpus setosus* is called, and the bright scarlet fruits of *Hemiphragma heterophylla* are now at their showiest stage, and for rocky ledges associated with alpine plants are beautiful. Grown separately they are attractive, but planted together, the one twining amongst the other, and the picture is a striking one.

**Socotra Begonia.**—Hardly too much has been said in praise of the sweet *Begonia socotrana*. As a flowering pot plant there is nothing to equal it at present, where it has been well cared for. It was recommended as a bedding plant early in the season, but we have not seen it fairly tested as yet; a better season than the present could hardly be wished for the experiment. As a pot plant for the greenhouse it is one of the best.

**Prophet Flower** (*Arnebia echioides*).—This beautiful plant has just opened its autumn crop of flowers, and though not so large or distinctly marked as the first, they are none the less welcome, as flowers are beginning to get scarce before the full flush of late North American plants. Now is a good time to propagate the *Arnebia* by taking off the offsets and rooting them in sandy soil in 2½-inch pots.

**Scarlet Painted Cup** (*Castilleja indivisa*).—We often hear of failure in the culture of this brilliantly-flowered plant through the common fault of sowing the seeds too late in spring. It should be sown early in March or even February, pricked out in pots or pans, and planted out when all danger of frosts are past; it well repays all trouble. It is now in flower at Kew, and its vivid scarlet bracts may be seen a long way off.

**Viola General Gordon.**—Under this name Mr. Jones, of Balham, sends us from his nursery flowers of a lovely creamy white *Viola*, having only a few streaks of purple in the centre to mar their purity. Mr. Jones claims for this variety the title of Queen of the *Violas*, it being, he says, a compact grower, a most abundant flowerer, and lasts from April until autumn in bloom. It is stated to be well adapted for massing in beds, as it is so vigorous and dwarf, being only about 3 inches or 4 inches in height.

**The Cape Mallow** (*Malvastrum capense*) is just now a very attractive plant in the open border at Kew, where it has been placed during the hot season, as it unfortunately gets destroyed in severe winters. It bears numerous deep rose flowers as large as a florin. As usual, it has a host of synonyms, some of the principal being *Malva capensis*, *M. balsamica*, *M. fragrans*, *M. africana*, and *M. grossulariæfolia*. It can be wintered in a cold frame; planted out in April, it flowers until late autumn.

**Zinnias.**—I send you a gathering of *Zinnias*, which are great favourites here, flowering as they do for a long period and lasting so well when cut. It is a pity *Zinnias* are not more generally grown, being no more difficult to grow than many annuals that are not half so useful.—W. GREEN, *The Manor House, Hadley, Barnet.*

\* \* A beautiful gathering indeed; large and fully developed, flowering extremely rich, and varied in colour. We think, with Mr. Green, that *Zinnias* are not grown so generally as they deserve to be.—ED.

**The first autumn Crocus** to remind us that summer is waning is the handsome *C. Scharojani*, a native of Armenia and the Caucasus, and lately introduced by Mr. Maw. The flowers, appearing before the leaves, are of a glistening golden yellow, shining in the sun as if varnished. This species goes a long way to bridge over the distance between the spring and autumn *Crocus*. A few more introductions and we shall have *Crocus* all the year round. We have already a succession of flowers from August until May and June. *C. Scharojani* may be seen at Kew.

**Bignonia radicans grandiflora.**—Some flowers of this beautiful hardy climbing shrub have been sent to us by Mr. Crook from Farnborough Grange, and we think they are the finest we have seen. They measure fully 3 inches across. They are of a red inside, reddish yellow on the outside. It is one of the handsomest plants one can have at this season for adorning an open wall, and as it is so different from all other open-air flowers, it at once attracts attention. The habit of growth is graceful and if the shoots are not nailed to the wall too closely the flowers hang in elegant clusters.

**Varieties of Zauschneria.**—I also enclose what I suppose to be two forms of *Zauschneria californica*. As I take it the one with drooping flowers is the true form. Is the other a variety, or is it a distinct species? You will see the flowers are erect and there is a slight difference in colour. The foliage, too, differs. The main difference from a horticultural point of view is the flowers being erect, which shows them off better and makes the plant more striking.—W. H. TILLET.

\* \* The erect and drooping flowered characters are decidedly shown in the specimens sent, but probably not so marked as on the plants growing. The flowers are very bad travellers.—ED.

**The late Mr. Ellacombe.**—The Rev. John Barrett Lennard, rector of Crawley, Sussex, suggests that a memorial to the late Rev. H. T. Ellacombe be erected in the church at Clyst St. George. When we remember how much Mr. Ellacombe has done towards the reform of perhaps the most neglected portion of our churches, doubtless there are many who will be glad to carry out the proposal in question. Subscriptions from those interested in campanology [and gardening—ED.] are invited. Subscriptions and suggestions may be sent to the Rev. C. R. Chope, Clyst St. George, Devon, who has kindly consented to act as treasurer *pro tem.*—JOHN L. STEER, *Clyst St. George, Devon.*

**White double Begonia.**—We have seen a good many double white tuberous *Begonias*, but none so perfect as one sent to us by Mr. Crook, from Farnborough Grange. The flowers of this variety what-



ever it may be are perfect rosettes of pure white petals of thick texture, smooth edges, and broad, like a good Carnation. There is a faint tinge of green in the centre, otherwise the whole flower is pure white. We should like to know the name of it. Mr. Crook also sends us flowers of the singular feathery *Trichium Manglesi*, which he says flowers well in a small stage. As it is not an easy plant to grow and flower well, we should like to know his mode of treatment.

**Proposed exhibition of Plums.**—It has been suggested that, as a great variety of Plums are fruiting this season, it would prove interesting as well as instructive if examples of as many sorts as possible could be sent to the meetings of the Fruit Committee on the 25th of the present month and on the 8th of September next. An excellent opportunity would thus be afforded for comparing the merits of the varieties of Plums in cultivation, and also for correcting their nomenclature. It is felt that many inferior varieties of Plums are grown throughout the country, whilst many new and greatly improved sorts are comparatively unknown. Intending exhibitors who cannot be present should address their packages to the Secretary of the Fruit Committee, Royal Horticultural Society, South Kensington. The carriage of the same will be paid by the society. It is very desirable that young shoots with foliage should accompany the fruit, so as to facilitate identification.

**White *Salvia patens*.**—I send you a piece of a white-flowered form of *Salvia patens* which has come up in a batch of seedlings. Is it the *S. patens* flore-albo figured in the "Flore des Serres," 503? [Yes, apparently it is.—ED.] The foliage and habit are exactly those of *S. patens*. In Vol. XVIII. of THE GARDEN (p. 28) there is a note on a white-flowered *Salvia*, which is spoken of as pure white and probably a variety of *S. Grahami*, and also as unlike other white-flowered kinds, such as *S. patens alba*, in being as white as snow. From this I should gather that *S. patens alba* is not a pure white. Is the *S. patens alba* referred to in the note the same as the *S. patens* fl.-albo referred to in the "Flore"? Is the enclosed variety identical with the varieties named or either of them, or is it distinct? The flowers of the enclosed seedling are, as you will see, of the purest white and form a beautiful contrast to the brilliant blue of *S. patens*.—W. H. TILLET, *Sprowston, Norwich*.

***Mucuna imbricata*.**—This remarkable climber is annually an attraction in the Palm house, at Kew, where it is now bearing a large number of its long pendulous racemes of black-purple flowers, and which have the appearance of bunches of black Grapes rather than of flowers. Being a strong grower, of rambling habit, and flowering as it does only when large, this species is not available for cultivation except in large houses where plenty of roof space can be afforded it. At Kew it continues to produce its flowers in considerable numbers all through the greater portion of the summer. In form the individual flowers are pea-shaped, the keel being long and turned upwards. The thick leathery pods of this and various other species of *Mucuna* are covered when ripe with a layer of short very fine hairs, which are sharp and brittle, and the points serrated, so that if allowed to come in contact with the skin of one's hand they cause intolerable itching and sometimes even an eruption. In sowing the seeds a pair of thick gloves have to be used. *M. pruriens* is the celebrated Cow-itch used for intestinal worms, the hairs acting mechanically upon them.

***Bignonia purpurea*.**—This beautiful stove climber may now be seen in fine flowering condition in the Palm house at Kew, where a collection of the *Bignonias* is cultivated, and where most of them flower at some time during the year. The freest of all is perhaps *B. speciosa*, which is the best known in gardens generally, and next to it, or perhaps on equal points with that species, comes the one here mentioned; in fact, the two are much alike both in habit and in floral characters, the most conspicuous difference being that whereas the flowers of *B. speciosa* have a broad tube and flowers of a uniform lilac colour with conspicuous purplish veins, the flowers of *B. purpurea* are distinctly purple in colour with a paler coloured throat; the tube is also narrower than in *B. speciosa*. Either the representation in the

*Botanical Magazine* (t. 5800) is of a different variety from that now flowering at Kew, or the artist failed to get the true colour. The flowers on the Kew plant are borne in large clusters in the axils of the leaves on the long pendent branches of this year's growth. As a climber for a large stove *B. purpurea* may be well recommended. The flowers have the good quality of lasting several days after being cut and placed in water.

**The *Rodgersia*.**—The bronzy leaves of *Rodgersia podophylla* are just now a beautiful sight. For bog gardens, lake margins, or other damp spots it is one of the finest foliage plants. It is perfectly hardy even during severe winters. It thrives best in pure peat close enough to the water to keep it always damp. It may be seen to perfection just now in the bog bed in the rock garden at Kew.

***Gypsophila perfoliata*** is a plant we rarely see in towns, although its power to withstand a smoky atmosphere is certainly not surpassed by any equally beautiful plant. At a distance it reminds one of Tennyson's "summer cloud in the silent summer heaven." At Kensington lately a handful of *Lilium chalcedonicum* stuck in the midst of a large bunch of the *Gypsophila* produced an extremely pretty effect, so striking was the contrast between the two colours.

***Gaillardias*.**—How wonderfully well the *Gaillardias* have gone through the long drought and heat. Established plants have been flowering grandly all the summer, and now produce quite a show of flowers, while many plants near them have been dried up. But this is not their only merit, for they make a fine display in the borders, and they are very useful to cut from, as the colours are striking. Our specimens are three years old, so that they are sufficiently large to produce a large number of flowers. Cuttings put in now with the ordinary bedding plants will strike freely. The young plants had better have the protection of a cold frame the first winter; after that they may be planted where they are to flower, and they will take care of themselves.—J. C. C.

***Portulacas*.**—It is worth a journey of miles to see the great beauty of the *Portulacas* in Messrs. Sutton's nurseries, at Reading. There is an edging of these brilliant plants over one hundred yards in length and 15 inches or so in width. There are patches of colour of one variety—yellow, orange, rose, crimson, &c., and also large panels of mixed colours, double and single. All the colours are brilliant and striking, and when one sees the plants grown in this way, they can rightly estimate their superb beauty. Time was when seeds of *Portulacas* were sown in heat and the plants transplanted to the open ground. Now it is found best to sow the seeds in the open air. What is wanted is an open, sunny spot and light, sandy soil, and then the *Portulacas* will do well. The Reading collection contains a great variety of colours, double and single.

***Lobelia Tupa*.**—Few outdoor plants are so strikingly handsome at the present time as this *Lobelia*. At Kew it forms a mass a yard and a half through, and about 6 feet or 7 feet high, in a bed near the centre of the herbaceous grounds. It has been planted several years, and every year's growth adds considerably to the size of the mass. It appears to be perfectly hardy, the only precaution taken at Kew being in placing small conical mounds of ashes over the crowns during winter. Further north it requires the protection of a south wall, planted as near to it as possible, and with the long roots well under cover. Another plant growing in the same bed, and apparently hardy, is the *Lobelia laxiflora*, smaller in all its parts than *L. Tupa*, but having more brilliant coloured flowers, not unlike the Mexican Bird Flower (*Heterotoma*). *L. fulgens*, *cardinalis*, *Victoria*, *Milleri*, and others are just opening their buds, and are welcome, for with the late dry, scorching weather flowers are extremely scarce. *Colensoi physalioides*, new to us and, we believe, to cultivation, is also in flower. It is a native of Australia, with a shrubby habit, and bears an abundance of blue and whitish *Lobelia*-like flowers about 2 inches long. The leaves are ovate, pointed, with sharp serratures round the margins.

## NOTES ON RECENT NUMBERS.

**Lilies of the Valley in shade** (p. 177).—It is astonishing what an amount of "smothering" these will stand provided they have sufficient moisture at the roots. Planted about round and among Azaleas, Lilacs, &c., they will gradually spread themselves, and from spots thickly shaded bunches of the whitest and largest sized flowers may be gathered when everywhere else they are over or withered up by the heat. I have often been obliged to crawl on hands and knees when picking them in order to avoid the branches and shrubs growing just over. There was a time when the Lily of the Valley grew in great abundance in St. Leonard's Forest in this county, but along with the Gentian and other native beauties it has almost succumbed to the hands and the trowels of would-be "botanists," so fond of flowers, that they imagine these same plants will shine as brighter gems in their gaudy gardens than dotted about in their native homes which they profess to admire. Why a plant common enough in gardens when discovered wild should be immediately uprooted merely because it was growing wild I never could understand; it is the same with almost any flower in the hands of some people, and as to Ferns—the legend of the Lily of the Valley in these parts says that during the struggle in which St. Leonard slew the dragon which originally devastated the forest bearing the saint's name, the saint himself was wounded, and wherever a drop of his blood fell the Lily sprang up, the whiteness of the flower representing the purity of the saint, the round red seed resembling the drop of blood. The flower still struggles on, but it will not be long before it is exterminated unless a strong hand is put forth to stay the dragon of devastation among the memorials of St. Leonard.

***Lilium candidum*** (p. 179) is true to the character of the genus, and, as "J. C. C." says, there is "something inexplicable" in its behaviour. I have watched it for some time and am now pretty well convinced of two things—first, that it does not like manure of any sort freshly mixed with the soil when planted; second, that if it is to flower well, the bulbs must not be planted deep, in which point I am corroborated by "J. C. C." When much below the surface of the ground it forms to all appearance very fine bulbs, which throw up stems with very few blooms on, or even no blooms at all. As to the first point, it is a mistake to suppose that it will do in poor soil unless it will take to it of its own accord. The manure should be dug in one, or even two, years previous to the planting, but a slight top-dressing afterwards of that which is well rotted is likely to be beneficial. If the growth of the stem is strong, it ought to retain its leaves till long after the flowers are past. We have some grown in full sun which this year were over 5 feet high, 3½ inches round, and with from twelve to twenty flowers. The tops are now withering down, but the leaves are as green as ever for the first 2 feet. Others abound among the borders, where they are somewhat starved—turned brown almost before the buds began to open. I think a great many people fail in not transplanting them early enough in the autumn, though when once established I should not recommend moving more often than necessary, or they may turn sulky and demand "compensation for disturbance." Those I spoke of as being so good were in a bed at the top of the kitchen garden, and kept on purpose for cutting. I think this is their fifth year now in the same place, and the last two seasons they have been quite as fine. It may interest some Lily growers to know that we have had *Lilium candidum* seed out of doors without being suspended head downwards, as suggested by Mr. Elwes in his book. The seeds were sown as soon as ripe, and germinated almost immediately. Mr. Elwes gives five or six to twenty as the number of the flowers on one stem. I have known it frequently to exceed that amount, but they were not all open at the same time. It is one of the easiest Lilies to grow in a soil which suits it, but in light, sandy districts with a hot subsoil it will sometimes be almost a hopeless task to coax it into happiness.

C. R. S. D.  
*Sussex.*



## LYNCOMBE HALL, BATH.

OUR illustration shows a portion of a beautiful old terrace garden at Lyncombe Hall, one of the best examples of the kind we have seen. It illustrates what we have always maintained, that a terrace, should the circumstances of the place, as in this case, demand one, need not necessarily be formal or cut up into a multitude of small beds, so as to make a set pattern. We are indebted to Mr. Edward S. Howse for the following notes which he has sent respecting his garden. He says, "The garden here owes much to its natural position. It occupies a steep slope of one side of a valley, facing meadows and well-grown plantations of trees on the opposite slope,

and colour with the other trees. The garden is an ancient one and has a history of some local, though not general, interest. The photographs were kindly taken by an amateur friend, Mr. H. R. Boulton, of Bath."

## FLOWER GARDEN.

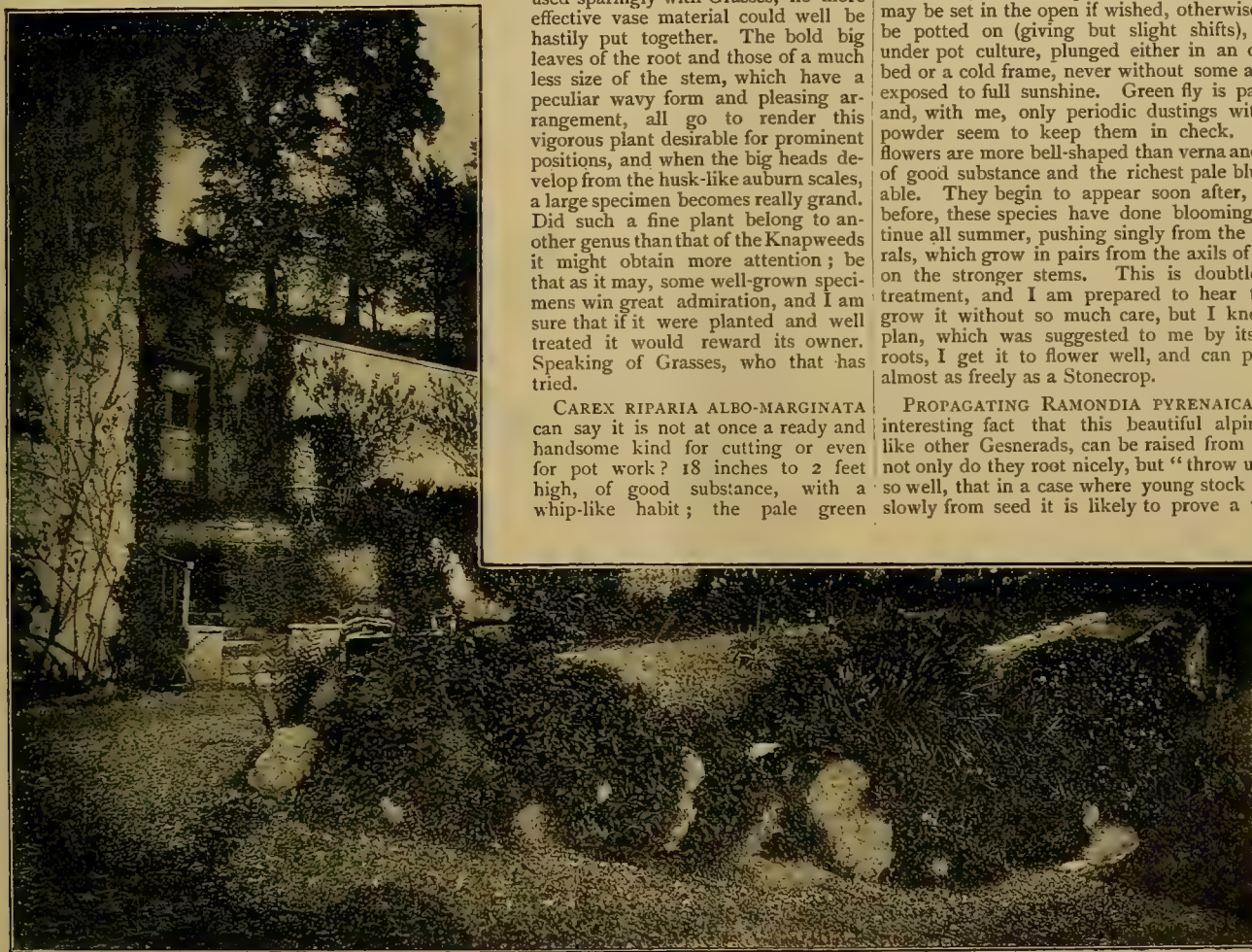
## NOTES ON HARDY PLANTS.

*CENTAUREA MACROCEPHALA* belongs to a genus which may not stand high in the estimation of some, but who can tell us of a more stately plant for the border, shrubbery, or woodland, or of a more telling flower as cut bloom? Its bright golden heads glisten like illuminated globes, and, on the table used sparingly with Grasses, no more effective vase material could well be hastily put together. The bold big leaves of the root and those of a much less size of the stem, which have a peculiar wavy form and pleasing arrangement, all go to render this vigorous plant desirable for prominent positions, and when the big heads develop from the husk-like auburn scales, a large specimen becomes really grand. Did such a fine plant belong to another genus than that of the Knapweeds it might obtain more attention; be that as it may, some well-grown specimens win great admiration, and I am sure that if it were planted and well treated it would reward its owner. Speaking of Grasses, who that has tried.

*CAREX RIPARIA ALBO-MARGINATA* can say it is not at once a ready and handsome kind for cutting or even for pot work? 18 inches to 2 feet high, of good substance, with a whip-like habit; the pale green

certain conditions it is a quick grower, free bloomer, and is easily propagated. It loves sunshine and moisture, but the compost should be of the most porous description; peat, well-decayed leaf-mould, and grit, I use—anything like manure or decaying matter it seems to resent. Not a bad idea of what it likes in this way may be taken from the treatment of peat-loving Orchids, and a bit of living Sphagnum is favourable to the healthy growth of its numerous air roots, which issue from almost every joint of the main stems; on such material as that just indicated they soon grow long enough to allow the parts to be cut off for propagation, but if they are set in stiff or rank compost, they refuse to grow. They should be put in 2½-inch pots, well drained, and have a morsel of mixed peat, leaf-mould, grit, and live Sphagnum chopped. The fleshy roots soon run in this, and when plants have become strong, they may be set in the open if wished, otherwise they may be potted on (giving but slight shifts), and kept under pot culture, plunged either in an open sand-bed or a cold frame, never without some air on, and exposed to full sunshine. Green fly is partial to it, and, with me, only periodic dustings with tobacco powder seem to keep them in check. The little flowers are more bell-shaped than verna and bavarica, of good substance and the richest pale blue imaginable. They begin to appear soon after, or almost before, these species have done blooming, and continue all summer, pushing singly from the short laterals, which grow in pairs from the axils of the leaves on the stronger stems. This is doubtless special treatment, and I am prepared to hear that others grow it without so much care, but I know by this plan, which was suggested to me by its many air roots, I get it to flower well, and can propagate it almost as freely as a Stonecrop.

PROPAGATING *RAMONDIA PYRENAICA*.—It is an interesting fact that this beautiful alpine species, like other Gesnerads, can be raised from leaves, for not only do they root nicely, but "throw up" at least so well, that in a case where young stock is raised so slowly from seed it is likely to prove a useful sup-



Terrace garden at Lyncombe Hall, Bath.

and there is also a successful mixture of large trees and open lawn in the garden itself. The upper part of the garden is terraced in four different levels and adorned with flowers. Below these terraces and extending further to the west is the lawn, with the following trees upon it, all with plenty of light and air about them and in perfect form: From right to left a Portugal Laurel, *Pinus excelsa*, of unusually fine growth, an old Yew trimmed to shape and cut inside to form an arbour, and a fine *Cedrus Deodara*. Below the bowling green are a Scotch Fir and a Copper Beech, backed by Horse Chestnuts, Laurels, Portugal Laurels, Laburnums, &c. The tall, gaunt old Scotch Fir, which might seem out of place in a flower garden, is a pleasant feature here, making at all seasons and in all lights some welcome contrasts of shade

blades, broadly edged with white—a clean-looking white—are qualities to satisfy most tastes. It may also be added that it cuts in natural tufts, having a sort of knobbed base; moreover, it is one of those Grasses which does not deteriorate in effect from flowering, or when seen with the flowers on it, for they are pretty and not too conspicuous even for a Grass. Many Grasses grown are not so valuable as this. A *Carex* may not sound tempting for a border, but let it once be tried and its indispensable qualities will dispose of that objection. It should be said that it needs light soil, plenty of manure, and frequent root division; if these are given, it will handsomely repay them.

*GENTIANA ORNATA*.—I have spoken about this lovely Indian Gentian before; but as many fail to grow it, and there are several points in its culture that have not been touched upon, I may perhaps usefully give my more recent experience of it. Under

plemental operation. I find the bigger leaves from the well-grown rosettes to answer best, and if they have been packed up with peat or leaf-mould for some time before their severance, all the better. They should be taken in early summer, with all possible length of stalk; insert in peat or decayed cocoa fibre and keep shaded and close in a frame or under bell-glass until they begin to grow from the base of the leaf. This may take place in two or three months. Should cold weather have set in, they will be better left alone until spring, stood in a frame, but if there are signs of further growth they may be potted, using similar spongy material. I would also winter the potted stock in a cold frame.

*CYANANTHUS LOBATUS*.—This pretty trailing alpine plant is now at its best; it is perfectly hardy. My attention was called the other day to a feature in one of my plants, which on closer examination led me to find that the plant is variable. Not only are



there dark, but light blues, and whilst some flowers have flat corollas, others have the petals as much reflexed as in a Cyclamen. I am aware of the tendency in the Phlox-worts to reflex when the flowers are getting spent, but in this case the reflexed petals are a more permanent feature. Fortunately, I am able to recall that my stock came from three different sources; in one case the seedlings were from seed gathered in its wild home. I am unable, however, to say which is which now, but the fact remains, and it points to the possibility that more widely differing forms may yet occur from seed, more especially as the order is given to variable genera.

**GENTIANA BURSERI.**—This seems to be a scarce Gentian, and I venture to think that many would not care a deal for it if they saw even a good specimen in bloom; it has yellow (anything but a good yellow) flowers, spotted, and they come in twos and threes from the axils of the leaves on the upper halves of the stems, so giving the effect of whorls. To most people's minds, if a Gentian has not blue flowers, it scarcely is a Gentian. Here is a fine specimen which has protruded itself well out of the ground, so that in winter, when it is leafless, it has a rugged look. The exposed half-woody parts which carry the crowns are very stout, and some have been cut off and rooted. This seemed to be the only chance of propagating it, but this year seed is being ripened in fair quantity. It is not difficult to grow if put in a deep vegetable soil, but it is a very uncertain bloomer with me. I imagined that a dense *Andromeda* bush had come too far between it and the sun; but no alteration was made, and it never flowered better than this summer. If its flowers cannot be said to be beautiful, the plant is distinct and stately.

**PODOPHYLLUM EMODI** again comes into notice, having ripened its fruit or become richly coloured in its big Capsicum-like pods. There are not many things which, like this, cannot be said to have much bloom show or anything else of a striking nature, but which keeps one interested in it in all its stages; from the day it shows the apex of its peltate rich brown and deeply-lacerated leaves to the end of summer, when its bulky cherry-red pods are held as under a miniature umbrella, one always likes to look at it, and feels glad that it is at home in the garden. I say this advisedly because there are many things grown that do not afford much, if any, pleasure, not but that we might take enjoyment out of almost any plant if we would study it, but we do not expect to have to wade into deep waters for our garden recreations. This plant is decidedly a shade lover, and it likes a light, moist, and deep bed of leaf-mould or peaty mixture. I also grow it in loam and a drier situation, but the results are not so good. It is readily propagated by cutting the fasciculated roots asunder, allowing to each liquorice-like piece a part of the knobby portion; these make strong plants in two years if set in shade as above described. J. Wood.

**Ivy-leaf Geranium Furstin Josephine de Hohenzollern.**—This new variety which was raised by the Messrs. Neubronner, of Neu Ulm, in Bavaria, is described as being a very vigorous-growing kind, although of compact habit and extremely floriferous. The flowers are very double and of a fine scarlet. The description would seem to indicate that this new variety is an advance on the older kinds, in intensity of colour at least. The sooner we get the same bright tints amongst the Ivy-leaf kinds that exist in the zonals the better, for in grace of growth and ease of culture they are equalled by few cultivated plants. —J. C. B. [The sooner we get rid of such cumbrous names as this new variety possesses the better.—ED.]

**Anomatheca cruenta.**—This pretty little bulbous plant is of remarkably easy culture, and increases at such a rate that great quantities of it can be quickly obtained. Planted out in a well-drained bed of sandy soil in a cold frame here, it has formed a dense clump, which is now studded with innumerable quantities of its bright coloured blossoms, of which a succession bids fair to be maintained for some time to come. The flowers are not of much value for cutting purposes, but pots of it, when crowded with the thin Grass-like foliage and studded over with blossoms, are useful ornaments for the

greenhouse or conservatory during the blooming season. As they are but shallow-rooting subjects, a moderately deep pan affords plenty of room, or if pots are employed, good drainage must be given. Apart from the readiness with which the bulbs increase by means of offsets, the plants seed freely enough, and a noteworthy circumstance, among bulbous plants at least, is that seedlings will flower within a year from the sowing of the seed.—T.

### BROWALLIA ELATA NANA.

THE few *Browallias* at present in cultivation are generally seen associated with stove and greenhouse plants, while, with perhaps one or two exceptions, they do remarkably well in the open air, treated in the same way as other half-hardy annuals. *B. elata*, a very old plant having an honoured place in the first volume of the *Botanical Magazine*, when raised from seed early in spring and grown on in a little heat may be had in flower from early summer until late in autumn, and as it associates so well with the general run of showy annuals, it is an acquisition. The variety *nana*, represented in the



Dwarf blue *Browallia* (*B. elata nana*).

annexed illustration, has, if anything, more vividly coloured flowers than those of the common *B. elata*; it grows only about half the size and has an altogether neater and more compact habit. It makes a beautiful edging plant for flower beds or borders, and certainly ought to be more in request for pots than it is for the low front stages in the show house. *B. grandiflora*, *demissa*, *speciosa*, *Roetzli*, &c., are all well worth cultivating. K.

### ALPINE PLANTS AT AIGBURTH.

MR. HARVEY'S house is situated on the banks of the Mersey, some five miles distant from Liverpool and within a few yards of the river, which at this point is of considerable breadth; on the opposite side is Eastham, a well-known holiday resort. Beyond is the valley of the Dee, and stretching out in the distance are the hills of Denbigh and Flintshire. By careful planting, Mr. Harvey has made the most of the situation. The soil naturally is hardly of such a character as would favour the growth of alpine and other rare plants grown so successfully at Aigburch. It appears to be a very stiff clay, resting upon the new red sandstone. There is an old adage which says: "Where there's a will there's a way"; and this strikingly applies to Mr. Harvey's collection of plants. The alpine and herbaceous garden is divided from the croquet lawn by a Beech hedge, some 15 feet to 18 feet in height; this forms a most excellent protection to the plants. On one side of the hedge is a large *Rhododendron* bed, filled with all the leading sorts, and planted in this bed are various species of Lilies, among which *L. auratum* deserves special notice. Of this there are several plants, some 4 feet to 5 feet in height, carrying

as many as from twenty to twenty-five flowers each. *L. pardalinum* is also quite at home in the same bed, and so also is *L. excelsum* and *L. Washingtonianum* var. *purpureum*, which, under similar conditions, has attained a height of 7 feet, and has borne twenty-three flowers on one stem. On the front lawn is a large plant of *Rosa rugosa*, 16 yards round, and in another portion of ground a large plant of the white form. In the middle of the lawn is a rustic summer-house, almost hidden with creepers; one side is covered with *Everlasting Pea* (*Lathyrus latifolius splendens*), while on the other is the white variety, both of which flower freely. Climbing over the entrance is a plant of *Polygonum scandens*, a somewhat rare plant in cultivation. The herbaceous ground is situated immediately behind a large Beech hedge. The beds are raised a considerable height above the lawn and are of an irregular shape, but so arranged that each plant is easily reached without treading upon the borders. A complete list of the contents of these beds, which are crowded with good things, would occupy too much room. *Lychnis vespertina* fl.-pl. is remarkably fine, having attained a height of 6 feet, and is covered with flowers; *Lychnis chalcidonica* fl.-pl. is also in fine form, producing large heads of vermilion-coloured blossoms; a seedling *Sidalcea* looked as if it will prove to be an acquisition, being a great improvement upon the type.

### THE ROCK GARDEN.

This forms the chief attraction. The plants are grown on small rockeries constructed with considerable skill, irregular in shape, and consisting of various kinds of stones to suit the varied conditions under which these interesting plants are found in their native habitats. There is nothing in the way of pockets, but the stones are arranged naturally. On the first piece of rockwork are some rare and interesting plants. *Oxytropis strobilacea*, a plant with silvery leaves, has just gone out of flower. On the summit of the rockwork is a magnificent example of the rare *O. campestris*, which as yet has not shown signs of flowering. *Androsace sarmentosa* is here quite at home, covering several feet with its *Semprevivum*-like rosettes. *Silene alpestris*, the purest white flower in the whole range of the floral kingdom, has been one mass of blossoms. *Cortusa Matthioli* is doing well on the north side at the foot of the stones. This plant seems to like a little shade and plenty of moisture. Growing in the same position on the face of a piece of red sandstone is *Selaginella helvetica*, a plant which is unable to bear the direct rays of the sun. *S. denticulata* also does well under similar conditions, which do not, however, seem to suit *Saxifraga cæsia*. This prefers limestone rather than sandstone. *Dianthus alpinus* has taken possession of a large portion of the rockery. *Saxifraga Burseriana*, said to be a limestone plant, is found to be taking quite naturally to the new red sandstone, and, judging by the appearance of the flower-stems, must have flowered freely in the early part of the year. *Arnebia echioides* has been flowering for several weeks, and from all appearance will continue to adorn this portion of the garden for some considerable time to come. *Anemone sulphurea*, a stately plant, is just now in prime condition on the summit of the rockwork, a position which evidently suits this plant. *Haberlea rhodopensis* is doing well in a sheltered position; this is not an easy plant to grow in this country, and to see it in such fine condition as it is here indicates great skill on the part of the cultivator. On this red sandstone rockwork I also noticed a fine clump, consisting of from twenty to fifty crowns, of choice *Primulas*, such as *P. Clusiana*, *P. latifolia*, *P. integrifolia*, *P. viscosa*, *P. Floerkiana*, *P. carniolica*, *P. glutinosa*, *P. nivalis*, and *P. Wulfeniana*, together with many other species. *Modiola geranioides* (*Malvastrum Gilliesi* of Baker) is likewise in fine condition and showing well for bloom. On another rockwork, constructed about fourteen years ago, I noticed *Hypericum repens*, several feet round and covered with beautiful modest yellow flowers; *Dryas octopetala*, *Salix reticulata*, *Lysimachia Nummularia aurea*, *Chlora perfoliata grandiflora*, *Genista pilosa*, and *Cistus crispus*. *Convolvulus mauritanicus* is also remarkably fine here, trailing over the large red sandstone rock most gracefully and covered with delicate blue flowers, which formed a beautiful contrast to



the golden Creeping Jenny. On the same rockwork is a fine plant of *Coronilla minima*, *Vicia pyrenaica*, and many other rare and interesting plants. The back portion of this rockery is devoted to the growth of hardy Ferns, and here most of our native species have become well established.

#### BOG GARDEN.

In front of this last-named rockwork is the bog garden, in which are to be found some interesting and rare plants. Among others, I remarked *Sparaxis pulcherrima*, a fine plant of which is just showing flower. *Cypripedium spectabile* and *C. Calceolus* are also doing well in this bog garden. A patch of *Mazus Pumilio* covers a yard square and is one mass of bloom. *Wulfenia carinthica*, *Horminum pyrenaicum*, *Arundinaria falcata*, *Crinum capense*, *Dondia Epipactis*, *Equisetum*, *Gentiana asclepiadea*, *G. Saponaria*, *Iris Kämpferi*, *Juncus effusus spiralis*, *Lobelia syphilitica*, *Orchis foliosa*, *Osmunda* (three species), *Phormium tenax*, a very fine specimen from 6 feet to 7 feet high; *Primula farinosa*, *P. luteola*, *P. rosea*, *Spiræa palmata*, *S. venusta* and *Aruncus*, *Swertia perennis*, and *Pyrola rotundifolia*, together with several other well-known bog plants, are growing here in wild profusion. On an elevated portion in a dry position I noticed two well grown plants of *Woodsia ilvensis* and *W. hyperborea*.

#### LIME-LOVING PLANTS.

The most interesting portion of the rock garden is a new piece of limestone rockwork just finished. On this are planted some of the choicest alpine plants to be found in cultivation—such as *Acantholimon venustum*, *A. androsaceum*, *Æthionema cordifolium* and *Æ. grandiflorum*, *Androsace carnea*, *A. pubescens*, and *A. lanuginosa*; this last-named species is placed in small caves of the limestone, so constructed as to prevent the collar and a great portion of the plants from getting wet, and yet the cave was so constructed that there is always an abundant water supply for the roots. The flourishing condition of the following plants showed that this mode of culture is just what they like, viz. :—

<i>Androsace lactea</i>	<i>Iberis gibraltarica</i>
<i>coronopifolia</i>	<i>Linaria alpina</i>
<i>Anthemis Aizoon</i>	<i>hepaticifolia</i>
<i>Arabis Androsace</i>	<i>Lithospermum graminifolium</i>
<i>Arenaria tetraquetra</i>	<i>prostratum</i>
<i>Armeria juncea</i>	<i>Lonicera pyrenaica</i>
<i>Astragalus monspessulanus</i>	<i>Lythrum elatum</i>
<i>Calandrinia umbellatum</i>	<i>Micromeria Piperella</i>
<i>Campanula Allioni</i>	<i>Nierembergia rivularis</i>
<i>Hendersoni</i>	<i>Onosma tauricum</i>
<i>G. F. Wilson</i>	<i>Ononis rotundifolia</i>
<i>isophylla</i>	<i>Opuntia arborea</i>
<i>pulla</i>	<i>vulgaris</i>
<i>Walsteiniana</i>	<i>Rafinesquina</i>
<i>Cistus crispus</i>	<i>Ouris coccinea</i>
<i>cyrius</i>	<i>Papaver alpinum</i>
<i>florulentus</i>	<i>nudicaule</i>
<i>lusitanicus</i>	<i>Paronychia serpyllifolia</i>
<i>purpureus</i>	<i>Pelargonium Endlicherianum</i>
<i>Coronilla iberica</i>	<i>Petrocallis pyrenaica</i>
<i>Cyananthus lobatus</i> , a charming plant for rockwork	<i>Phyteuma comosum</i>
<i>Cytisus Ardoini</i>	<i>Polygala Chamæbuxus</i>
<i>decumbens</i>	<i>Potentilla nitida rosea</i> and
<i>Dianthus</i> , various	<i>atro-rubens</i>
<i>Draba Sauteri</i>	<i>Valderia</i>
<i>brunifolia</i>	<i>Pterocarpus Parnassi</i>
<i>cuspidata</i>	<i>Ranondia pyrenaica</i>
<i>Dracocephalum grandiflorum</i>	<i>Ranunculus alpestris</i>
<i>austriacum</i>	<i>amplexicaulis</i>
<i>Edraianthus pumilio</i>	<i>parnassifolius</i>
<i>Pumilio</i>	<i>anemonoides</i>
<i>serpyllifolius</i>	<i>Rhododendron Chamæcistus</i>
<i>dalmaticus</i>	<i>laponica</i>
<i>Erigeron auranticus</i>	<i>Saxifraga blepharophylla</i>
<i>Erinus alpinus</i>	<i>caesia</i>
<i>Euphorbia myrsinites</i>	<i>cochlearis</i>
<i>capitata</i>	<i>longifolia</i>
<i>Gaultheria nummularifolia</i>	<i>pyrenaica superba</i>
<i>Gazania longicarpa</i>	<i>sancta</i>
<i>Gentiana Froelichi</i>	<i>scabiosa</i>
<i>septemfida</i>	<i>silenifolia</i>
<i>Olivieri</i>	<i>Senecio argenteus</i>
<i>verna</i>	<i>Silene acaulis</i> var. <i>splendens</i>
<i>Geranium argenteum</i>	<i>pumila</i>
<i>Globularia nana</i>	<i>Saponaria cæspitosa</i>
<i>cordifolia</i>	<i>Symphandra pendula</i>
<i>Gnaphalium Leontopodium</i>	<i>Veronica Coloensis</i>
<i>Helianthemum Tuberaria</i>	<i>Traversi</i>
<i>umbellatum</i>	<i>chathamica</i>
<i>pulverulentum</i>	<i>salicornioides</i>
<i>Hypericum Coris</i>	<i>pinguifolia</i>
<i>empetrifolium</i>	
<i>patulum</i>	

The above-named plants have all been planted this year and are doing well in their new home. Close to

the new limestone rockwork, and round the base of a specimen Holly were growing in wild profusion, among some stones judiciously placed, such plants as *Lycopodium clavatum*, *Selago*, and alpinum, plants which one seldom sees established in the rock garden.

#### PEAT-LOVING PLANTS.

In a peat bed reserved for North American plants I observed *Mimulus primuloides*, *Houstonia cœrulea*, *H. serpyllifolia*, *Gentiana Pneumonanthe*, and *Primula Munroi*. In this bed, which is considerably sunk below the ground level, *Lilium auratum* seems to run riot. It is growing more like a Willow than anything else, and is flowering in such lavish profusion, as to put bulbs grown in pots quite into the shade as far as successful growth is concerned. What is more, Mr. Harvey informed me that his bulbs get larger every year instead of less, as is usually the case. In the corner of the peat bed is a grand specimen of *Rubus deliciosus*, a shrubby Bramble, which had been one mass of flowers. The lawn in this part of the garden is covered with various trees and shrubs grown as specimens. *Dimorphanthus mandschuricus* has attained a height of 20 feet. It is a magnificent hardy tree of erect habit and with very large, much-divided leaves—indeed, one of the most remarkable fine-foliaged plants that has been introduced, and an excellent subject for the sub-tropical garden. Mr. Harvey, who is a great lover of plants, has his garden well stocked with all manner of choice florists' flowers, *Delphiniums*, *Phloxes*, *Carnations*, *Picotees*, *Pentstemons*, *Roses*, &c. Several houses are devoted to Orchids, and, in fact, there are to be found here representatives of the whole vegetable kingdom, affording a great treat to those who are so fortunate as to see this marvellous collection.

W. H. STANSFIELD.

**Milla biflora.**—Those who have not as yet ventured on the cultivation of this beautiful Mexican bulb may be glad to know how easy it is to cultivate it. The main difficulty hitherto has been to procure large and fully developed bulbs, but I was fortunate in getting some last year from Mr. Horsman, of Colchester. These have now been imported in quantity, and being offered at a moderate price should find a place in every garden. As "J. C. C." in the last volume of THE GARDEN (p. 228) has so fully described the flowers, and his method of cultivation is very similar to the treatment I gave them, I shall but add that I have been as successful with those I have grown, and that some of the bulbs have given three flower-stems, and on two of the stems I have had three blooms, all open at the same time, showing that the name *biflora* is not strictly correct. I should also add that it has a rich and pleasant perfume rather like that of *Stephanotis*. The first bloom opened on July 28, and there is prospect of a good succession. I should be glad to know if "J. C. C.'s" experience of last year has been confirmed this summer.—J. T. Poë, *Riverston*.

#### ALLIUMS WORTH GROWING.

THOUGH most of the species of this family are only fitted for growing in botanical collections, it contains, nevertheless, many really showy kinds that would be useful in borders were their merits better known. Their disagreeable odour is often set up as a plea for their non-introduction into our gardens, but there are many other plants better to look at than touch; therefore Alliums might, one would think, be tolerated. There is one exception—viz., *pedemontanum*; in this the oniony smell is replaced by a sweet pleasant odour, which *A. neapolitanum* also has, though in a much less degree. Recent introductions from Turkestan have added greatly to the value of this genus. Among new species may be noted *A. giganteum*, a kind which grows about 4 feet high and has a purple head of flowers 3 inches or 4 inches in diameter; *A. Ostrowskianum*, a beautiful rose-coloured species, nearly allied to our old *A. acuminatum*, but dwarfer in growth and with shorter, almost sessile stamens; *A. Stellerianum*

var. *robustum*, a purplish coloured variety of free habit; many varieties of *angulosum* and *A. karataviense*, which, although it received a first-class certificate at South Kensington a few weeks ago, is of little importance—indeed, a plant to be avoided. *A. neapolitanum*, represented by the annexed illustration, is an extremely pretty free-flowering species, large patches of which in mixed borders at good intervals apart make a beautiful show in early spring; the flowers are pure white with black-headed anthers. *A. subhirsutum* and its varieties, also white flowered, though inferior to the above, are likewise handsome when seen in large masses. Among others may be noted *A. Moly*, yellow; *pulchellum*, rosy purple; var. *flavum*, yellow (both with large loose heads of drooping flowers); and *pedemontanum*, rose; the last is very handsome and amenable to pot culture, making when well grown a compact



White Neapolitan Allium (*A. neapolitanum*).

thrifty plant. Others are *paradoxum*, white; *ciliatum*, white; *cœruleum*, a beautiful azure blue; *monspessulanum*, pale purple, large, and fine; *descendens*, reddish purple, &c. All the species and varieties mentioned may be cultivated in the ordinary border, where annuals or other surface-rooting plants may easily be grown to hide the gap left during the summer when most of the Alliums die down. If seed is not desired, the heads may be cut down as soon as the flowers are over; otherwise the seedlings will spread all over the border. K.

**Pentstemon Lewisii.**—For some years we were rather puzzled with this plant at York, until the plan was adopted of replanting it every two years. The ground should be trenched from 18 inches to 24 inches deep, well manured, and exposed to full sunshine. In planting the soil should be made very firm about the plant, and the shoots should be planted deep, leaving exposed only a few inches of growth above the surface. When treated in this way, I think this *Pentstemon* will be found to grow vigorously, flower freely, and prove a good border or rock plant. The planting should be done in early spring. It flowers in May and June. The above remarks are equally applicable to several other of the shrubby American species of *Pentstemons*.—R. POTTER, *Holgate, York*.

**Sulphate of ammonia.**—In a recent number of "The Journal of Gas Lighting and Water Supply" an article appears on the use of sulphate of ammonia in agriculture, in which occurs the follow-



ing passages as to its use: "For Vines—one bushel on the Vine border and lightly fork it in in the months of March, April, May, and September. This quantity (one bushel) to be for the nourishment of four Vines. For greenhouse plants—a large teacupful in a bucket of water to water the greenhouse plants with twice a week. Not to be used, however, for Heaths, Rhododendrons, or Orchids." Can those who have used sulphate of ammonia with success say if the above advice can be followed with beneficial results?—T. C. A.

#### NOTES ON CARNATIONS AND PICOTEES.

THE Carnations at the South Kensington exhibition shown by Messrs. Turner and Lakin and the beautiful Picotees by Mr. Douglas were objects of deserved admiration; the ground colours of the latter were particularly pure and characterised by great refinement of marking. Some of the Carnations were very bright, especially the scarlet bizarres and the scarlet flakes. Some of the pink and purple bizarres were charmingly coloured, and the purple flaked Carnations were likewise richly coloured. A few of the newer varieties raised by Mr. E. S. Dodwell were characterised by high quality. Among the brilliantly coloured scarlet bizarres which were in strong force were the fine old Admiral Curzon (Easom), a flower that has been in cultivation for nearly half a century, and still holds its own on the exhibition table; Arthur Medhurst (Dodwell), Fred (Dodwell), very bright, full, and with finely rounded petals; George (Dodwell), Harry Turner (Dodwell), John Hines (Dodwell), Rayner Johnson (Dodwell), Robert Lord (Dodwell), one of the finest flowers in this section; and Joseph Crossland (Simonite), very fine. If anyone wishes to have a selection of the finest scarlet bizarres, they will be found in the foregoing list. Of crimson bizarres, which rank next in value in the estimation of the florist, there were Captain Owen (Dodwell), a large, full, finely marked flower; Dr. Symonds (Dodwell), a refined flower, somewhat lightly, but definitely marked and very pleasing; E. S. Dodwell (Hewitt), Harrison Weir (Dodwell), H. K. Mayor (Dodwell), John Harland (Adams), very fine; Master Fred (Hewitt), a fine marked flower of the best form; Mrs. Gorton (Dodwell), Samuel Barlow (Dodwell), Thos. Moore (Dodwell), and Wm. Hewitt (Dodwell). But how can it be expected that the uninitiated can understand the difference between a crimson bizarre and a pink and purple bizarre? They come very close to each other, and it is only the experts in culture that can detect anything like a marked difference. The pink and purple bizarres are a somewhat limited class, and the best shown on this occasion were James Taylor (Gibbons), Sarah Payne (Ward), a fine old variety, a little thin, but well coloured and a good exhibition flower; Thomas Anstiss (Dodwell), a fine and richly coloured variety; and William Skirving (Gorton), a large and very fine flower.

There are likewise three divisions of flaked flowers, as also of bizarres. The purple flakes come first, the best being Ajax (Hextall), Earl of Wilton (Holland), Florence Nightingale (Sealey), James Douglas (Simonite), extra fine, probably the very finest of its class; Squire Whitbourne (Dodwell), and Purple Prince, a well coloured flower, but I do not know who is the raiser of it. The scarlet flaked varieties are a most attractive class, because the flakes of brilliant colour tell so on the white ground. The leading varieties are Clipper (Fletcher), Henry Cannell (Dodwell), John Ball (Dodwell), very fine; Matador (Abercrombie), a very fine variety, bright and smooth; Sportsman (Hedderley), a fixed sport from S. B. Admiral Curzon; Robert Marris (Dodwell), and Tom Lord (Dodwell), the latter an extra fine variety. The leading rose flakes are Dolly Varden (Dodwell), very fine; Jessica (Turner), a large and finely marked variety; Rob Roy (Gorton), a really splendid flower of the finest form, richly coloured, and of the most approved substance; and Sybil (Holmes).

The fancy Carnations are distinct from the selfs or Cloves in that they are edged or flaked or both on coloured grounds. They are exceedingly attractive, and the stands of these and the rich-coloured self varieties appeared to possess a great attraction for visitors. Of the purely fancy varieties the best were

Janira (Wye), yellow edged with dark maroon; Lady Stamford (Green), white, striped with bright rose; Mrs. Mostyn Owen (Dodwell), crimson, flaked with dark purple; and Sir Toby Belch (Dodwell), a large and brilliant flower, scarlet striped with maroon, extra fine. The finest Cloves were Chromatella (Ware), pale yellow; Dora (Dodwell), amaranth-crimson; Cento d'Orion (Dodwell), scarlet, very fine; Edith (Mayor), bright yellow; Florence (Wallington) bright buff, large and fine; J. A. Wallington (Dodwell), rich dark velvety maroon; Jupiter (Dodwell), scarlet; Mary Morris (Smith), rosy pink; Mrs. Arthur Medhurst (Dodwell), rich carmine-rose; Mrs. Logan (Dodwell), rosy scarlet; Mrs. Huson Morris (Dodwell), rosy vermilion, extra fine; Polly Cheetham, yellow; and The Governor (Cross), blush white.

Turning now to the Picotees, the red-edged class comes first, and it may be stated that according to the density of the colour on the edge of the petals are they denominated heavy or light varieties. The best heavy varieties in the red-edged section were Dr. Epps, J. B. Bryant (Ingram), Brunette (Simonite), very fine; John Smith (Bower), Princess of Wales (Fellowes), and Robert Scott (Flowdy). The best light-edged varieties were Mrs. Bower (Bower), Mrs. Gorton (Simonite), and Violet Douglas (Simonite). The purple-edged flowers are similarly divided; the best heavy-edged were Baroness Burdett Coutts (Payne), Mrs. A. Chancellor (Turner), Muriel (Hewitt), extra fine; and Zerlina (Lord). Light-edged, Clara Penson (Willmer), Her Majesty (Addis), very fine; Jessie (Turner), Mary (Simonite), and Mrs. Henry Hooper (Hooper). The best heavy rose-edged flowers were Constance Heron (Fellowes), Edith Dombrai (Turner), Mrs. Payne (Fellowes), and Royal Visit (Abercrombie). The best light-edged varieties were Liddingsstone Favourite, the raiser of which is unknown; it is a large full flower of high-class quality, and was selected as the premier Picotee; Lucy (Addis), Empress Eugénie (Kirtland), and Julia (Dodwell).

The best yellow Picotees were Prince of Orange, Mrs. Colman, Ne Plus Ultra, Dove, Lady M. Lascelles, Princess Margaret, Princess Beatrice, Mazzini, Euphrosyne, Daphne, and Clio, generally large, full, and very attractive flowers. R. D.

#### GOLD-LACED POLYANTHUSES.

DRY as the summer has been, and trying to not a few plants in many respects, I have been much more successful this summer than usual in the treatment of my gold-laced Polyanthuses. The soil in my garden at Ealing is of such a nature, that I cannot plant out in a bed during the summer, and so I am compelled to grow in pots all the year round. While the plants were in bloom they occupied a cold frame having a north aspect, and when this was over, the pots were plunged to their rims in a raised bed of soil facing the north and shaded from the sun during the middle and after-part of the day by a Pear tree. The plants were kept syringed overhead, and were not allowed to suffer from drought at the roots; they made a free growth, matured a little seed, and red spider, which always appears to attack these plants when cultivated in or near London, scarcely came near them. As soon as the seed was gathered, the plants were turned out of their pots, the soil shaken from the roots and carefully divided; every rooted piece was potted singly into small pots, using a free soil made up of good loam, plenty of leaf mould, and sand, and the soil was pressed firmly about the roots. Then the pots were returned to the soil bed in which they were plunged up to their rims. They were shaded from the sun for a few days, but now freely exposed, and they are frequently syringed overhead. Almost without exception they are making a fresh, vigorous growth, and to all appearances I shall have a nice stock of plants in autumn. I have no doubt that it is much the best plan to plant out when it can be done, as the change must be very beneficial to the plants; but it is impossible to do this with advantage unless there is a suitable soil and situation. In my soil the worms work so freely, that they soon thrust up out of the ground any plants that are only lightly rooted into it. Next to planting out is, I think, the course I have adopted, and I find the plants succeed best

in pots when the root room is somewhat restricted. At any rate, at the time of re-potting it is best to place the plants in small pots, because the sooner they are filled with roots the better for the plants, and another shift is easily given. I find the plants which winter best are those that have filled with roots the soil in the pots in which they are growing.

R. D.

#### GARDEN FLORA.

##### PLATE 506.

##### SINGLE CAMELLIAS.\*

ALTHOUGH single Camellias are not unknown at the present time in England, they are comparatively rare, and from the nurserymen practically unobtainable. Apart from the modern fashion in favour of single flowers, their own special beauty is quite sufficient to recommend them for their own sake, and will no doubt render them popular enough to induce the gardeners to set to work to propagate them. The cylindrical mass of golden stamens gives a finish to the flower which is wanting in the double sorts, the white, for instance, being entirely devoid of any suggestion of "carved turnip" or the red of "manipulated beetroot." A well-known scientific botanist told me the other day that though he had been on the lookout for fifteen years, he had never yet seen a Camellia flower with only five petals. What Edwards wrote as long ago as 1819 might almost be said to-day: "Although the double white Camellia had been familiar in our gardens for some years past, yet the single white one continued so long a desideratum with our florists, that they began to doubt the existence of it." (*Botanical Register*, vol. v., tab. 353.) Three years later this same variety found its way into Loddiges' "Botanical Cabinet," so that about this time it was probably in commerce in England. Are there not some of the plants or their descendants still alive? There was one planted out in the wood here for many years, but it was eventually smothered by some Rhododendrons and Laurels growing round it. Though among the semi-doubles there are some good forms to be met with, such as the well-known Donckelaari, there are also a number of worthless reds.

I have three distinct varieties of single white, 1, that which is here figured, remarkable for the delicate crumpling of the petals, which is well reproduced in the plate, and which adds a special charm to the natural flower; 2, with smoother petals not opening out so flat, but remaining more upright and cup-shaped, larger than the last; 3, a pretty, but small and neat flower, invariably with seven petals.

Next to the single white, perhaps the most beautiful is a large rose-coloured one, similar in shape to the red one figured on the right hand side, but this latter is a good thing and wonderfully effective when in full bloom on the plant. The striped sorts are numerous and vary from white striped with rose to red striped with white. A curious little form of the common single red is growing in the garden here planted against an east wall, and now over 15 feet high, evidently an oldish plant; the flowers are small, the petals sharply pointed, but varying in number, having small staminoid growths in the centre without any trace of pollen. It is a jolly little thing, quaint and pretty for cutting, and I should imagine it to be one of the wild sorts from China or Japan which has been used for grafting on, and from which the graft has died out. This year I noticed a stray bloom somewhat resem-

\* Drawn at Mr. C. R. Scrase-Dickins' garden, Coolhurst, Horsham, March 6.





GROUP OF SINGLE CAMELIAS







bling it among many thousands on the good old *anemonæflora* (which, by the way, does not seem readily obtainable at present), but the flower was partly deformed, so one could scarcely draw any inference from it. A white *anemonæflora* is mentioned in some of the old lists. I should be most grateful to anyone who could put me on the track of it, but it should be the true *Anemone*-flowered shape with a distinct set of broad outer petals, and not the so-called white *Pæony*-flowered or *Waratah*, a totally different thing, though the two seem to have been confused together in days gone by when they were more common in English gardens than they are now.

OF THE CULTIVATION of these singles not much need be said; mine have been too precious hitherto to venture to test the hardness of the different colours, but I hope to do so soon, and see no reason why they should not thrive out of doors as well as the doubles. Of course, if they are allowed to seed too freely, the plant will not be improved in shape or strength, for the "apples" must draw a substantial amount of

most ardent lover of English wild plants must admit that it often has a provoking way of putting out a bloom here and there, and not even opening all its buds. Mulleins delight exceedingly in my sandy hillside, and I have this year had such a fine show of purple, red, and flesh-coloured varieties early in the summer as excited the admiration of one of your occasional correspondents. Last week but one my neighbours gave us the pleasure of their company at a garden party, and there was scarcely a single guest who did not enquire what my *Verbascum pyramidatum* at the top of the hill was. As it sows itself, there must be nearly 100 plants; and as every bud produces a flower, the sight was magnificent. An enquiring guest measured one in particular which rose erect, self-supported, out of the shrubbery, and said that it was upwards of 10 feet high. It certainly was a magnificent golden candelabrum with more than a score of branches. Therefore, like Uncle Toby, when someone—I think it must have been Dr. Slop—spoke of "those scoundrel cannon," I intercede on behalf of the Mulleins with the

sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.

#### HARDY PLANTS AT FLOWER SHOWS.

ON the occasion of the annual exhibition of the St. Neots Horticultural Society on Bank Holiday prizes were offered for a collection of twenty-four bunches of flowers, dissimilar, to be shown in a box. Two collections competed; one was a very fine lot of bunches of flowers of stove and greenhouse plants, fresh, bright, and very attractive, shown by Mr. J. Pitfield, gardener to Mr. A. J. Thornhill, M.P., Didlington, Huntingdon, comprising *Allamanda*, *Dipladenia*, *Eucharis*, *Anthurium*, *Clerodendron*, *Bougainvillea*, and things of this character, and a box of very fine and attractive bunches of hardy flowers, all hardy, shown by Messrs. Wood & Ingram, nurserymen, Huntingdon. The bulk of the latter was much greater than the former, but the high class quality of Mr. Pitfield's contribution gained him the first prize, for everything was of the brightest and freshest character and the subjects were well set up; there was a good distribution of colours. Messrs. Wood & Ingram's was a high class contribution, a very fine collection of imposing appearance, and admirably staged; in the centre at the back was a fine bunch of *Yucca gloriosa*, flanked by *Clematis*, *Helianthus multiflorus maximus* (very fine), *Hyacinthus candicans*, a very fine bunch of the striking blue *Salvia patens*, *Carnation Grandiflora*, white, broadly edged with red, and *Grandiflora rubra*, the same with the ground colour bright rose; a very fine piece of *Lilium chalcidonicum*, brilliant in colour; *Harpalum rigidum*, *Phlox*, *Pentstemons*, &c. I have named a few as giving some idea of the kind of subjects staged. I am sure a great number of visitors turned away from the stove and greenhouse flowers, fine as they were, to contemplate the hardy subjects. We want a greater prominence given to hardy flowers at flower shows, simply because they are things so many can grow. To one who can cultivate *Allamandas*, &c., there are ten at least who can grow hardy flowers, and the public need to be familiarised with the best subjects. At some country flower shows hardy flowers are greatly encouraged, and with the happiest results; there is always an extremely attractive display and visitors are enabled to make selections of a useful character. The exhibitions of hardy flowers being made by Mr. T. S. Ware, Messrs. Paul & Son, and others in the conservatory in South Kensington greatly help this result; while the valuable notes on hardy flowers which are constantly appearing in *THE GARDEN* keep cultivators well informed, not only as to the latest novelties, but in respect of old favourites. Every week almost serves to bring some good old hardy plant, neglected in the past, to the fore. D.

#### LILIUM AURATUM.

(SEEDLINGS OR IMPORTED BULBS.)

MR. ISAAC DAVIES, it would appear from what is stated in *THE GARDEN* (p. 86), raises his entire stock of this Lily from seed. Having seen this Lily grown by the thousand, not only in years past, but this season too, I feel it to be my duty to speak about it just now, as during the last fortnight I have seen a great many just expanding their flowers, which vary in colour from the lightest to the deepest golden-banded forms, and comprise also a great many of the crimson-banded varieties in all shades, such as are shown in *virginale*, *Diadem*, *pictum*, *rubro-pictum*, *Emperor*, *platyphyllum*, and a whole host of intermediate forms, varying very considerably in their sizes. I have seen in a nursery here flowers from 10 inches to 12 inches in diameter, and as many as from twelve to eighteen on a spike, with stems reaching from 5 feet to 6½ feet in height, not to include the



Full-sized fruit of *Camellia japonica*.

nourishment from the stem; some which I have just measured were 2 inches long, 5½ inches round, and weighed 2½ oz. There are certainly two distinct forms of "apple," and one can almost tell from the shape what the colour of the flower has been; but on this point, as well as on the other species of the genus, I shall hope to say something more by-and-by. In the meantime I beg to commend the beauty of such as those in the accompanying plate to the notice of all who care for decorative flowers.

*Sussex.*

C. R. S. D.

#### MULLEINS AND BARBERRIES.

I MUST demur to the sweeping statement that the only Mulleins of any value are *Thapsus* and *olympicum*. Gallantry forbids me to say a word against the cruel sentence of the lady who has banished all the Mulleins except *Thapsus* from her garden. All these men know that the fair sex seldom do things by halves when they do start. It is pleasant to come upon a fine tall spike of *Thapsus* towering out of the tangled luxuriance on the side of a sandy lane, but the

writer of your article (p. 148) for a better epithet than valueless, and a better fate at a lady's hands than banishment. Anyone is at liberty to apply such epithets as he or she chooses to *V. olympicum*, which has produced with me a large punchbowl of downy leaves for two years without flowering. I mean, however, to give it one more year to redeem its failures. Just a word upon another remark in the same paper to the effect that Darwin's Barberry will doubtless soon be stripped of this year's heavy crop of berries by the birds. Not a bit of it! There is evidently some Darwinian affinity between bipeds and blackbirds, for they like what we like, and reject what we dislike. My sons tell me that they have put eighteen of them to fight out of one patch of Raspberries, and they are now feasting on my unripe Pears by half dozens, but not a Barberry will they or any of their feathered brethren touch.

NORTH-WEST CHESHIRE.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by



forms known as monstrosum or fasciculatum, which I observed this year with as many as 150 buds. These Lilies, of which I have just given details, are mostly just expanding their blooms, and will represent in about a week's time a grand sight, which no amateur should omit to view, and which, when once seen, cannot easily be forgotten. This Colchester firm seems to find it to be more profitable to import their bulbs than to raise them from seed. The firm to which I am alluding grows this Lily, not only by hundreds, but even by thousands. Now, I do not see anything extraordinary in Mr. Davies's statement that he should find so many different forms or shades amongst his seedlings; and as it seems to him rather inexplicable to obtain such a variety, although he states that he does not grow any other Lily besides the one spoken of, I can only say that even amongst imported bulbs I have seen just the same variations in colour and size as those which he describes; and as Mr. Davies must have obtained his seed from imported bulbs some years ago, I think that is sufficient to clear the matter up, as far as it refers to variation, especially as Lilies sport amongst themselves very much, as I have observed before now in the Thunbergianum, umbellatum, and various other sections. Some might hesitate to grow this Lily, thinking, as their soil is not a light and sandy one, it would not succeed; but such a soil is really not at all necessary. I know that many have come to the conclusion that if a Lily grows in a certain compost it would not grow in other soil, which is altogether a mistake. The Lilies, which I see almost every day, grow to perfection in a field situated rather high, but at the same time lower than the surroundings; therefore it has always an ample supply of water, more so as the bulbs are planted rather deep in a heavy, stiff clayey loam, which I should call just the reverse of Mr. Davies's soil. The person to whom I refer has grown this Lily for many years in rather a lighter soil, but it has never before shown such vigour and health as it does this year. There is certainly a great many things said about the culture of this Lily, but I am convinced that there are very few who derive much benefit from them. For my part, I have always fairly well succeeded in growing it without taking great pains or trouble over it. The bulbs are simply planted in a loamy soil, and in a situation which never suffers from drought.

TAYLOR SHIERS.

St. Martin's House, Colchester.

### JULY FLOWERING PLANTS.

I HAD a fine show of Lilies in July. I grow them between Currant bushes, and I find that they like the partial shade and shelter, which keeps their leaves healthy down to the ground. Our light soil about Gosport also appears to suit them; they are great favourites with the cottagers. *Campanula persicifolia alba* is a gem among hardy flowers, and most useful for making wreaths, or, in fact, for any other use for which clear white flowers are in request. It lasts well in a cut state, and it will grow in any common garden soil. Small pieces of it, dibbled out last autumn, were in July complete masses of flower-spikes. *Spiraea Filipendula* forms a good companion to this Bellflower, being light and graceful, and very suitable for bouquets, or for filling flower vases; like the rest of the *Spiraeas*, too, its foliage is good. Sweet Peas are always useful when procurable; I have had some fine flowers from autumn-sown plants; they run all over an old wire fence on which espalier Apples had failed; a few sticks were used to help them to reach the lower tier of wires, and then they supported themselves. *Marguerites*, or summer *Chrysanthemums*, ought to be in every garden. They should be sown under glass and planted out in May, when they soon become a complete mass of flowers, which are very useful in a cut state. They are benefited, too, by having their flowers cut freely, for seeding soon checks their flowering. *Abutilon Boule de Neige*, planted out in a cool house, is a complete mass of flower; its foliage, too, is of great size and vigour—quite different, in fact, from what it is under pot culture. Anyone wanting white flowers in quantity cannot do better than try this old favourite as a roof, wall, or pillar plant; put out in July, or even now, it will

flower finely next winter. *Justicia carnea* is a good old stove plant, easily grown and a free flowerer—in fact, it will produce two crops of bloom every year. It is also a very clean plant, not being liable to insect pests, which are so troublesome in the case of most stove plants. Madame Thibaut *Pelargonium*, a double pink kind, is the best all-the-year-round flowerer I have met with, being equally good in mid-winter or midsummer for pot culture or for bedding. Plants in 6-inch pots have seldom less than eight or ten grand trusses on them, all expanded at one time. The amount of bloom which I have gathered from some plants of this sort lifted from the open soil last autumn is hardly credible; in fact, from the smallest plants in 2½-inch pots to the largest specimens, all are alike loaded with bloom, capital for bouquets or for indoor decoration. Scarlet *Pelargonium Le Grand* is also a first-rate winter-flowering kind, producing very large heads of fiery blossoms freely in midwinter. A large plant of it on the back wall of a vinery has for years past supplied me with hundreds of trusses of bloom at Christmas without any special preparation.

J. GROOM.

### IMPORTED LILIUM AURATUM.

GREAT numbers of this Lily being required here for flowering in pots, I have for several years made a point of purchasing a quantity at one of the numerous auction sales that take place in London during the winter months and flowering them the following summer. By obtaining bulbs in this way one cannot fail to be struck with the great difference existing amongst them, not in the bulbs themselves, but in the quality of the flowers which they produce. Some seasons the plants are worth double what they are at others for decorative purposes, for at times the greater part of the flowers, though large, are composed of narrow poorly-tinted petals, sparsely spotted, and borne on weak stalks. Therefore the blooms, such as they are, are not seen to the best advantage. The texture of the petals, too, is often thin and flimsy, while the habit of the plant is, as a rule, tall. Add to this a stem sparsely furnished with leaves, and we have about the poorest type of *Lilium auratum* that can be conceived—one not worthy of naming in the same breath with the best varieties. Last year I was particularly unfortunate in my purchases, as the majority turned out to be such as I have just described, while this season the reverse is the case, the predominating type being that with stout stems, thickly furnished with small pointed foliage, and large well-shaped blooms of waxy texture, with, in most cases, beautifully spotted petals. From the fact of the importations varying to such an extent, it would seem that in some districts of Japan a superior class of Lily is to be found compared with what is commonly found in others. Another noticeable point with regard to importations of *L. auratum* is that while at one time the red-banded variety and the pure white forms occasionally cropped up, they are now never to be found among ordinary kinds, but are selected in Japan and imported in small quantities as superior varieties, and disposed of as such. To the credit of those by whom they are selected, I may mention that of the Lilies obtained by myself from the auction sales purporting to be superior varieties, nearly all have turned out to be so. A good many of the plants of *L. auratum* grown here we require to be as dwarf as possible consistent with perfectly developed blossoms. Therefore, in order to attain that end, we do not grow them under glass for any longer period than is absolutely necessary, as when the stem of a Lily is growing rapidly it will attain a much greater height, even when but partially protected, than it will if fully exposed to light and air. Here, when the bulbs are potted they are placed in a cold frame which serves to protect them from heavy rains and sharp frosts without unduly exciting them. Then when all danger from frosts is over the pots are plunged to their rims in beds of Cocoa-nut refuse out of doors, where they remain till the plants flower, or nearly so. At first a good deal of care is needed in watering, but after a time, as the pots get filled with roots, more copious supplies can be given. Occasional doses of liquid manure are of great assistance when the buds begin to swell, the size of the flower being thereby increased. With regard to selecting the bulbs, it should be borne in mind that it is not always the largest sized ones

that produce the greatest quantity of flowers; indeed, some very unpromising looking bulbs push up fine spikes. As a rule, the best guide is to choose a firm, compact, weighty bulb, with the scales in the centre somewhat elevated. The flowers from such bulbs are, generally speaking, superior to those produced by loose flattened bulbs, even if larger. H. P.

## TREES AND SHRUBS.

### THE UMBRELLA PINE.

(*SCIADOPITYS VERTICILLATA*.)

THE Umbrella Pine is one of the rarest, and, at the same time, one of the most interesting and beautiful of Japanese Conifers. Its symmetrical habit and the peculiar appearance and arrange-



Coning branch of the Umbrella Pine. From a tree in the Knap Hill Nursery, Woking.

ment of the deep, glossy green, leathery leaves, which vary in length—according to the age and vigour of the specimen—from 2 inches to 4 inches, impart to it an aspect as strange as it is elegant. The leaves are clustered in whorls on the twigs, each cluster—separated from the last one by the length of the annual growth—consisting of from twenty to forty leaves, which spread out like the rays of an umbrella or parasol; this peculiarity suggested to Siebold the name *Sciadopitys*, of which *Parasol Pine* and *Umbrella Pine* are simply literal translations. According to Messrs. Veitch's "Manual of the Coniferae," the first living plant was received in England in 1853. In that year Mr. Thomas Lobb obtained one, from the garden of the Dutch Governor of Java, which was forwarded to the Peter establishment of Messrs. Veitch. The plant arrived in feeble health, and all attempts to restore it proved fruitless. Cones and seeds, from which some



of the finest specimens in England were raised, were, however, sent home eight years later by the late Mr. J. G. Veitch. About the same time Mr. Robert Fortune sent plants to the late Mr. Standish, of Ascot. Siebold also had succeeded in introducing living plants into Holland and Maximowicz to the Imperial Botanic Gardens at St. Petersburg.

In the "*Flora Japonica*" Siebold and Zuccarini describe the Umbrella Pine as a small tree from 12 feet to 15 feet in height, with abundant ramification and widely-spreading branches. As Siebold had never seen the species in its truly native habitats, but only in the sacred groves surrounding the temples, where, in common with many other indigenous plants *Sciadopitys* has been cultivated from time immemorial, the inaccuracies as to size and habit may well be excused. Both John Gould Veitch and Robert Fortune have recorded the fact that in its wild state the Umbrella Pine forms a splendid pyramid 100 feet or more in height. In a letter to a contemporary published in 1862



Full-sized cone of Umbrella Pine, grown at Knap Hill.

from Mr. J. G. Veitch, dated Yokohama, August 15, 1861, together with a "facsimile of a Japanese woodcut representing a tree of *Sciadopitys verticillata* from 40 feet to 50 feet high, now growing at Bochenjee Temple, near Kanagawa," he writes—"The woodcut I send is a perfect representation of a tree growing in the garden of a temple near here. It stands alone, with nothing near it, and forms one of the most perfect and densest pyramids I ever saw." The same tree is figured by Fortune in his "*Yedo and Peking: A Narrative of a Journey to the Capitals of Japan and China*."

The merits of the Umbrella Pine are very well summed up in Veitch's Manual: "In *Sciadopitys* we have not only one of the most distinct Conifers, but also one of the most remarkable evergreen trees ever introduced. There is scarcely any department of ornamental planting into which it may not be introduced with excellent effect; and whether planted singly as a specimen, or in combination with other trees and shrubs for contrast and variety, its symmetrical habit and peculiar foliage mark it out as one of the most characteristic of decorative subjects. The experience of the past twenty years has proved its hardiness; and although in this country, growing under climatal conditions

somewhat different from those of its native home, its growth being rather slow, it makes satisfactory progress when established in good soils and screened from piercing winds. Those who have seen the handsome specimens in the Coombe Wood Nurseries will not be disposed to question in any way the measure of praise meted out above. At Castle Kennedy and in many places in Scotland the Umbrella Pine stands well; perhaps its only fault is that in so many localities it proves such a slow grower.

According to the *Garten Zeitung*, there is a fine specimen growing in the garden of Max Daniel Wolterbeck, at Valkenburg, near Arnheim, in Holland. It was planted where it now stands, in a very exposed situation, twenty years ago, and it is a healthy and beautifully formed tree. Moreover, it has never suffered in the least from frost or other climatal influences. Of pyramidal shape, it is nearly 13 feet high, with a circumference of a little over 21 feet. Two years ago it bore for the first time two ripe cones, and the seed produced fifteen seedlings. Last summer it bore only one ripe cone. Many other handsome Conifers exist in the select collection at Valkenburg. The soil is sand and peat.

The Japanese cultivate a number of varieties which they propagate by means of cuttings struck in the shade. A golden striped form was seen by Fortune in the nurseries about Su-mae-yah and Dang-o-zaka, in company with a host of variegated forms of native trees and shrubs. Whether this golden striped variety is now to be found in British gardens I am not at the present moment in a position to state with certainty; judging, however, from the "*Arboretum Segrezianum*," it appears to be grown at Segrez, where one of the most remarkable collections in existence of hardy trees and shrubs is carefully tended and studied by the author of the work just mentioned, M. Alphonse Lavallée.

GEORGE NICHOLSON.

*Royal Gardens, Kew.*

**The Furze as a flowering shrub.**—Though so ornamental when in flower, Furze, somehow or other, is rarely planted in with other shrubs, though a few bushes here of the double-flowered variety have been in great beauty throughout the whole winter, as they commenced to bloom in October and have continued ever since, the whole of the plants being for the greater part of the time quite a mass of gold; and as they happen to be backed up by the dark foliage of some Laurels, the bright coloured flowers are rendered still more conspicuous.—W. T.

**Propagating Conifers by cuttings.**—In August or September select a young shoot of moderate strength, and cut it off with a piece of the last year's wood attached, forming what is technically termed a heel. The leaves at the bottom of the cutting should not be pulled off, but must either be left on entire, or shortened with a sharp knife. When the cutting is made, it should be planted from half to three-quarters of an inch deep in a pot filled about one-third with potsherds, on which a layer of turfy peat should be placed, then an inch of good loam, and on the top of all a layer of white sand. The loam prevents the cuttings from cankering after they are rooted, which they are apt to do when planted entirely in white sand. The pot of cuttings may now be placed in a cold frame, kept close, and shaded when necessary; they may remain in this situation till the end of October, when they should be put in a cold pit for the winter; care must be taken at that season that they do not suffer from frost or damp, but they must on no account have fire heat. About the end of February the pot of cuttings may be removed to a hot-bed, a bell-glass being placed closely over it; the cuttings will root readily, and many of them will be fit to pot off by the end of June. When first potted off, the young plants should be treated

exactly in the same manner as the cuttings are. In the case of Junipers and Cypresses, older wood than that used for Pines is necessary, as they have not sufficient strength to emit roots before the winter, and consequently perish during that season, when only callous. If wood of two or three years' growth be taken, it will be found hardy enough to stand the winter, and, with the aid of artificial heat in spring, will root freely.—H.

**Meaning of ornamental planting.**—The object in ornamental planting is to create a character of art throughout the plantation. Suppose it were intended to form a pleasure ground, or even a shrubbery, in a district of country where the common Oak, Elm, Ash, Birch, Poplar, Scotch Pine, common Thorn, Holly, Spindle tree, Elder, &c., were common in the woods and roadside plantations, not one of these trees and shrubs, according to our principle of the recognition of art, and more especially of high art, ought to be introduced in the shrubbery; but, according to the same principle, variegated-leaved, double-flowered, or other artificial varieties of all these species might be introduced. In a botanic garden or arboretum, of course the principle will not apply, because the object there is not to produce a work of elegant art, but one of botanical science. Cases may occur in which it is desirable to imitate a plantation already existing; for example, where two estates join and both parties are desirous of disguising their boundary. In this case the trees in the plantations on the margin of the one estate must be imitated in the plantations on the margin of the other without reference to the trees being either indigenous or foreign. Cases of this kind, however, and other cases that might be mentioned, have nothing to do with planting as an elegant art, or with reference to landscape gardening as an art of taste.

#### MAGNOLIAS AS LAWN TREES.

THOSE who contemplate ornamental planting this autumn will now be thinking about making a choice of trees, and none could be more highly recommended than the various beautiful Magnolias, which may now be obtained in our best tree nurseries. Among the choicest Magnolias are the following: The Yulan (*M. conspicua*) opening its blossoms early in spring before the foliage expands, and when studded with its large white flowers it is a magnificent sight; and though at times liable to be cut by late frosts, as a rule around London it opens its flowers satisfactorily. This Magnolia forms a bluntly conical shaped tree, 20 feet to 30 feet high, of very regular outline when grown clear of other subjects. The next in order of flowering is *M. Soulangeana*, rather looser in habit and less in stature than the preceding, from which it is said by some to be a seedling. Instead of the pure white blossoms of the Yulan, those of this variety are more or less tinged with purple, and expand about a fortnight later. Another of the early-flowering section is *M. purpurea* or *obovata*, but it does not attain the dimensions of even a small tree, seldom exceeding 6 feet in height. The Cucumber Tree (*M. acuminata*) is regular in outline when young, but spreading when old. The leaves of this kind measure from 6 inches to 10 inches long; they are bright green and produced in abundance, but the greenish yellow blossoms are not very ornamental. It may, indeed, almost be said to depend wholly upon its foliage for effect; even in that case it is a handsome lawn tree. *M. auriculata* and *macrophylla* seldom do well, but where they succeed their very large leaves and handsome flowers render them noble trees. Contrary to the two last named species, another very large-leaved kind (*M. Umbrella* or *tripetala*) succeeds almost anywhere, provided the soil be not too hot and dry. It is of free growth, openly pyramidal in habit, and about June when in flower is a grand sight. The leaves are from 1 foot to 1½ feet



long, disposed in a ray-like manner around the branches, while the principal shoots are terminated by white open flowers 6 inches or 8 inches in diameter. For a damp spot *M. glauca* is well suited, as it thrives best under such conditions. It reaches a height of 10 feet or 12 feet, and is often shrub-like in habit, but at times assumes the shape of a small tree with irregular spreading branches, and during summer produces for a long time its white fragrant blossoms, each about 3 inches in diameter. The evergreen *M. grandiflora* is better adapted for lawns in the south and west of England than in colder districts where it is apt to be injured; an old tree of it on one of the lawns at Kew has stood many years, and occasionally flowers freely.

#### HINTS TO TREE PLANTERS.

IN ornamental planting, whether it be on a large scale in a park, or confined to the limits of a shrubbery, the selection often betrays little forethought in the selection of kinds; consequently, the kinds planted are seldom in keeping with their arrangement.

When trees and shrubs are disposed as appendages to houses, simply for ornament, they may include an endless, yet pleasing, variety; more so, indeed, than if their appropriation were for screens, or shelter, or for picturesque effect. In either, or in every case, a more extensive and judicious choice might be made than that which we usually see, and much improvement might be effected in their distribution.

In these assemblages of trees and shrubs an obvious error is the prevalence of one or two kinds only; this ought never to be, unless it were intended to produce such an aggregation for some specific object, and that object were so self-apparent, that no confusion might arise in the mind of any person accustomed to recognise order and taste prevailing in such performances. To such a person it will also be obviously conspicuous that, in the allocation of kinds in these shrubberies, little interest has been taken or knowledge displayed as to the form which the plants will assume at a later period of their growth.

In the arrangement of such plantations, a paramount consideration should be the form as well as the size that the plants will ultimately present; and care should be taken to place them at distances sufficient to permit them at a future day to display their several characters, at which time, also, they should group together in an interesting and artist-like manner, which alone can be accomplished by a well-matured plan of previous arrangement.

When such a system of planting is pursued, the shrubbery in its earlier years will present a rather meagre appearance; and to overcome this defect it will be necessary to fill up the intermediate spaces with plants which will at once give greater density and shelter. The best shrub I know for this purpose is the common Laurel, and the next best the common kinds of Rhododendron, which can now be purchased at a very reasonable rate by the hundred. Both the Laurel and the Rhododendron are

for this purpose as the New Lucombe Oak, which is highly ornamental, and at the same time, from its rapid growth, is, besides, valuable as a timber tree. To break the round-headed and lumpish character which a great many shrubs assume, I would strongly insist on the judicious introduction of the upright growing trees; these, when placed behind some dwarf round-headed shrubs, or boldly taking a leading and prominent position as advance-guard, will have an admirable effect; the Irish Yew more particularly from its dark green dense foliage. Pleasing variety will be produced by drooping Evergreens; *Juniperus repanda* and *recurva* will effect this. To a mind imbued with any feeling on this subject, the Coniferæ alone will afford much food for pleasing reflection.

These cursory hints are unnecessary to those of your readers who have studied this subject, but to the uninitiated they may be acceptable.

OLD PLANTER.



Scotch Briers in a Surrey Garden.

#### THE SCOTCH BRIERS.

THESE neat little Roses, developments of the native Burnet Rose (*R. spinosissima*), are some of the best ornaments of the garden in June. They form dense bushes, and when well established, throw out arching branches laden with flowers, especially towards the tips, which are thickly set with flowering twigs. The engraving shows two such branches on a bush growing in a rock garden. The habit of the Scotch Briers is well suited for the rock and wild garden; they like a poor sandy soil, and look their best on sloping rough banks and in steep wall-like rockery. Besides the white (the one here shown) there are several shades of pink. One of the most beautiful is the one known as *Stanwell Perpetual*, a delicate mushroom pink colour; and there is also a pale yellow, rather less vigorous in growth than the others, the white being by far the most free and robust. In planting groups of these pretty Briers, the typical Burnet Rose should not be forgotten; it is by no means the least beautiful. Its flowers,

easily transplanted, and they are not liable to be eaten by hares and rabbits, if afterwards removed to a wilder situation, where they may serve for ornament or as a shelter for game.

When trees are introduced into such plantations, they will, of course, generally be kept in the background, although sometimes, for particular reasons, they will take a more prominent position in the assemblage. Upright and conical-shaped trees will often be required as accompaniments to Grecian buildings; and there is none so desirable, from its erect form,

newly opened, are of a lemon-white colour, most rare and dainty. Curious to think of in contrast are the very large black hips, which in late autumn give the bush a striking and picturesque appearance. These are an unfailing crop, and look well with the deep red-bronze, sometimes almost black, colour that the foliage assumes late in the year. The Scotch Briers must never be pruned, but every year the oldest wood, which may be known by the pale grey colour of the bark and prickles, should be cut right away from the ground.



# COLOURED PLATES IN "THE GARDEN."

THE following is a list of all the coloured drawings that have been published in THE GARDEN up to the end of the twenty-seventh volume, ending June, 1885:—

## A

- Abelia floribunda*.  
1878, May 18; Vol. XIII., p. 468.
- Abelia triflora*.  
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- Abutilon igneum*.  
1880, December 18; Vol. XVIII., p. 624.
- Abutilon vitifolium*.  
1883, March 10; Vol. XXIII., p. 224.
- Abutilons*, group of seedling.  
1881, May 21; Vol. XIX., p. 524.
- Acantholimon venustum*.  
1878, March 2; Vol. XIII., p. 186.
- Achillea rupestris*.  
1880, September 25; Vol. XVIII., p. 306.
- Æthionema grandiflorum*.  
1876, January 29; Vol. IX., p. 108.
- Æthionema pulchellum*.  
1884, April 19; Vol. XXV., p. 320.
- Agalmyla longistyla*.  
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- Allium pedemontanum*.  
1879, October 18; Vol. XVI., p. 350.
- Alstroemeria aurantiaca* and vars.  
1884, December 27; Vol. XXVI., p. 540.
- Amaryllis Hendersoni coccinea*.  
1875, April 24; Vol. VII., p. 346.
- Amaryllis Mrs. Garfield*.  
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- Amaryllis O'Brieni*.  
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- Amaryllis*, varieties of.  
1878, October 12; Vol. XIV., p. 332.
- Amasonia punicea*.  
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- Andromeda japonica*.  
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- Androsace foliosa*.  
1883, October 6; Vol. XXIV., p. 294.
- Anemone blanda*.  
1878, August 31; Vol. XIV., p. 200.
- Anemone fulgens*.  
1877, March 17; Vol. XI., p. 214.
- Anemone palmata alba*.  
1882, November 25; Vol. XXII., p. 466.
- Anemone vernalis*.  
1884, April 19; Vol. XXV., p. 320.
- Annuals*, two new.  
1878, December 15; Vol. XII., p. 568.
- Anthemis Aizoon*.  
1883, October 20; Vol. XXIV., p. 342.
- Anthericum liliastrium* var.  
1876, January 1; Vol. IX., p. 12.
- Anthurium Andreanum*.  
1880, July 31; Vol. XVIII., p. 108.
- Anthurium Scherzerianum Wardi*.  
1878, January 5; Vol. XIII., p. 12.
- Aphelandra fascinator*.  
1878, September 7; Vol. XIV., p. 222.
- Apple*, Cornish Gilliflower.  
1876, November 4; Vol. X., p. 446.
- Apple*, Cox's Orange Pippin.  
1876, May 27; Vol. IX., p. 500.
- Apple*, Stone's.  
1882, March 18; Vol. XXI., p. 180.
- Aquilegia alpina*.  
1876, April 22; Vol. IX., p. 384.
- Aquilegia cœrulea*.  
1877, February 3; Vol. XI., p. 90.
- Aquilegia cœrulea* and hybrids.  
1879, September 20; Vol. XVI., p. 264.
- Aquilegia glandulosa*.  
1879, April 5; Vol. XV., p. 278.
- Araucaria* at Dropmore.  
1876, January 22; Vol. IX., p. 84.
- Arctotis aureola*.  
1882, October 14; Vol. XXII., p. 336.

- Armeria setacea*.  
1878, September 21; Vol. XIV., p. 266.
- Arnebia echioides*.  
1880, August 28; Vol. XVIII., p. 204.
- Arum triphyllum*.  
1883, July 14; Vol. XXIV., p. 24.
- Aster Townshendi* and *A. hispidus*.  
1880, April 17; Vol. XVII., p. 346.
- Asters*, a group of perennial.  
1881, May 14; Vol. XIX., p. 498.
- Asters*, new China.  
1878, April 20; Vol. XIII., p. 364.
- Auricula*, forms of the florist's.  
1878, November 2; Vol. XIV., p. 398.
- Azalea crispiflora*.  
1880, September 18; Vol. XVIII., p. 280.
- Azalea mollis*.  
1877, May 26; Vol. XI., p. 428.
- Azalea Rollissoni*.  
1880, September 11; Vol. XVIII., p. 254.
- Azaleas*, a group of hardy.  
1879, April 19; Vol. XV., p. 318.
- Azaleas*, group of new Indian.  
1879, September 13; Vol. XVI., p. 242.

## B

- Barkeria Lindleyana* var. *Centerae*.  
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- Batatas paniculata*.  
1881, December 24; Vol. XX., p. 610.
- Beaufortia splendens*.  
1883, May 5; Vol. XXIII., p. 404.
- Begonia Frœbeli*.  
1877, October 20; Vol. XII., p. 376.
- Begonia Roelzi*.  
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- Begonia socotrana*.  
1882, March 11; Vol. XXI., p. 162.
- Begonias*, a group of new.  
1879, April 26; Vol. XV., p. 338.
- Begonias*, double-flowered.  
1880, June 12; Vol. XVII., p. 518.
- Bessera elegans*.  
1884, January 19; Vol. XXV., p. 42.
- Bignonia Cherère*.  
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- Bignonia venusta*.  
1882, April 22; Vol. XXI., p. 276.
- Blandfordia Cunninghami splendens*.  
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- Bletia hyacinthina*.  
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- Bomarea Caldasiana*.  
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- Bomarea conferta*.  
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- Boronia elatior*.  
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- Bouvardia President Garfield* and *B. Alfred Neuner*.  
1883, May 19; Vol. XXIII., p. 448.
- Bouvardias*, a group of.  
1879, June 21; Vol. XV., p. 498.
- Brodiaea coccinea*.  
1877, February 10; Vol. XI., p. 110.
- Brodiaea laxa* and vars.  
1882, June 10; Vol. XXI., p. 406.
- Browallia (Streptosolen) Jamesoni*.  
1884, July 5; Vol. XXVI., p. 6.
- Brownia macrophylla*.  
1879, May 31; Vol. XV., p. 436.

## C

- Calandripia grandiflora*.  
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- Calanthe Regnier*.  
1883, July 21; Vol. XXIV., p. 46.
- Calceolaria fuchsifolia*.  
1879, March 29; Vol. XV., p. 258.
- Callicarpa purpurea*.  
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- Calochorti*, a group of.  
1884, April 26; Vol. XXV., p. 342.
- Calochortus venustus*.  
1876, February 5; Vol. IX., p. 132.
- Camassia esculenta*.  
1881, September 17; Vol. XX., p. 302.
- Camellia C. M. Hovey*.  
1883, September 22; Vol. XXIV., p. 248.
- Camellias*, group of new.  
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- Campanula Allioni*.  
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- Campanula macrostyla*.  
1879, May 3; Vol. XV., p. 356.
- Canna iridiflora*.  
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- Canna iridiflora Ehemanni*.  
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- Carnation Belle Halliday*.  
1885, January 10; Vol. XXVII., p. 26.
- Carnations*, a group of Tree.  
1880, May 22; Vol. XVII., p. 450.
- Carnations*, a group of yellow.  
1878, December 28; Vol. XIV., p. 580.
- Carnations* and *Picotees*.  
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1877, March 24; Vol. XI., p. 234.

*Pelargonium Leamington Lassie*.  
1877, April 28; Vol. XI., p. 334.

*Pelargonium Queen Victoria*.  
1875, June 5; Vol. VII., p. 466.

*Pelargoniums*, a bunch of zonal.  
1878, June 1; Vol. XIII., p. 520.

*Pelargoniums*, fancy.  
1878, July 20; Vol. XIV., p. 64.

*Pelargoniums*, Ivy-leaved.  
1882, January 7; Vol. XXI., p. 6.

*Pelargoniums*, two new.  
1878, June 29; Vol. XIII., p. 622.

*Pentstemon diffusus*.  
1876, July 22; Vol. X., p. 80.

*Pentstemon humilis*.  
1879, May 24; Vol. XV., p. 416.

*Pernettya mucronata*, new varieties of.  
1883, May 26; Vol. XXIII., p. 470.

*Pescatorea Klabochozum*.  
1882, July 8; Vol. XXII., p. 24.

*Petræa volubilis*.  
1877, July 14; Vol. XII., p. 40.

*Phædranassa chloracea*.  
1879, September 27; Vol. XVI., p. 286.

*Phaius tuberculatus*.  
1884, July 19; Vol. XXVI., p. 46.

*Phalænopsis intermedia Portei*.  
1882, March 4; Vol. XXI., p. 146.

*Phalænopsis Lowi*.  
1876, April 1; Vol. IX., p. 312.

*Phalænopsis Sanderiana*.  
1883, September 29; Vol. XXIV., p. 270.

*Phalænopsis Stuartiana nobilis* and *P. Schilleriana*.  
1882, August 5; Vol. XXII., p. 118.

*Philadelphus*, a group of.  
1879, June 14; Vol. XV., p. 476.

*Philesia buxifolia*.  
1883, April 28; Vol. XXIII., p. 380.

*Phlox Beauty of Edinburgh*.  
1877, August 25; Vol. XII., p. 184.

*Phlox divaricata*.  
1883, July 14; Vol. XXIV., p. 24.

*Phlox subulata* var.  
1877, June 16; Vol. XI., p. 502.

*Phlox subulata* vars.  
1880, January 3; Vol. XVII., p. 12.

*Pinguicula caudata*.  
1881, August 22; Vol. XX., p. 212.

*Pinguicula vallisneriaefolia*.  
1878, April 13; Vol. XIII., p. 338.

*Pinks*, a group of.  
1879, December 6; Vol. XVI., p. 510.

*Pinks* (Chinese) Eastern Queen and Crimson Belle.  
1877, December 1; Vol. XII., p. 520.

*Pitcher Plants*, a group of.  
1880, June 19; Vol. XVII., p. 542.

*Platycodon grandiflorum Mariesi*.  
1885, March 14; Vol. XXVII., p. 216.

*Pleione tricolor* and *P. humilis*.  
1880, August 21; Vol. XVIII., p. 180.

*Plum*, Transparent Gage.  
1876, March 4; Vol. IX., p. 226.

*Poinsettia pulcherrima plenissima*.  
1876, March 25; Vol. IX., p. 288.

*Polemonium confertum*.  
1876, November 25; Vol. X., p. 506.

*Polygala Chamæbuxus purpurea*.  
1878, January 12; Vol. XIII., p. 36.

*Pontederia azurea*.  
1880, March 6; Vol. XVII., p. 220.

*Potentilla nitida*.  
1884, June 21; Vol. XXV., p. 514.

*Potentillas*, a group of.  
1879, November 22; Vol. XVI., p. 462.

*Primrose*, new forms of Japan.  
1878, November 23; Vol. XIV., p. 466.

*Primroses*, new double Chinese.  
1880, February 21; Vol. XVII., p. 176.

*Primula capitata*.  
1879, December 13; Vol. XVI., p. 534.

*Primula intermedia*.  
1876, July 8; Vol. X., p. 36.

*Primula luteola*.  
1880, November 13; Vol. XVIII., p. 486.

*Primula obconica*.  
1884, September 6; Vol. XXVI., p. 206.

*Primula rosea*.  
1879, July 5; Vol. XVI., p. 12.

*Primula vulgaris*.  
1877, November 24; Vol. XII., p. 496.

*Puschkinia scilloides* (*Chionodoxa nana*).  
1878, September 28; Vol. XIV., p. 288.

*Puschkinia scilloides*.  
1881, January 29; Vol. XIX., p. 126.

*Pyrethrums*, a group of hardy.  
1879, October 25; Vol. XVI., p. 370.

*Pyrus coronaria*.  
1881, April 16; Vol. XIX., p. 400.

*Pyrus Hosti*.  
1881, October 8; Vol. XX., p. 376.

*Pyrus Maulei*.  
1878, April 27; Vol. XIII., p. 390.

## R

*Ramondia pyrenaica*.  
1885, March 7; Vol. XXVII., p. 194.

*Ranunculus anemonoides*.  
1882, September 16; Vol. XXII., p. 252.

*Raphiolepis salicifolia*.  
1876, June 24; Vol. IX., p. 596.

*Rheum nobile*.  
1880, October 23; Vol. XVIII., p. 406.

*Rhexia virginica*.  
1877, April 14; Vol. XI., p. 294.

*Rhododendron Aucklandi*.  
1881, September 24; Vol. XX., p. 328.

*Rhododendron Aucklandi hybridum*.  
1877, June 2; Vol. XI., p. 452.

*Rhododendron cinnabarinum*.  
1879, March 1; Vol. XV., p. 182.

*Rhododendron Kate Waterer*.  
1879, October 4; Vol. XVI., p. 308.

*Rhododendron lepidotum*.  
1879, January 11; Vol. XV., p. 36.

*Rhododendron Novelty*.  
1877, December 22; Vol. XII., p. 592.

*Rhododendron Veitchi*.  
1880, September 18; Vol. XVIII., p. 280.

*Rhododendrons*, new Javanese.  
1879, November 1; Vol. XVI., p. 394.

*Richardia hastata*.  
1880, December 11; Vol. XVIII., p. 596.

*Robinia Pseud-Acacia Decaisneana*.  
1876, January 8; Vol. IX., p. 36.

*Romneya Coulteri*.  
1878, May 25; Vol. XIII., p. 494.

*Romneya Coulteri*.  
1884, November 8; Vol. XXVI., p. 400.

*Rosa alpina pyrenaica*.  
1885, June 13; Vol. XXVII., p. 544.

*Rosa rugosa alba*.  
1876, May 13; Vol. IX., p. 452.

*Rose Alfred K. Williams*.  
1882, September 30; Vol. XXII., p. 296.

*Rose Catherine Bell*.  
1876, March 18; Vol. IX., p. 266.

*Rose Catherine Mermet*.  
1883, March 24; Vol. XXIII., p. 268.

*Rose Charles Lefebvre*.  
1883, February 13; Vol. XXIII., p. 110.

*Rose Comtesse de Serenye*.  
1877, January 20; Vol. XI., p. 50.

*Rose Duchess of Edinburgh*.  
1876, January 15; Vol. IX., p. 60.

*Rose La France*.  
1883, February 24; Vol. XXIII., p. 180.

*Rose Marechal Niel*.  
1883, May 12; Vol. XXIII., p. 426.

*Rose Marie Baumann*.  
1883, June 9; Vol. XXIII., p. 516.

*Rose Sultan of Zanzibar*.  
1876, February 12; Vol. IX., p. 156.

*Rose* (Tea) Jean Ducher.  
1879, September 6; Vol. XVI., p. 220.

*Roses Duke of Connaught, Pearl, and Beauty of Stapleford*.  
1880, May 15; Vol. XVII., p. 430.

*Roses La France and Mdme. Lacharme*.  
1876, December 23; Vol. X., p. 586.

*Roses May Quennell, Duchesse de Vallobrosa, and La Rosière*.  
1878, March 30; Vol. XIII., p. 286.

*Roses Mons E. Y. Teas and Jean Liabaud*.  
1879, March 8; Vol. XV., p. 298.

*Roses Reynolds Hole and François Michelin*.  
1877, May 5; Vol. XI., p. 356.

*Roses* (Tea) Marie Van Houtte and Comtesse de Nadaillac.  
1879, January 25; Vol. XV., p. 80.

*Roses* (Tea) Souvenir d'Elise Vardon and Marie Van Houtte.  
1879, October 11; Vol. XVI., p. 330.

*Roses*, three new English.  
1880, February 28; Vol. XVII., p. 198.

*Rubus deliciosus*.  
1880, October 9; Vol. XVIII., p. 358.

## S

*Sagittaria montevidensis*.  
1885, January 3; Vol. XXVII., p. 8.

*Salvia farinacea*.  
1876, May 6; Vol. IX., p. 430.

*Salvia Pitcheri*.  
1881, June 11; Vol. XIX., p. 600.

*Salvias*, a group of winter-blooming.  
1882, May 13; Vol. XXI., p. 328.

*Saxifraga Burseriana*.  
1877, September 15; Vol. XII., p. 256.

*Saxifraga oppositifolia pyrenaica maxima*.  
1878, October 5; Vol. XIV., p. 310.

*Saxifraga peltata*.  
1876, September 30; Vol. X., p. 336.

*Schizostylis coccinea*.  
1884, March 8; Vol. XXV., p. 188.

*Scilla bifolia*, varieties of.  
1885, April 4; Vol. XXVII., p. 286.

*Scutellaria Mocciniana*.  
1876, December 30; Vol. X., p. 606.

*Sedum corsicum*.  
1885, April 11; Vol. XXVII., p. 315.

*Sedum sempervivoides*.  
1881, April 2; Vol. XIX., p. 354.

*Sedum spathulifolium*.  
1883, November 24; Vol. XXIV., p. 462.

*Sempervivum arachnoideum*.  
1884, March 22; Vol. XXV., p. 232.

*Senecio macroglossa*.  
1884, August 2; Vol. XXVI., p. 90.

*Senecio pulcher*.  
1876, June 17; Vol. IX., p. 572.

*Senecio speciosus*.  
1880, August 14; Vol. XVIII., p. 156.

*Sibthorpia europæa variegata*.  
1875, January 23; Vol. VII., p. 70.

*Silene Pumilio*.  
1877, January 6; Vol. XI., p. 10.

*Sisyrinchium grandiflorum* and white variety.  
1883, June 30; Vol. XXIII., p. 588.

*Snowdrops*.  
1877, March 10; Vol. XI., p. 194.

*Sobralia xantholeuca*.  
1882, December 9; Vol. XXII., p. 508.

*Sonerila margaritacea* var. *argentea*.  
1885, May 9; Vol. XXVII., p. 420.

*Sophronitis grandiflora rosea*.  
1884, June 7; Vol. XXV., p. 474.

*Sparaxis pulcherrima*.  
1881, December 17; Vol. XX., p. 588.

*Spathoglottis Lobbi*.  
1882, August 26; Vol. XXII., p. 188.

*Spigelia marilandica*.  
1877, March 3; Vol. XI., p. 174.

*Spiræa Douglasi*.  
1883, March 17; Vol. XXIII., p. 246.

*Spiræa palmata*.  
1880, January 10; Vol. XVII., p. 36.

*Squills*, two new.  
1878, December 14; Vol. XIV., p. 538.

*Stenorhynchus speciosus*.  
1884, June 14; Vol. XXV., p. 494.



- Stobæa purpurea*.  
1879, January 4; Vol. XV., p. 12.  
*Stuartia virginica*.  
1878, July 13; Vol. XIV., p. 38.  
*Sweet Pea Violet Queen*.  
1877, December 15; Vol. XII., p. 568.

T

- Tecophylæa cyanocrocus*.  
1881, July 16; Vol. XX., p. 62.  
*Telopea speciosissima*.  
1882, November 4; Vol. XXII., p. 400.  
*Thalictrum anemonoides*.  
1883, July 14; Vol. XXIV., p. 24.  
*Tigridia Pavonia alba*.  
1884, January 5; Vol. XXV., p. 6.  
*Tigridia Pavonia grandiflora*.  
1879, February 15; Vol. XV., p. 142.  
*Tillandsia Lindenii (vera)*.  
1876, November 11; Vol. X., p. 466.  
*Tillandsia Lindenii*.  
1880, January 17; Vol. XVII., p. 60.  
*Torenia Bailloni*.  
1879, February 8; Vol. XV., p. 122.  
*Torenia Fournieri*.  
1877, December 29; Vol. XII., p. 616.  
*Toxicophylæa spectabilis*.  
1877, July 7; Vol. XII., p. 14.  
*Tritoma Macowani*.  
1877, August 4; Vol. XII., p. 112.  
*Trillium grandiflorum*.  
1883, July 14; Vol. XXIV., p. 24.  
*Tropæolum Hermine Grashoff*.  
1881, October 15; Vol. XX., p. 398.  
*Tropæolum polyphyllum and speciosum*.  
1878, May 11; Vol. XIII., p. 442.  
*Tulipa Greigi*.  
1877, May 12; Vol. XI., p. 380.  
*Tydaea Robert le Diable*.  
1879, May 10; Vol. XV., p. 376.

U

- Utricularia Endresi*.  
1880, October 30; Vol. XVIII., p. 432.  
*Utricularia montana*.  
1882, December 2; Vol. XXII., p. 486.  
*Uvularia sessilifolia*.  
1883, July 14; Vol. XXIV., p. 24.

V

- Vanda cœrulea*.  
1882, April 15; Vol. XXI., p. 254.  
*Vanda Hookeriana*.  
1883, January 6; Vol. XXIII., p. 10.  
*Vanda insignis and var. Schrederiana*.  
1884, March 1; Vol. XXV., p. 168.  
*Vanda lamellata Boxalli*.  
1881, June 4; Vol. XIX., p. 574.  
*Vanda Sanderiana*.  
1884, February 9; Vol. XXV., p. 104.  
*Vanda tricolor Patersoni*.  
1883, February 10; Vol. XXIII., p. 134.  
*Verbascum phlomoides*.  
1885, February 28; Vol. XXVII., p. 172.  
*Verbenas*, new.  
1879, March 15; Vol. XV., p. 222.  
*Veronica longifolia subsessilis*.  
1881, April 30; Vol. XIX., p. 448.  
*Vesicaria græca*.  
1880, October 2; Vol. XVIII., p. 332.  
*Viola pedata bicolor*.  
1882, October 28; Vol. XXII., p. 378.  
*Violets*, double.  
1885, June 27; Vol. XXVII., p. 598.

W

- Watsonias*, a group of.  
1880, May 1; Vol. XVII., p. 330.  
*Weigelas*, group of.  
1880, May 8; Vol. XVII., p. 410.

X

- Xanthoceras sorbifolia*.  
1875, December 18; Vol. VIII., p. 524.

Y

- Yucca Treculeana*.  
1877, October 6; Vol. XII., p. 328.

Z

- Zenobia speciosa pulverulenta*.  
1883, December 29; Vol. XXIV., p. 572.  
*Zephyranthes rosea and Z. tubispatha*.  
1877, July 28; Vol. XII., p. 88.

PHOTOGRAPHS OF GARDENS OR PLANTS.

THE days of amateur photography have come, and there are besides such various means of getting good photographs in most parts of the country, that it has struck us that it may be useful to invite our readers to take or procure photographs of beautiful garden scenes and plants of peculiar grace or other merit. Our purpose is to get pretty or suggestive pictures of any gardening objects of interest, whether from the open garden, the hothouse, greenhouse, rooms, or windows. The best photographs of objects of gardening interest that are sent to us during each month will be engraved as soon as possible in the most fitting manner for publication in THE GARDEN. That is, perhaps, the best honorarium we can bestow upon the senders, but those who send the chosen pictures will also be entitled to receive not less than one guinea and a half's worth of books useful for garden reference or practice.

Inasmuch as the tendency of a great deal of the so-called landscape gardening of a past generation or so has been to mar or blot out wholly the most precious feature of British gardens, the lawn, we wish in the first series of prizes to encourage good views of that portion of the garden. Our first prizes, therefore, will be for the most beautiful

LAWN VIEWS,

either to or from the house, or from any position that may be found most picturesque. Any other views, however, will be welcome. In addition to the above we propose to give to the reader who, during the current year, sends us the best series of photographs for engraving a painting by Alfred Parsons, shown in the present exhibition of the Royal Academy. It shows a bunch of the common Moss Rose, bought in Covent Garden, and painted by the artist in oils.

Photographs of the outdoor garden should be taken with a lens adapted for the purpose; some photographers use lenses unfitted for landscape work. All photographs sent must be clear, the subject intended to be shown in good focus, and of a size to be distinctly seen; imperfect photographs will not be admitted to competition. Figures of men or women, barrows, vases, and all similar objects should not be taken.

Photographs should be addressed to the Editor of THE GARDEN, and marked "Garden Illustrations." The name and description of each object sent should be distinctly written on the back of every photograph. The photographs may be those of objects in one's own possession or cultivation, or of any others that may be obtained, but the source whence they are derived should be stated, and none sent the copyright of which may be questioned. Unmounted photographs will do as well as mounted.

Drawings and photographs for the first competition should reach us by September 15.

**Stove plants.**—What temperature do the following plants require and where are they native: *Latania borbonica*, *Phoenix reclinata*, *Seaforthia elegans*, *Pandanus utilis*?—J. S.

\* These are all stove plants, requiring in winter a temperature not lower than 55° or 60°. During the summer they may be kept in health in a greenhouse, or, if carefully hardened off before putting them out, they may be employed for the embellishment of the garden out of doors for two or three months in the warm season of the year. The *Latania* (properly *Livistona chinensis*) is a native of South China, *Phoenix reclinata* is found in the tropics of East Africa, *Seaforthia elegans* is from Queensland and New South Wales, and *Pandanus utilis* is found in the Mascarene Islands.

**Chrysanthemums for exhibition.**—Will any *Chrysanthemum* grower tell me if the buds now forming at the ends of strong shoots on my *Chrysanthemums* are those that produce the best flowers, or would the next set of buds yield better blooms? They are large-flowering and grown on the one-stem system.—W. S.

\* Select the buds that are forming at the ends of the shoots, removing the lateral growths by breaking them off in their very earliest stages with one finger. The flowers produced on the side growths will be inferior in size.—J. D.

LATE NOTES.

**Lilium longiflorum (T. S.).**—Is not the variety you send Harris? It seems to agree with that form, except that it appears to be dwarfier.

**Roses from Kirkconnell.**—In our note respecting the Roses sent to us by Mrs. Maxwell Witham we stated that Kirkconnell is in Ayrshire, whereas it is in Kirkcudbrightshire.

**French Marigolds (W. Caudwell).**—Excellent flowers, perfect in shape. The single flowers may please some better than the doubles, and those you send are better than we usually see them.

**Seedling double Fuchsia (G. C. Short).**—The flowers you send represent a good double variety, but we cannot judge of its merits from flowers alone, or say how far it is different from the many others of a similar stamp without actual comparison.

**Vines "rusted" (G. T. D.).**—There is no disease on the laterals sent: the browning of the edges of the young foliage is perhaps caused by a too parched atmosphere. The term "rust" is usually confined to the berries. The ailment, such as it is, is owing to some trifling cultural defect.

**Golden-rayed Lily in the midlands.**—Your readers may probably be unable to account for my remarks on this Lily, p. 180, which were written in May. I said that the growths were 2 feet in height; this was on May 18, whereas to-day the height of one of the Lily stems alluded to is 5 feet 8 inches.—R. A. H. GRIMSHAW.

**Myoporum parvifolium.**—Although plants belonging to the order Myoporaceæ possess no great value, still this *Myoporum* proves very useful to those who have to provide flowers either in pots or in a cut state for indoor decoration. It was introduced from New Holland at the beginning of the present century. When subjected to cool-house treatment it never fails to produce a profusion of its cheerful white flowers.—H.

**Golden Feather Pyrethrum.**—Flower gardeners complain of the spread of a variety of Golden Feather, which gets every year greener in colour; it is not only greener, but coarser in growth, and when planted with the ordinary kind it spoils the effect of the true variety and damages the design. The worst is—one can scarcely pick the rogues out in the seed boxes, the green development only coming as growth goes on, and is accentuated by every day's growth.—N. H. POWNALL.

**Books (Senex).**—The book we should recommend beyond all others is "Descriptive and Analytical Botany," Le Maout and Decaisne. English edition, Longmans, Green & Co., London. It may be had in the original French edition, though, of course, for English students the edition edited by Sir Joseph Hooker is much the more serviceable. It contains in part the outlines of organography, anatomy, and physiology, and in Part II. descriptions and illustrations of the natural orders. There are 5500 illustrations of seeds, flowers, plants, &c.

**Norwegian wasps' nest.**—I send you a curiosity which was cut from one of the Gooseberry trees in our garden. Our gardener said it was the nest of the wasp; many scores of young wasps have crept out of it since it was cut off and exposed to the sun.

\* The nest in question is made by one of our wasps (*Vespa norvegica*). It is not a common species in the southern counties, but is more often met with in the northern and western parts of this country. As far as is known, it always makes its nest in bushes, otherwise its habits are the same as those of the common wasp.—G. S. S.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—S. K. T.—*Avena flavescens*.—W. F.—*Alyssum maritimum variegatum*.—T. G.—1, *Spiræa digitata*; 2, *Centaurea Scabiosa*; 3, *Campanula Raineri*.—K. Curtis.—*Stachys annua*.—Paul.—1, *Allium Desgleseii*, deep red; 2, *Centaurea*, send leaves; 3, *Santolina viridis*.—Miss Milne.—1, *Galium verum* var.; 2, *G. aristatum*; 3, *Pulicaria dysenterica*; 4, *Lotus glaucus*; 5, *Solidago virgaurea* var.; 6, *Bellium minimum*; 7, *Nepeta Scorditis*.—C. Scott.—1, *Erica vulgaris* alba; 2, *E. vagans* alba; 3, *E. vagans*; 4, apparently *Cupressus macrocarpa*, but specimen is insufficient to name with certainty.—W. O. Leach.—Both varieties of *Gaillardia pulchella*, double yellow is a form of the variety called *Lorenziana*.—Alpha.—*Cattleya crispa*; no form was sent with it.—C. A. N.—*Spiræa callosa* and white variety (alba).—B. D. K.—Apparently a fine form of *Aerides quinquevulnerum*.—C. F. K.—*Caper Spurge* (*Euphorbia Lathyris*).—W. H. B.—*Trachelium cœruleum*.—M. F.—*Variegated Alyssum maritimum*.—L. A.—1, *Blechnum Spicant* var.; 2, *Polystichum angulare* Baylie; 3, *P. angulare lineare*; 4, *Blechnum Spicant brevifolium*.—F. A. W.—1, *Lastrea Filix-mas*; 2, *Athyrium Filix-femina*; 3, *Polystichum angulare*; 4, *Lastrea dilatata*.—C. D.—1, *Clematis Flammula*; 2, *Escallonia rubra*; 3, *E. macrantha*.



## WOODS & FORESTS.

### METHODS OF SELLING TIMBER.

THESE methods are three, viz., private treaty, tender, and auction. Each plan has something to recommend it, and also possesses disadvantages. In cases where both the vendor and the purchaser understand their business the plan of dealing by private treaty is perhaps the best, as it is attended by no expense, and is also free from uncertainty. When an agent knows his customer, who is generally a buyer each year, there need not be much difficulty—the merchant knowing where to look for timber, and the agent for his customer. Where matters can once be fairly adjusted in this way, taken for a series of years, the proprietor will probably be the gainer.

I have had opportunities of judging of the merits of each plan, and in the main on estates where a regular felling takes place and a reliable merchant is in the neighbourhood who has a purpose for the wood, there is no better means of obtaining value than by private treaty. The reasons for this are apparent. In the first place timber is not, like stocks and shares, a thing that can be bought and transported to a distance at a merely nominal cost. It is, therefore, obvious that it must be of a considerably greater value to the individual who is on the spot. Secondly, the merchant does not like to see what he deems his own territory invaded, and, therefore, will generally give the highest possible figure to keep outsiders at a distance. This is not imaginary, as it is a thing occurring every day. Thirdly, as before mentioned, when the merchant is able to tolerably well forecast season by season the amount and class of timber likely to come into his hands, he is able to arrange his plans and look up his customers accordingly. This may appear to be entirely to the merchant's advantage, but it is only partially so, as in buying with his plans already matured he has no necessity of requiring a margin for chance of market; so the vendor receives a share. These, therefore, are some advantages of private treaty bargains. Others will sometimes occur as circumstances vary.

The next best method, speaking generally, in the view of the writer, is sale by tender. This, so to speak, is a modified private treaty, and does not necessarily incur much expense. Properly managed, a sale by tender may realise a good price, but it is a thing requiring rather delicate manipulation. So long as there is timber to be sold, buyers have, to a certain extent, to be considered and humoured. It is true they in their turn have to consider their own customers, and cannot go beyond the market value; but, on the other hand, where in a given district so comparatively few are in the trade, in a sale by tender, as by auction, if these traders become piqued from any reason, real or imaginary, they can generally succeed effectually in blocking a sale of timber. I do not mean that owners should be coerced into selling by private treaty,

as from special circumstances best known to themselves the method may be objectionable; nevertheless, certain notions, however groundless they may appear, really exist, and, as with many other things where no principle is involved, it may be well to weigh even such things as these. Timber, I repeat, is a thing which has to be dealt with locally, and if, for any reason, it does not go into the hands of local men, the owner has to accept a lower consideration from the outsider, who, from the very nature of his position, is unable to pay its highest local value. In cases where the bulk is too heavy for local men to touch, outsiders must of course be invited to compete. For this reason it is generally the case that small quantities of timber will fetch a relatively higher price than larger ones. Auction I look upon as last on the list, not the least reason being the auctioneer's charges and incidentals. These in private treaty or tender sales are, of course, saved. It sometimes happens that after timber has been submitted by private treaty or tender it at last comes to the auction; this, if possible, should be avoided. If an auction is determined on, let it be auction, but not after every other plan has failed. An instance of this recently came within my notice where a large fall of timber was submitted to tender. The tenders were not accepted, and the wood was sold by auction at about 25 per cent. below the offered price, taking no note of auction charges. This difference, though not legitimate, actually occurred, the only inference being that the men who had previously tendered saw a chance of scoring a revenge. I am here perhaps treading on dangerous ground, and may get taken to task for my temerity; yet such are the facts. In the timber trade as well as in other trades combinations often occur, so, if for no other reason than for preventing this, private treaty has much in its favour.

The writer's views on these points may not be endorsed by all wood agents and owners, as their experiences may differ from his; but on the whole he thinks the above remarks are tolerably correct. If not, he is open to be set right, and will be thankful for further information on the subject.

J. N. BLUNT.

### THINNING AND PRUNING FOREST TREES.

RIGHTLY or wrongly, it is the opinion of those who are quite able to judge that both pruning and thinning as practised in British forestry are the result of an artificial system of tree culture. Our critics point to the fact that our best examples of English and Scotch forestry have never produced anything so clean, straight, and useful as the timber that is imported from abroad, whether it be the cheap Spruce poles from Norway or the straight Pine planks or logs from Canada or elsewhere, all of which are the products of forests untouched by the cultural hand of man. It is asserted, and with truth, that the forester first found trees growing in families or species by themselves—conditions which favoured the production of timber of uniform dimensions and good quality; and that, instead of copying Nature's plan, he adopted a

scheme of his own, which so far, in this country, has resulted in failure, according to common opinion. Our main mistake seems to have been the growing of mixed plantations, in which trees of all sorts and habits were planted pell-mell together. As the trees under such conditions neither grew in the right shape nor at the same pace, it of course fell out that some were smothered by their neighbours, or that the soil suited some and not others, and that those that did survive did not grow as they ought to have done and had to be cared for; hence arose the practices of thinning, lopping, and pruning of forest trees—the natural consequences of wrong culture.

It is all very well to talk so much about assisting Nature and that sort of thing; the fact remains that the result of our assistance hitherto has been mismanaged woods, and, as a rule, timber not fit to enter into competition with the proceeds of the wild woods of the world anywhere else. I care not for words; this is the broad fact: While the trees and planks that are imported from abroad are of good quality, and so straight, and clean, and useful, that many large consumers prefer them for every purpose, the timber of our artificially cultivated British woods is rough, unequal, and comparatively unsaleable, and the cause, so far as I can make out, is our scientific forestry, falsely so-called British and Continental forestry. The great difference, it appears to me, between British and Continental and Indian forestry is that in the case of the former the everlasting question seems to be how to grow the trees, and in the two latter cases how to preserve the forests already provided by Nature.

J. S.

### NOTES ON CURRENT TOPICS.

**The Larch in Scotland.**—When I referred to the condition of the Larch in South-west Scotland, I perhaps ought to have qualified my words by saying "some parts." I referred to Dumfriesshire and the eastern portion of Kirkcudbrightshire, where the Larch planted during the last forty years certainly did not appear to be thriving, being of poor dimensions, and the trunks of the trees, and even the branches to their extremities, hoary with Lichen. They were extensively planted among the Spruce, which was just as fine as the Larch was poor. The climate about Galloway House, which "Salmoniceps" speaks of, is, I am told, superior to that of the more inland valleys of the same county. The south-west coast of Scotland is, I know, particularly favourable to Conifers, as witness the fine plantations at Castle Kennedy before the late memorable storm of wind damaged them so severely, but the same species do not all thrive so well elsewhere in Wigtown and Kirkcudbright.

**Sapwood.**—A correspondent thinks the early decay of the sapwood is the result of the tree being felled when full of moisture; whereas it is, as has been long ago pointed out by physiologists, the absence of those deposits within its tissues that makes the heartwood so enduring that is the cause. Trees with much sapwood in them are growing fast, and consequently putting on value and should not be felled. Mature trees have but a thin rind of sapwood on them. Of the difference between sapwood and heartwood for lasting when exposed, an example will show. The other day, when going through an Oak wood where the underwood and Grass was rank, I stumbled over a fallen tree, about 7 inches or 8 inches quarter girth, that had been left when the fall of timber was taken at the same place, nearly twenty years ago. The trunk was entire, but I was able to rub the rotten sapwood clean off with my fingers to the depth of about an inch, it was so soft and rotten, while the heartwood was still so hard that I could scarcely make an impression on it by a good kick with the toe of my boot.



**Situations for trees.**—In planting for profit, too particular attention cannot be paid to the kind of trees to be planted and the nature of the soil in which they are to grow. Nor can it be too strongly impressed upon planters that trees, like other plants, delight in a good and rich soil. Some of the Pine tribe thrive amazingly in what appears to be poor brashy soils on hillsides and elsewhere provided they are drained sufficiently; but all the deciduous class, like the Oak, Ash, Sycamore, and Beech, do far best on good deep soils, and far sooner reach to timber size. It is speaking within the mark to say that when good or fair maiden land is planted, the trees grow nearly as fast again. In some young plantations, planted about twenty years ago here on fair pasture land adjoining the older plantations, the progress of the trees has been remarkable, especially in the case of Oak, Ash, and Sycamore, which have grown at a far quicker pace than the same species have done close by, but not on such good land. The Oak and the Ash are particularly sensitive to good culture, and by far the best and cleanest timber of both is produced in deep, rich soils. It is of little use planting either, or indeed any similar species in a poor or thin soil, in which they make nothing but scrub, so to speak, especially in exposed situations. One of the nurserymen from the north when here lately expressed his surprise at seeing the Sweet or Spanish Chestnut growing freely and well in young plantations about 1100 feet above the sea and in an exposed situation in this part of Yorkshire, but the soil was good, though not deep, having been under farm culture or pasture for generations previously.

**The Deodar.**—I hardly agree with the opinion expressed last week that "there is but little hope that the Deodar will ever prove as valuable as writers have predicted." I do not think it has yet been fairly tried as a timber tree. Here, where, as I have before stated, the Spruces will not grow, where the Wellingtonia soon becomes a mere scarecrow, where even Nordmann's Spruce fails, and other exotic Pines do little good, the Deodar grows and reaches very fair dimensions in a thin dry soil and quite exposed as an isolated specimen to the north-east gales and 650 feet above the sea. That it would succeed well as a timber tree on a south or west slope I have no doubt at all. A tree here on an exposed spot is about 40 years old, is about 30 feet high, contains about 13 cubic feet of timber, and is growing well. I have also seen some fine trees in the moist climate of South-west Scotland, where the cold is also intense in winter. Isolated specimens have very tapering trunks, owing to the trees being clothed with branches all the way up, but planted like Larch, in masses, it would be of more useful and regular proportions. It must not, however, be expected to compete with the Larch or Corsican Pine generally, even allowing for the greater value of the timber.

**Mining timber.**—The remarks of Mr. D. J. Yeo on this subject are of a speculative cast, I fear. We live in the very centre of one of the busiest mining districts in England, and do much trade with the collieries, directly and indirectly, but we find it hard to dislodge our foreign competitors, unless prepared to make large sacrifices. I was at a colliery the other day where I saw about 100,000 foreign pit props piled ready for use, and found that the owners would not have home timber at all for any purpose, and had not had any for years. Many of the sales effected in English timber are done on the reciprocity principle, but some independent firms will not deal on any terms. The advantage of foreign timber is that it is of handy dimensions, easily handled by the men, and readily prepared, for props at least, but many foreign logs are used as well. All that home growers can do is to plant industriously and pray for a famine in foreign timber. Oak poles in the place of Larch for mining purposes can only be disposed of, your correspondent must remember, at Larch prices. The working colliers have a good deal to say as to the kind of timber used. A union secretary and M.P. stated the other week that the props supplied to the men were often insufficient in quantity and inferior in quality.

**Estate purposes.**—This term is so often used by correspondents, that it might be imagined estate purposes found employment for most of the timber

that is grown. That is not, however, the case. Except in some few special cases where mines or other works are owned and worked by the proprietor, estate purposes do not absorb more than a mere fractional portion of the timber felled, or that ought to be felled on every well wooded estate. Posts and rails for fences, where iron or live fences are not established, and a few other purposes connected with the farms and estate, are the only wants that have to be supplied and these on the largest estates are not worth taking into consideration in calculating the profits of planting. The timber used for rural purposes is comparatively insignificant. In this part of England, at least, it is principally employed in mines and factories, and in towns for building and other purposes. For the finer joinery work on estates the better class of imported timber is used, and will continue to be used while no better appliances for converting our own timber are employed, and the wants of single estates are not great enough to necessitate these.

**The Silver Fir.**—Mr. J. B. Webster (p. 189) writes, "The Silver Fir ranks in the first class as a timber tree." I do not know how Mr. J. B. Webster values timber, but of this I am sure of, that in Yorkshire and everywhere else where I have enquired the Silver Fir and the common Spruce sell together at the same price, and that price is the lowest going. Dealers and consumers do not distinguish between Silver Fir and the other Spruces, but reckon them as one, and practically they are for all purposes alike. It should be stated that foresters have, during the past fifty years or more, planted the common and Silver Firs so extensively, without regard to their value as timber trees, that they feel now bound to support their practice by praising their good qualities, but I caution planters against their use. I am told that by-and-by Spruce may be used for grinding into pulp for making paper, but that is a use of it that was not anticipated, and which is not as yet sure. For all other purposes the Spruce, whether common or Silver, is the poorest paying crop by a great deal that can be planted, as anyone may find out who has it to sell. Prodigious quantities of both the Spruces have been lying on the ground in the north of England and south of Scotland for several years that can hardly be sold for fetching away, even near several of the great railways, while everywhere in England where timber is in most demand it hardly pays for felling.

YORKSHIREMAN.

#### ROTATION OF LARCH CROPS.

"IRISH FORESTER'S" remarks (p. 165) on this subject are both interesting and encouraging, and are well worthy of perusal by all who are interested in tree culture. In the successful replanting of forest land there can be no doubt that good soil and a favourable climate are important agents in the attainment of success. The selection of stout healthy plants with good roots is also a matter of much importance, and when such are planted with care into clean fresh soil the plants get a good start at the commencement, and in all likelihood will then go on and prosper. In view of this important point, I have found it a good plan to open pits in autumn and allow the soil to lie upon the surface during winter, by which means it becomes pulverised and improved by exposure during winter, and in excellent condition for planting in spring. In opening these pits all roots and dead wood should be picked from the soil, so as to render it as clean as possible, and for want of this precaution alone, many of the failures in the formation of such plantations may be traced....

Rotation of crops is by no means to be despised; on the contrary, it is founded upon rational principles; at the same time cases occur where it is inconvenient to carry it out in tree culture, and in places where the soil is suitable for the Larch, I have seen excellent crops produced upon the same ground a second

time, which fully corroborates "Irish Forester's" statement in this respect.

But although isolated cases occur here and there where a second crop of Larch has been raised with success, yet such cannot be taken as a proper base to guide the planter on all occasions. Some soils are exceptionally well fitted for the growth of the Larch, and contain the necessary food in great abundance, and it is clearly proved that such soils are not exhausted by carrying one crop of Larch. But in replanting forest land with the same species, we have to anticipate and guard against the attacks of fungi and different species of insects, such as beetles, weevils, Larch bug, &c.; and as these hibernates in dead wood and branches during winter, such should be destroyed by burning or removal, and in some cases it may be necessary to scarify or remove the bark around the collar of the stumps left in the ground to prevent them from breeding.

Another source of danger in replanting woodlands with the same kind of trees is the inimical nature of the excreta left on the ground by the previous crop, and until such time as the soil has become thoroughly decomposed and rendered fertile by exposure there is always considerable risk of the young plants being poisoned and the foundation laid for disease. Under such circumstances, then, the ground should be prepared by cutting fresh drains where necessary and allowed to lie for some time previous to replanting in order to cleanse and purify itself, such time to be regulated according to the quality of the soil and local circumstances. I recently saw a large plantation where the ground had been prepared and replanted in this way, and the young trees as a rule were making satisfactory progress, even although considerable numbers of the Pine weevil were to be found in the plantation.

J. B. WEBSTER.

#### GERMAN, FRENCH, AND INDIAN FORESTRY.

WE HAVE often wondered in what the superiority of German and French forest management consisted, unless it was in simply assisting Nature to perpetuate its plantations and dispose of the timber when it was ready to fell. We hear much of German and French forestry, but no one knows anything about it apparently. It came out in the evidence of Sir John Lubbock's Select Committee on Forestry that so far as regards planting, the superiority of Continental forestry consisted in leaving planting to Nature. It is stated that "the Scotch were exceedingly good planters, and three or four of them were employed in India" in that line. Then comes the admission that the superior German and French foresters "did not plant much; they left it to Nature." What they do do is not very clear; only it seems either German or French woodmen are preferred for our Indian possessions, with the exception of the three or four Scotch spademans who do the planting. Some few men "had been sent from Kew Gardens to the colonies to give directions in forestry, and these had generally been successful." Very likely, but it was not at Kew they learned practical forestry; and as for Germans and Frenchmen managing Indian woods better than Englishmen, we do not believe it for one moment, for neither their woods nor their practical knowledge fit them to match any fair English forester or gardener in all that relates to practical management. We are impressed by the conviction that some of the examiners on Sir John Lubbock's committee are unpractical, and they should be carefully watched. Just listen to the self-evident truths that were elicited by the wisacres, to wit, that



"increasing the home growth of timber would help to provide against a possible timber famine." When Joseph counselled Pharaoh to provide against the lean years by laying up a supply of corn, he anticipated economists of the Lubbock committee type.

Then comes the remark of Mr. Thistleton Dyer "that scientific knowledge was essential to the successful cultivation of forests!" It ought to be credited to one of the correspondents of *Woods and Forests* that he anticipated Mr. Dyer by declaring that "a forester ought to know his business." The same authority, Mr. T. Dyer, further declared that "if the general knowledge of skilled foresters was brought to bear on English woodlands, immense advantage might be derived." No doubt of it. A "general knowledge" of his profession is useful to most men. "Asked his opinion as to what steps should be taken with respect to England, he considered that India, where they had every advantage for the study of forestry, should be made the nucleus of our forest education!" These remarks are taken from several reports of the committee's sayings and doings, but according to the summary in *THE GARDEN* of August 8 of Indian forest history, forestry, in the proper sense of the word, did not exist in India previous to 1864, and it now consists simply in preventing unnecessary waste and destruction. "The cutting down and taking away of one tree frequently destroyed about twenty others," and the better present forestry of India appears to consist in preventing such things, and that is no doubt where the increased revenue comes from. India, in fact, appears to be much better looked after considering the conditions than the British Islands at home, and we imagine the committee was to concern itself about that principally, in which case the evidence must clearly take another turn. What the committee needs to learn is the extent of our waste and other lands fit for planting purposes; what it would pay best to plant these with, what means are most likely to encourage planting among landowners, and how to turn out timber to the best account. The committee has now suspended its sittings for the session, and it would do well to provide itself with a programme before it assembles again. The whole subject of home forestry might resolve itself into about half a dozen questions, which, notwithstanding the dearth of good men, could be answered by intelligent foresters from different parts of the country in a few minutes.

YORKSHIREMAN.

**Planting coverts.**—The filling up of the plantations with various sorts of Evergreens and of deciduous flowering shrubs is now becoming generally practised throughout the country, and the chief object for which this is intended is to produce a shelter for game, and more especially for the pheasant. The planting of these undergrowths is, however, like many other things, often performed without regard to consequences or economy, while the chief aim ought in this case to be a conjunction of the useful with the beautiful. Certainly, there can be nothing better adapted for the purposes of sheltering game than the common Laurel, Evergreen Privet, Portugal Laurel, Rhododendron, Holly, Arbor-vitæ, &c., while these produce at the same time an agreeable effect upon the forest scenery, which, without the aid of Evergreens and other undergrowths, is extremely monotonous. Still, however, while we endeavour to produce both these effects, we should also have an eye to something useful and economical. What avails it how wellsoever game be provided with close and impenetrable coverts when the common means of sustenance are wanting within their leafy domicile? The birds are compelled by hunger to leave behind "the umbrageous glade" and seek their food in the fields of the farmers, who in some districts of the country

where pheasants are very plentiful are compelled to seek redress for the damages thus sustained. Such a course on the part of a tenant, though it is quite fair and reasonable, is a very disagreeable alternative, and must prove destructive of that friendly intercourse which ought to subsist between tenant and landlord.—J. M.

#### GATHERING LARCH CONES.

THE cones of Larch may be gathered any time during the winter season, and kept in a dry place till a week or two before the time of sowing, which generally takes place in April. Boucher found that though the cones of the Larch are at their full size in autumn, yet the greatest part of the seeds they contain are not then arrived near their maturity, and that they ripen hanging on the trees during even the coldest winter months. He therefore defers gathering the cones till the month of March or April, when they easily part from the tree, and many of them drop from it. The seeds, when kept in the cones, will retain their vitality for four or five years; but when taken out of them, they lose it in a few months. De Candolle attaches no great importance to the choice of seeds, though it cannot be denied, he says, that trees growing from seeds taken from diseased trees must be more liable to those same diseases. He cautions such as procure seeds from the Tyrol against a practice which he has heard prevails there of placing the cones near a large fire to make them open, by which the seeds must be greatly injured, if not totally deprived of their vitality. The cones gathered in the Vallais, he says, are generally opened by the heat of the sun or over a slow fire, and the seeds from that quarter are preferred by the cultivators of France and Germany. Cones ripened in Britain may either be dried on the kiln without previous preparation, in the manner already directed for the Coniferae in general, or each cone may be split before putting it into the kiln, which is a safer method and less likely to injure the seeds. The operation of splitting is performed by a small, flat, triangular spatula, sharpened at the point and cutting angles, and helved like a shoemaker's awl. The cone is held by the forefinger and thumb of the one hand upon a flat piece of wood, while with the other, by the splitter it is split up from the thick end, and afterwards each half is split up the middle, which parts the cone into four divisions. This affords occupation in wet or stormy weather in the winter season for the workmen of a place, or for boys and girls or old people, and is by far the best and least destructive to the seeds of any methods we know; because the cones so split, when exposed to the heat, are suddenly opened and readily discharge the seeds, which, consequently, are less injured by the fire heat than they would be if the cones were longer exposed to it, which, if not split, they would require to be to cause them to open. Besides the above method of splitting there are others. Some people use a cone mill, which has large sharp teeth in a concave cylinder and others fixed in a corresponding roller. The mill is worked by turning the roller with a handle resembling that of a common winnowing machine. The cones are let into the mill through a hopper. This instrument is very difficult to work and bruises the seeds very much, many of which are of course destroyed. We have several times made use of the improved bark mill for separating the seeds from Larch cones, but the cones are thus so much compressed and bruised, that the seeds suffer exceedingly, and we would by no means advise its use. Indeed, among all the methods which we have known adopted to perform the painful and laborious work of extracting the seeds of the Larch, the plan of splitting the cones singly, as above described, is infinitely the best and safest for the seeds, and ought to be adopted by everyone who has occasion to use only small quantities of seed.

**American yellow deal.**—There appears to be a confusion of terms in your correspondent's paragraph respecting the Weymouth Pine. The wood he describes is evidently that of *Pinus Strobus*, but the term deal is used unadvisedly. Although a Pine plank is undoubtedly a deal, deal is not necessarily Pine. What is known as yellow deal is a different

wood entirely to the yellow or strictly white Pine. Therefore in commercial parlance it is an error to describe yellow Pine as yellow deal, as a totally different timber would be understood.—X.

**Catalpa wood for posts.**—The fact that Catalpa wood almost, if not quite, equals Locust for durability when set for posts has long been known. It is one of the most ornamental trees both for bloom and for foliage, and on account of its rapid growth is a favourite on lawns and along avenues. The annual rings seen when the stem is sawed across are often 1 inch in thickness, and this gives the wood great beauty when worked for furniture or put to other like uses.

**The Box tree**, from sections of whose trunk the blocks for engravers are made, is found in marketable quantities on the shores of the Mediterranean. It grows very slowly, and seldom reaches more than 20 feet in height, and the pieces in commerce are seldom more than 5 inches in diameter. The increase of illustrations is said to be causing a rise in the cost, and we may expect soon to have a substitute which the engravers will denounce as the invention of the sons of Belial.

**Felling Larch.**—The best season for felling Larch is winter, and the trunk may either be severed from the root or otherwise, according to the object in view. If the ground among the remaining trees is to be kept as Grass, root-felling is obviously to be preferred, as will generally be the case when the roots are of any value as fuel. In order to season the wood of the Larch some recommend barking the tree standing, and leaving them in that state for one, or even two, summers before they are cut down. A number of Larch trees on an estate in Stirlingshire were barked and stood in the peeled state two summers before they were cut up and the wood made into panelled doors, which stood perfectly without warping or twisting. The timber of these Larches, after having stood twelve months with the bark taken off, then cut down, was immediately cut up into battens for flooring, and also made into panelled doors and window-frames for the better sorts of houses with equal success. It has been remarked that the roots of the Larch, when left in the ground, decay much sooner than those of the Scotch Pine, the former being liable to the attacks of an insect which does not prey upon the latter.

**Distance of planting trees.**—It is impossible to specify any limit for the distance of planting standards which shall be applicable to all trees; much must depend upon soil and climate. Where the production of timber alone is the principal consideration, the preservation of an unbroken leaf canopy will insure the tallest trees and the cleanest timber; but where it is deemed desirable to cultivate a considerable proportion of strong and healthy underwood, the standard trees should not occupy more than from one-third to one-half of the entire wooded area. Even in close plantations trees should never be allowed to overhang or whip each other. Firs and Pines may stand much thicker than deciduous trees, and during the earlier years of their growth they require much less thinning; indeed, it is seldom necessary to thin a plantation of Scotch Pine until it is nine or ten years old. In situations where the deciduous trees require to be thinned out at intervals of from 25 feet to 30 feet at the age of forty years, resinous kinds may stand at little more than half that distance, say, from 15 feet to 18 feet. In order to obtain sound timber no branches should be allowed to die back close to the bole. The process of natural pruning, by which the upper branches gradually destroy the lower ones by excluding sunlight and air, may conduce to the production of the greatest amount of rough timber and fuel; but the largest yield of lengthy, clean, straight-grown, sound and valuable timber is obtained by timely and continued attention on the part of the forester. Great care is necessary in the thinning and pruning of belts or narrow strips of plantation. If allowed to remain too thick, the slender, drawn-up stems fail to produce the screen or shelter which was the object of the planter. Here an admixture of underwood will prove serviceable, and sometimes it may be found necessary even to pollard a few trees upon the margins in order to obtain the required density.—B.



"This is an Art

Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

### AUTUMN-FLOWERING SHRUBS.

A REMARK frequently made is that such and such a plant is valuable because it flowers in autumn when flowering shrubs are scarce. If they are rarely seen, it is the fault of the cultivator, for there is a host of beautiful late-flowering shrubs to be had for the trouble of growing them, and of all shades of blossom. Taking those with white flowers first, we have *Olearia Haasti*, just now loaded with fragrant blooms, a charming Evergreen of the first quality. *Hydrangea paniculata*, *hortensis*, and *quercifolia* all flower late, to which may be added *H. Thunbergi* with cymes of a lively rose colour, a great acquisition. *Spiræa Lindleyana* is still in beauty, and we shall soon have *Clethra alnifolia*. *Veronica salicifolia* or *angustifolia* has profuse blooms nearly white, and *Clematis Flammula* is very sweet and free-flowering. Of reds and pinks, there are several kinds of *Spiræa*—*Douglasi*, *callosa*, &c. In mild districts, *Fuchsia Riccartoni* and *fulgens* and innumerable hybrids are invaluable—the former as shrubs, the latter against a wall. *Desfontainea spinosa* is a perennial practical joke. The spiny little Evergreen which the gardener has regarded all the season as a Holly suddenly bursts out into a blaze of scarlet and gold. Its brilliant tubular blossoms are among the choicest ornaments of the autumnal shrubbery. *Chimonanthus grandiflorus* belies its generic name by producing abundance of vinegar-scented flowers of a clear Venetian red throughout August and September. *Clematis coccinea*, with which some growers profess themselves disappointed, is a distinct and graceful thing, with strings of cherry-coloured buds and pretty foliage, but it must not be planted on the same wall as *Tropæolum speciosum*, with which in wreaths of glowing carmine nothing can compete. There are plenty of good yellow-flowering shrubs, *Hypericum*, for instance, notably *H. oblongifolium*, *callosum*, and *arietinum*. *Spartium junceum* is good for backgrounds ; its leggy growth requires that its lower limbs should be hidden by other growths. *Bupleurum fruticosum* is a good seaside shrub with yellow umbels of flowers. Then for blues and violets, every year adds to the number of *Veronicas* from the southern hemisphere, while *Passiflora cœrulea* and countless *Clematises* keep the decoration gay on walls and trellises. *Myrtles* and *Lemon Verbena* are only for favoured districts, but they revel in the cool autumns of Western Scotland. *Althæa frutex* is in many shades, and for a soft dove colour commend me to *Aster cabulicus*. Let us hear no more of

shrubberies flowerless in autumn, for, indeed, they may, and should, be as attractive then as at any other time. SALMONICEPS.

### NATURE IN THE GARDEN.

SOME remarks have appeared in a contemporary complaining of those "who criticise the ornate state of gardening." I do not think anyone finds fault with the "ornate" state of gardens, but rather with the introduction into them of arrangements and features which cannot by any stretch of imagination be called "ornate," but which, on the contrary, are ugly disfigurements. A garden is of necessity artificial, inasmuch as we grow plants from every available region of both hemispheres. But our only reason for growing flowers at all is that we may contemplate and enjoy their beauty instead of having to travel all over the round world to see them. What should be done in gardens, therefore, is to arrange the plants so that each may develop the greatest beauty of which it is capable. If we can arrange our plants so that by contrast of form and colour we can make them enhance the beauty of each other, that is where the art comes in and is its true place in a garden. It is not art, but the want of it that is so evident in our gardens ; stone edgings, jardinettes, Box edgings, intricate designs in walks, plants arranged in rows and patterns, staring designs in scarlet, crimson, blue, yellow and pink on grass turf, plants clipped to resemble a woollen carpet, basket beds, and stiffly trained shrubs. These are not art, because no artist could ever paint them ; but, on the contrary, vulgar artifice, the very antipodes of art. The true domain of art is to do and to be what all great art is and ever has been—the expression of delight in and reverence for the beauty of Nature. There is nothing harmonious between a comfortable dwelling-house and an artificial garden. If the garden disagrees with the house, it is the house that is wrong and not the garden. Build beautiful houses and not ugly and false ones, and the more natural the garden, the more house and garden will enhance the beauty of each other.

It is no part of the requirements of a garden that it should teach geometry, and geometrical arrangements of flowers as almost invariably seen do not teach harmony of colour, but staring and hideous discord. The mistake that is made by those who imagine art is something antagonistic to Nature is the mistaking of artificiality for art, and one of the principal uses of art in a garden is to hide or disguise such artificialities as are unavoidable.

The introduction into a garden of statues, fountains, and vases is not art, but an attempt to embellish a space of ground in a fanciful way by the placing of art objects. A space of ground in which these things are principal, and all the outlines of beds and shrubberies are subordinate and made to lead up to them, may be anything we choose to call it, but it is not a garden. It turns the proper relations of art and Nature upside down, by treating as subordinate what should be paramount, and elevating into importance what must always be but a poor and distant reflection. It is always a mistake to place art by the side of the Nature it is derived from, and to place Nature in subordination to art objects is an impertinence which no person who understands their true relations can tolerate. J. D.

**Campanula isophylla and C. fragilis.**—These two *Campanulas* are invariably found mixed up in gardens, and just now when both of them are in flower it may be well to fix their special distinctive

characters in one's mind. In *C. isophylla*, also called *C. floribunda*, the stems are prostrate for a distance from the crown ; then they rise at the points, the flowers being produced in corymbose heads, white or blue, and quite turban-shaped ; the leaves are roundish cordate at the base, and serrated or dentated at the margins. It is a native of Liguria. In *C. fragilis* the stems are diffuse, and never attempt to become erect ; the flowers are as large as those of *C. isophylla*, hardly campanulate, and with calyx segments half as large and broad again as in that species, a constant character. The leaves, which are hardly cordate, are set on long petioles thicker and of a more succulent nature than those of *isophylla*, and always a black-green (syns., *cochlearifolia* and *crassifolia*). It is a native of Italy and Sicily. Both are easily cultivated in ordinary soil, and if kept dry in winter are perfectly hardy ; they are, however, safest on old walls or in the crevices of perpendicular rockwork.—K.

### FRUIT GARDEN.

#### STRAWBERRIES FOR FORCING.

STRAWBERRIES were later in ripening this season than usual, and runners were also naturally produced later ; those, therefore, who depend upon fruiting plants for furnishing plants for forcing next season will not get them into their fruiting pots as early as usual. At one time I should have considered this a circumstance to be regretted, being then, in common with most other growers, under the impression that we could not well be too early with them. Now, however, I am of a different opinion, and I firmly believe that many will be gainers through being late in potting off their plants. I am fully aware that the majority of gardeners will disagree with me, but that does not alter the facts of the case, as I shall attempt to show. Those especially who make a speciality of Strawberry culture in pots take extra pains with their preparation, and are apt to pride themselves in the size of their plants with a corresponding early ripening of the fine plump crowns, but the question is, do these extra strong plants eventually perfect extra fine crops, or, after all, does not the majority prove somewhat disappointing ? Last season, from causes beyond my control, and which need not be explained, our stock of plants, with the exception of one variety, were established in their fruiting pots much later than usual, and were such a wretched-looking lot, that I was quite ashamed of them ; yet they perfected crops quite as good as we ever pick. If there is any real necessity for the plants to be strong, the pots full of roots, and the crowns well ripened, we ought to have failed signally with them, as neither condition was complied with. This is not the first time such an occurrence has come under my notice, as years ago I was actively interested in just such another case, only on a much larger scale, the result being a surprise to all concerned. When we secure extra early and strong runners, and get them established in the fruiting pots, say, about the middle of July, they are almost certain to crowd the pots with roots and thoroughly exhaust the soil of all its fertility, while the crowns split up, and, unless thinned, produce eventually much more bloom than is required ;



whereas, if we finally pot them by the middle of August, and even later in warm localities, they form a moderate quantity of roots and a proportionately strong crown. Then, when these are started, they still have much unexhausted soil to root in; the single, or may be double, crowns produce one or two extra strong scapes of bloom, and the individual blooms being larger are followed by finer fruit without a great amount of thinning. I hold that it is much the best plan to encourage brisk root action in the case of any plant requiring much feeding, and there is but very little movement, there being nothing to induce it in the case of extra root-bound plants. Then, again, the latter are the first to suffer from neglect, and most of us know to our cost what harm results in the spring from a few hours' dryness at the root. As to the necessity for ripening the crowns, I am inclined to think this altogether an exaggerated notion, as hereabouts the tiniest, latest, and most neglected plant invariably forms a flower-scape frequently out of all proportion to the size of the crown. It must not be thought, however, that I would encourage actual neglect or undue procrastination in the matter of preparing the plants, my object being rather to discourage extra zeal in the work and to encourage those who may be unable to secure such extra early and strong runners as they may think absolutely necessary to insure ultimate success.

#### METHODS OF LAYERING AND POTTING.—

There are three or more plans of preparing plants for forcing, all of which find a certain number of advocates, and I have no doubt with the best of results in each case. The plan most generally adopted is to layer the best or first plant on each strong runner, as early as it can be done without damaging the crops, into 3-inch pots, any good loamy soil answering the purpose and no drainage being required. The pots have to be kept well supplied with water, and when fairly well filled with roots the plants are detached from their parents and removed to a convenient spot, usually in the frame ground. Before they are become badly root-bound the requisite number are selected and shifted into the fruiting pots, these either being 5-inch, 6-inch, or 7-inch sizes, the preference being given to the two last. It is not necessary to use quite clean pots, and new ones ought to be well soaked in a tub of water, or otherwise they are apt to unduly absorb the moisture from the soil. All must be well drained, and a sprinkling of half-inch bones may with advantage be added to the drainage. A compost consisting of three parts turfy loam to one of well-decayed cow or farm-yard manure is suitable, and if the loam is fibreless, a quantity of leaf soil will improve the mixture. We also find that unboiled crushed bones used at the rate of not less than a 6-inch potful to a bushel of soil proves most beneficial; the roots cling to them, and do not therefore so quickly become massed among the

drainage. The soil is best used in a moderately moist state, and must be heavily rammed about the roots of the young plants. Each sort is separated from the others, and the whole are eventually stood in beds in a sunny spot on a layer of ashes, and kept carefully supplied with water. As before stated, this plan is the most popular, and is frequently attended with the best results, but I am not prepared to say it is the most satisfactory method of preparing the plants for forcing, nor for planting out into fruiting beds. Another very simple, yet good, plan is to allow the requisite number of rooted runners to remain among the rows of fruiting plants till about the end of July, when, after receiving a good soaking of water, they can be lifted with a little soil about the roots, and either put into the fruiting pots or planted where they are to perfect crops. Plants thus treated are more certain to become quickly re-established than are those turned out of small pots, and which are frequently badly root-bound. A few there are who detach the young plants before they have formed many roots, or rather before they have lost those they have formed, dibbling them into fine good soil in frames about 4 inches apart each way. They are kept rather close, lightly shaded, and uniformly moist till well established, when they are fully exposed and eventually transferred to the fruiting pots before they become crowded. I have seen this method answer remarkably well, and I have also known of cases where it failed conspicuously, injudicious shading being the most probable cause of failure. The plan of

*LAYERING DIRECT INTO THE FRUITING* pots I can most strongly recommend, being of opinion that it is the most economic method of securing a good stock of plants. It has much to recommend it, and only one drawback, viz., the difficulty of keeping worms out of the pots. At the same time, this difficulty can be obviated by a free use of soot over a little strawy manure, placed on the drainage, and, if they penetrate through this, clear lime-water, given when the plants are removed from the rows of parent Strawberries, soon brings the worms to the surface, when they can be collected and destroyed. Layering into the fruiting pots takes up more time than it does to layer into small pots; but then there is no second ceremony to be gone through, and besides there is the greater certainty of the soil being more thoroughly rammed, with the consequent more even occupation of it by the roots. Small pots, again, are not easily kept properly supplied with water; but the large ones, though requiring more of it at a time, do not so quickly dry up in hot weather. We also contrive to have a few rows of plants, principally for providing runners, conveniently near the paths and water tanks, thus rendering watering an easy matter without necessitating much heavy trampling about the beds—another objection urged against this method by those who do not approve of it. Our pots when drained and firmly filled with compost, as

above described, are carried to where the layering is to be done, and after being stood as level as possible the young plants are layered. Medium-sized plants are preferred; these are fixed in the centre of the pots with pebbles or any kind of stones in preference to pegs, the stones serving to preserve the moisture about the base of the young plants. At no time are the plants allowed to become very dry at the roots, and equally as much care is taken not to over-water them, especially at the outset, as this quickly renders the mass of soil unfit for the plants to root in. Directly the plants are well rooted they are separated from the old plants, as the latter if long connected with their offspring will rob them of their vigour, especially during dry weather. All that remains to be done is to transfer the whole of the plants to a good open spot and otherwise treat them as recommended in the case of the shifted plants. Some growers seem very positive the plan of layering direct into the fruiting pots is faulty, but I never knew a failure to occur, at any rate where the system received a fair trial. I have practised it during the last six years, and others of my acquaintance much longer, with the best of results.

*GOOD FORCING STRAWBERRIES.*—For the earliest crops especially *Vicomtesse Héricart de Thury* or *Garibaldi*, as it is also called, is one of the best, no other variety equalling it for vigour and quality of the fruit when ripened in a strong heat, and none being much earlier. *Princess Frederick William* is earlier by about ten days, and is also a good setter and heavy cropper, but the quality is scarcely first class. *La Grosse Sucrée* forms a good succession to the *Vicomtesse*, crops heavily, and the fruits are large and handsome and good in quality. It is much superior to the old *Keen's Seedling*, though the latter is still grown by many. *Sir Joseph Paxton* is another popular sort for pot culture, and produces large firm fruit of good quality. President, though somewhat later, I consider more profitable than *Sir Joseph*; it may safely be said to be the very best main crop variety we have. *Sir Charles Napier*, where it can be grown, is also very well adapted for pot culture, while for the latest supplies there are none to surpass the highly flavoured *British Queen*.

W. I. M.

*Monstera deliciosa.*—The fruit of this plant well justifies its name; it is the only one of the less generally grown tropical fruits cultivated by me which has met with general approval. It is difficult to define its luscious flavour—somewhat of the Pine-apple and Strawberry combined with its own peculiar essence; yet at times it leaves a curious pricking sensation in the mouth, though this is scarcely felt when the fruit is in good condition and thoroughly ripe. It is more curious than beautiful on the table, as the whole of it does not ripen at once, but gradually from the stalk end, where the scales begin to drop off; then the hexagonal divisions underneath, which form the edible portion, swell, and in their turn separate from the core. The fruit should be served when these part easily; generally not more than one-third of a fruit is fit for eating in any one day. With me it



grows very freely and fruits regularly, planted in loam in a border of a cool stove; it should have plenty of water, with liquid manure occasionally; when growing it requires room—in fact, the only difficulty is to keep it within bounds. The fruit takes exactly twelve months to ripen, the flowers opening when the fruit attains perfection.—EDMUND TONKS, *Knowle*.

#### PEACH TREES AS STANDARDS.

"J. S." (p. 167) strongly recommends the growing of this fruit under glass in the form of standards. This advice, if carried out to the letter, might, I fear, prove somewhat misleading; not but what the Peach and the Nectarine, when grown as standards or informal-headed trees, as he expresses it, will generally be found to succeed well enough, and may be made to produce large crops of moderately fine fruit, but which will generally be found to be inferior to that of the same varieties grown in the same or a similar structure trained under the glass roof and at a distance of some 18 inches or 20 inches from it. Such, at least, is the experience of the writer of this letter, who some years ago had under his charge two large span-roofed houses devoted chiefly to the culture of the Peach and the Nectarine. In one of the houses the trees were planted out in prepared beds of soil and allowed to assume the form of standards and pyramids, the latter occupying the central part of the structure, which at the same time contained a few other varieties of fruit trees, such as the Cherry and the Plum, which were not, however, allowed to interfere with the development of the Peach and Nectarine trees, which succeeded well and bore abundant crops of fruit. In the other structure, in all respects similar to that alluded to, the trees, consisting of the various varieties of the Peach and the Nectarine, were also planted out, but instead of being allowed to grow in the form of standards, were trained under the glass roof in the usual fashion, and at a distance of at least 20 inches from the glass. The production of these trees certainly contrasted very favourably with that of the standards, which, however, succeeded so well and bore such excellent crops, that in the absence of the superior fruit of the trained trees to compare with them, I might, like your correspondent, have been inclined to recommend the standard system in preference to that of training. But the superiority of the fruit of the trained trees was by all who saw them considered to amply compensate for any extra attention required in their management. "J. S." says: "I should deem it nothing remarkable for a standard Peach or Nectarine tree to produce twelve or fifteen dozen of fruit the year after planting." I should, however, think that most cultivators would deem it remarkably injudicious to allow such a tree to do so. P. G.

**Peaches and Peach houses.**—In reference to this subject "J. S." remarks: "I would strongly recommend all who purpose growing late Peaches under glass to try the plan of growing standards instead of trained trees." My experience of this system ranges over thirty years. The first house I ever took charge of as head gardener was at Suerby. There was a house there nearly square in area. The roof was occupied by Vines, planted under each rafter, while the border was planted with Peach trees, the variety being George IV. Running round the bed was a wide flue, on which we used to get any amount of Figs from trees growing in boxes. Coming from Arundel Castle, then under the charge of Mr. McEwen, where things were done in a more modern way, this structure rather bothered me. However, perhaps more by good luck than good management, one and all did well; in fact, the Peaches did admirably, and I may here relate I took four first prizes at Bridlington Quay out of the house in question. Since then I have seen large span-roofed houses with standard trees of a very large size do extremely well. One of these was at the Sister Houses, Wandsworth-common. In consequence of Peachwood being thin, the fruit bears the branches down, but the gardener then at the Sister Houses had an excellent plan of tying up the branches. This was done by making a piece of string fast to the roof and tying the branches in the most natural form. It

must not be understood that even a fourth of the branches were tied, but merely a few of the strong ones to support the fruit, which hung in plenty.—R. GILBERT.

#### PYRAMIDAL TRAINED FRUIT TREES.

"J. S. W." says that he does not like pyramidal trained fruit trees. No one will, I think, blame him for disliking such trees; but some, on the other hand, may think that he is hardly justified in pronouncing all such ugly and unnatural. Some people appear to form very narrow and one-sided opinions as to what is natural or unnatural. Not a few kinds of trees naturally assume the pyramidal form of growth, and why, it may be asked, should such trees be considered ugly and unnatural any more than spherical or round-headed varieties? A pyramidal formed tree has the advantage of a round-headed one of similar age and dimension in presenting, as it does, a larger surface to the ripening influences of light and sunshine. The primary object of growing fruit trees is doubtless the production of good fruit, but this is not all, as the ornamental aspect of such trees is also a consideration with many growers, and it does not appear wise to ridicule or to discourage the attempt to assist Nature in the production of the pyramidal or any other form of growth in fruit trees which may be considered desirable.

I have seen pyramidal trained Pear trees which were universally admired, and, what was more, they generally bore excellent crops of first-rate fruit; and I know some Pear trees which were never subjected to any training whatever, but which have nevertheless assumed and continue to retain the pyramidal form. It has also become the fashion with some writers upon the subject to condemn and pronounce as unnatural all attempts at ornate or geometrical flower gardening; and certainly the absurd length to which the practice of carpet-bedding and ribbon-bordering, &c., was carried at a comparatively recent period amply justified not altogether its extinction, but its restriction.

In the immediate surroundings of a mansion or residence something in the way of artificial or geometrical flower-gardening will still find a place, and will continue to be regarded as a, if not natural, still as an appropriate link connecting the building or mansion with the grounds which surround it. An appropriate place is even sometimes to be found for the well-abused ribbon border, and there is now to be seen in the Princes-street gardens at Edinburgh an exceedingly tastefully planted border of this kind, extending from the Scott monument to the western extremity of the gardens, and it might be very difficult to substitute anything more appropriate for the situation. P. G.

#### 5380.—Dymond and Early Alfred Peaches.

—The first, a fine, large, highly-coloured Peach of excellent flavour, is worthy of extensive cultivation under glass and on open walls. It is very hardy, sets freely, and ripens contemporaneously with Bellegarde, Alexandra Noblesse, and a host of other first class midseason Peaches with which it is well able to hold its own. The origin of many of our finest fruits having been lost, it may be interesting to some to learn that the Peach in question was found growing in a garden in Devonshire by a member of the firm of Veitch & Sons, Exeter, and for want of another—I will not say a better—name, it was called Dymond, after the gardener to whom Messrs. Veitch and the public are indebted for its dissemination. Early Alfred, small, early, and prolific, is altogether out-distanced and out of date. It ranks with the early Louise section, but is not quite so good. I grew it many years ago, but gave it up as soon as I found something equally early and infinitely superior in size, quality, and flavour. If "P. S." will refer to the fruit section of THE GARDEN for the past three weeks, he will learn others' opinions of early Peaches. If he is willing to act upon my advice, let him plant Early Grosse Mignonne, A Bec, and Dymond indoors and out, and duplicate them as often as he likes.—W. COLEMAN.

**Early leaf-shedding.**—The most frequented part of our pleasure-grounds is already strewn with

the withered and fallen leaves of the Lime to such an extent, that one might fancy we were at the end of September instead of in the middle of August. Heat and drought have caused the leaves in question to fall prematurely, and they have also made their mark in other directions. What is to be most dreaded is the probability that other trees will soon do the same if rain does not speedily come.—J. C. C.

#### INDOOR GARDEN.

##### NEW HYBRID SARRACENIAS.

As with other plants so with Sarracenias, great strides have recently been made in the production of new varieties through the industry of hybridisers, who have of late years been very active in raising from the few original species a large number of distinct and beautiful plants. Previous to describing these numerous offsprings it may be well to glance over the wild species in order to show more plainly the scanty materials with which the hybridist had to work upon. The genus *Sarracenia* is, or at least was until recently, composed exclusively of species, six in number, all natives of different parts of North America, where they are known as Side-saddle Flowers, and consequently their growing and resting seasons correspond with our own summer and winter. The best known of them all, and also the one which has been the most extensively used as a parent plant, and with the most satisfactory results, is *S. pupurea*, a species from Canada, but known in Europe as far back as 1640. Its pitchers, large and decumbent, are provided with a broad wing or flap above; the mouth or aperture is quite open and without a lid, its place being supplied by a broad crisped fringe, very thickly studded with silvery hairs, and veined with purple on a green ground; this is a very beautiful appendage of the plant. Below the pitchers are streaked and stained with a deep dull purple. Then there are the *S. flava* and *S. rubra*, both of which have been known for over a century. The former is an interesting species, with erect elongated pitchers and gradually dilating from the base to the aperture, where the lid is raised almost erect and has its sides turned back. This species is well marked by the prominent ribs running from the base to the lid and by the yellowish green colour of the mature pitchers. The latter species somewhat resembles this one, but is of a dwarfer habit, and the pitchers, also erect, are widened at the middle and well distinguished by the red veins and markings around the aperture and on the lid, which is larger than the aperture and arching above and pointed in front by the projection of the midrib. Both these species are natives of Florida and tolerably hardy, but *S. psittacina* and *S. variolaris*, from Georgia and Carolina, which are of more recent introduction, are of a comparatively weaker constitution, or at least more delicate mode of growth. In *S. psittacina*, which is an interesting and also a very rare species, the pitchers are decumbent with the heads turned inwards; the curved heads with the membranous projection below the aperture have a curious resemblance to the head and breast of a parrot, which suggested the specific name. The head of the pitcher is veined with crimson and mottled with white. The pitchers of the latter species, which at all times is considered a difficult one to manage, are erect, greatly elongated, and flattened; they terminate in a rounded top, in shape like the beaks of birds of the parrot tribe, having a comparatively small aperture beneath the beak-like lid. Numerous white spots clustered at the back of the head of the pitcher are a distinguishing mark of that species. Lastly, we have the *S. Drum-*



mondi, which has also played a most important part in the production of the new hybrids, though those issued from this species from Florida are generally considered of a more tender constitution than the others. In habit it is thoroughly distinct, its erect pitchers being greatly elongated and furnished with a rather narrow wing in front and rounded on the opposite side, which is marked with three ribs gently diverging from the base to the aperture, which has a well defined rim turned outwards; the lid is larger than the aperture, arched and crisped at the edge. Both the lid and the pitcher to about an inch below the mouth are tessellated with red. *S. Drummondii*, like its beautiful variety *alba*, which differs from it in the colour of the markings of the lid and around the aperture being pure white, has the peculiarity, which seems also to have been perpetuated in the seedlings issued from it, of producing late in the season a second crop of pitchers, which are generally more beautiful than the first and which continue fresh on the plants during the whole of the winter.

All the foregoing species produce singular and attractive flowers of purple and yellow colours during the months of May and June. It is then that the hybridist begins to work, and for months following his patience is put to the test through the tedious and difficult operation of rearing and attending to the progeny. As will be seen by the enumeration of the species, which only a few years ago constituted all that was known of that curious genus, some are natives of much colder climates, and, as a consequence, are much more hardy under cultivation than others. The process of intercrossing these species of different degrees of hardiness has resulted, as might have been anticipated, in the production of hybrids also sharing to a certain degree the hardiness of the parents selected, and from which they are individually issued, a theory which is borne out by the fact that the seedlings in which the typical *S. purpurea* predominates are of a hardier constitution than those descended from *S. Drummondii*. It has therefore been deemed necessary to divide these new hybrids into two distinct sections, according to the degree of hardiness which they possess. In some cases the hybridiser may have simply sought the production of new varieties, regardless of the more or less hardy character of the subjects thus brought to life; but out of nearly a score of these now in cultivation, all differing more or less from the originals, many have been raised at the Royal Exotic Nursery, Chelsea, by Mr. W. Court, who always selected his parents with a view to improving the constitution as well as to impart an ornamental character to the offspring. Foremost among the several excellent varieties which we owe to Mr. Court's raising is the beautiful and interesting

*S. CHELSONI*: this is also the earliest of the seedlings produced by the crossing of *S. purpurea* with *S. rubra*, a species with erect pitchers of a similar habit, but dwarfed dimensions than *S. flava*, widened at the middle and well distinguished by the deep red veins and markings around the aperture and on the lid, which is larger, arching and pointed in front by the projection of the midrib. Although the leading characteristics of both parents are particularly noticeable in the offspring, it is more attractive in colour and of a more elegant habit than either of them. The pitchers, which are richly coloured with crimson of a very bright hue, have the elongated form of those of *S. rubra* with the broader dilation of *S. purpurea*, and occupy an intermediate position between the erect growth of the former and the dwarf, decumbent habit of the latter.

*S. FORMOSA* is a handsome hybrid, also of the same origin, but produced by crossing *S. psittacina* with *S. variolaris*. The former very interesting species has decumbent or prostrate pitchers, with

their heads turned inwards; these curved heads, which are veined with crimson and mottled with white, together with the membranous projection below the aperture, have, as has just been stated, a curious resemblance to the head and breast of a parrot. In the latter, an equally curious species, the pitchers are erect, greatly elongated, and flattened; they terminate in a rounded top, in shape like a parrot, leaving a comparatively small aperture beneath the lid. The distinguishing mark of the species, however, independently of the form of its pitchers, lies in the numerous white spots clustered at the back of their heads. In the hybrid produced by the crossing of these two singular species of opposite natures, their leading characteristics remain intimately blended. The pitchers, which are produced abundantly, are about intermediate in length between those of the two parents; they partake more of the decumbent habit of *S. psittacina* than of the erect growth of *S. variolaris*. The lid of the pitcher is altogether similar to that of *S. psittacina* by its beak-like shape; whereas the broad lateral wing is intermediate in form. The basal portion of the pitcher is of a fulvous green, while its upper portion is beautifully ornamented with a bright crimson reticulated nervation and the characteristic white spotting of *S. variolaris*.

*S. MELANORHODA* is one of the most striking of the hybrids from the same raiser, and resulted from a cross between *S. purpurea* and *S. Stevensi*, the latter already a hybrid raised by Mr. Stevens, at Trent-ham, from *S. purpurea*, of which it has the large and crisped lid of a deep crimson colour, but its pitchers are large and erect, traversed by prominent, deep crimson, straight veins, with the interspaces traversed with numerous veinlets of the same colour. In the new form issued from these two kinds, the pitchers, which when mature are blood-red veined with blackish crimson, are elongated, funnel-shaped, gradually increasing in diameter from the base to the aperture, and furnished with a broad wing on the upper side. They are semi-decumbent or about intermediate between the prostrate ones of *S. purpurea* and the erect ones of *S. Stevensi*, and thus give the plant a very elegant contour. The chief attraction in this plant lies in the lid of the pitcher, which is erect and crisped, beautifully veined with blackish crimson on a reddish yellow ground, and on the side facing the aperture is thickly studded with short, white hairs. By far the best, however, of all the *Sarracenia*s raised at the Chelsea Nursery is undoubtedly the

*S. COURTHI*, which is the result of a cross between *S. purpurea* and *S. psittacina*. The elegant habit of the plant and its rich coloration render it one of the most ornamental forms of its section. Like those of both parents, the pitchers, which radiate from all sides of the root-stock as regularly as the leaves of a rosette, are procumbent, but more symmetrically disposed than those of either parent. In colour this is probably the finest hybrid yet obtained; the young pitchers are bright crimson-purple from the middle upwards, besides being veined and reticulated with deep crimson-purple. They change with age to a deep blood-red with blackish purple veins; the reticulations are particularly handsome and striking. In shape and dimensions the pitchers are very nearly intermediate between those of the two parents; the lamina or flap is turned upwards and terminates abruptly, having neither the parrot-like head of the *S. psittacina* nor the crisped flap of *S. purpurea*; the petiolar tube, which is much contracted at the base, gradually dilates towards the aperture, and the deep wing, curved above, gradually contracts towards both extremities. Other raisers have also produced, by similar crossing, some varieties equally hardy; thus we have, for instance,

*S. ATKINSONIANA*, which is the result of a cross between *S. flava maxima* and *S. purpurea*. It is a very free-growing variety of medium height, with long, narrow funnel-shaped pitchers 15 inches to 18 inches high, green with slight red ribs and reticulations; the lid is broad, cordate, deep green margined and slightly veined with reddish purple.

*S. EXORNATA* is a hybrid between *S. purpurea* and *S. crispa*. The pitchers, which for shape resemble those of the former species in being revolute, are also

of a dark purple-red and glossy; their tube is dark green, covered with veins of a similar colour, and completely intersected with smaller veins between. The lid, which is erect, shows the dark purple-red ribs running through it and diverging. The markings all throughout this strong-growing kind are very effective.

*S. ILLUSTRATA* is one of those few kinds which, like *S. melanorhoda*, have been produced by intercrossing a previous hybrid from *S. purpurea* (*S. Stevensi*) with a species, *S. flava*, which is a very interesting plant with erect elongated pitchers, wedge shaped and gradually dilating from the base to the aperture; the lid, which has its sides turned back in a peculiar way, is raised almost erect to the aperture. They are well marked by the prominent ribs which run from the base to the lid and by the yellowish green tint of the mature pitchers. The hybrid which resulted from the crossing of these two erect-growing parents possesses the same habit of growth, but its long funnel-shaped pitchers are strongly marked with longitudinal crimson ribs joined together by numerous veins of the same colour. The lid is distinctly marked by strong curved veins of a deep crimson colour, and the throat is very prettily veined.

*S. MADDISONIANA*, which, like *S. formosa*, has sprung from *S. psittacina* crossed with *S. variolaris*, is of dwarf habit with incurving, rather erect, short, broad pitchers, which have a green ground marked with dull red veins externally. The lid, which is large, incurved over the tube, ovate and wavy, is strongly marked with conspicuous deep purple-red veins, which extend to the edges. It is a very compact grower.

*S. PATERSONI* is a variety most recently brought under public notice. It was raised some ten years ago by Dr. Alexander Paterson, Fernfield, Bridge of Allan, N.B., and exhibited by him at Kensington on the 11th inst., when it was deservedly awarded a first-class certificate. It is the result of a cross effected between *S. purpurea* and *S. flava*, and is remarkably handsome. The pitchers, which have somewhat the appearance of those of *S. Chelsoni*, are, however, altogether stronger and larger than those of that, or indeed any other kind, being nearly 2 feet high and proportionately broad, with a lid 4 inches in diameter and of a deep rich blood-red colour from the top to the base, the upper part of the pitcher and lid being deeply veined on a slightly lighter ground colour. It is apparently a very free-growing *Sarracenia*, which in due time will undoubtedly occupy a prominent place among hybrid varieties.

*S. SWANIANA*.—One of the most distinct and curiously shaped hybrids yet raised from *S. purpurea* and *S. variolaris*; it is very handsome, owing to its colour and the shape of its pitchers, which sometimes attain 12 inches in height; they partake most of the aspect of *S. purpurea*, but they are more erect, funnel-shaped, slightly incurved, and of a greenish purple tint; the lid and the inside of the tube are reticulated with crimson veins. It is a very free growing kind.

*S. WILSONIANA* is a striking and distinct hybrid between *S. purpurea* and *S. flava*, of unusually pleasing appearance, with green pitchers perfectly erect and striped with deep crimson ribs, more or less joined together by secondary veins of the same colour. The wing, of medium dimensions, is veined with purple-crimson. The inside of the lid, which is particularly broad and full, is closely reticulated also with deep purple-crimson.

This completes the series of the hardier kinds of hybrids, to which we may add *S. rubra*, a species somewhat resembling *S. flava*, but of dwarfier habit and deprived of the yellowish green colour peculiar to the latter species; also *S. rubra acuminata*, a variety with pale green pitchers, becoming freely reticulated with crimson veins near the top of the tube, the inside of which is beautifully marked with the same colour. The lid is also veined with crimson, the close reticulation of the tube being continued on the base of the lid inside. Thus we have a section composed of reputed hardy species and hybrids issued from these, which in their turn have in some cases produced a second generation, the subjects of which



are of a robustness equal to that of the original parents.

*S. EXCELLENS* is a neat and pretty hybrid raised between *S. variolaris* and *S. Drummondii* alba, with green pitchers, which near the upper end become stained with a close reticulation of purple-red veins; the pallid spots which ornament the pitcher have a reddish hue outside. The lid, of a roundish form, is mottled with dark red.

*S. EXCULTA*.—This is an erect-growing hybrid resulting from the intercrossing of *S. atropurpurea* and *S. Drummondii*, both of which are also of a perfectly erect habit. Its upright pitchers are furnished with a rather narrow wing. They are pale green below, but their upper end, as well as their roundish, incurved, undulated lid, is strongly and conspicuously blotched with white and reticulated with numerous small crimson veins.

*S. MITCHELLIANA*.—An elegant and very distinct hybrid produced by the crossing of *S. Drummondii* and *S. purpurea*; the growth partakes of the latter parent, but it is more graceful in its aspect and more erect-growing than that species; the pitchers, which grow from 9 inches to 12 inches high, are upright, of a rich green colour, distinctly and beautifully veined—in fact, traversed by a profuse network of deep crimson veins, in which sometimes the latter colour predominates, as is often the case in *S. purpurea*, while at other times the whole of the pitcher changes to a reddish and very pleasing crimson hue. The lid, which is also marked with bold reticulations of deep crimson-red, is conspicuously and very prettily undulated.

*S. MOOREANA*.—This is a plant of no little value, as it is the hybrid around which concentrates the greatest interest from a practical as well as from a scientific point of view, for it is or is supposed to be the first hybrid *Sarracenia* raised artificially. It was exhibited for the first time as far back as May, 1874, at the International Exhibition held at Florence, by the late Dr. Moore, of Glasnevin, by whom it was raised, and we cannot do full justice to its merits better than by quoting the following extract of a paper read before the congress held during that exhibition, and in which Dr. Moore thus referred to this highly interesting hybrid: "It is supposed to be the first hybrid *Sarracenia* which has ever yet flowered. It is the offspring of *S. flava*, fertilised with the pollen of *S. Drummondii*. The plant is as nearly intermediate with these two noble species of this curious genus as it well can be; and no hybrid which has hitherto come under my notice proves more decidedly the marked influence of the pollen of one plant applied to the stigma of another than this does. It makes its winter growth of pitchers similarly as *S. Drummondii*, and they are nearly as well marked with purple and white colours, but they decay much sooner in spring, and in this way they resemble those of the female parent *S. flava*."

*S. TOLLIANA* is a very fine, handsome, compact-growing variety and a hybrid between *S. flava* and *S. purpurea*, which latter parent it resembles in growth, although of a much more erect habit. It is particularly remarkable on account of its long, slender, funnel-shaped pitchers, which are much inflated towards the centres; they are of a bright green ground colour, and furnished with a very broad wing. The funnel is sometimes distinctly netted and veined with crimson, but at other times wholly deep purple-red with darker ribs and veins; the lid, erect and broad, is also reticulated upon the whole of its surface with reddish purple.

*S. WRIGLEYANA*.—This is one of the most pleasing in colour as well as in shape among all the hybrids yet raised. It is the produce of a cross between *S. psittacina* and *S. Drummondii* alba, and while the charming white mottlings peculiar to this lovely upright-growing kind are conspicuously preserved and even improved in the offspring, inasmuch as they extend half way down the pitchers, the latter in shape forcibly remind one of their descent from *S. psittacina*. It may be said that the pitched leaves are intermediate between the two parents. They grow from 12 inches to 15 inches high and are slightly curved, dilated in the centre, and, besides the white mottlings already noticed, are further ornamented

with numerous fine reticulations of a lively reddish tinge; their base, very narrow, is also of a very peculiar yellowish green and very attractive in colour. S. G.

### EXTREMES IN PLANT CULTURE.

THERE is abundant evidence to show that plants can often be induced to live for a time, more or less protracted, when kept in a temperature either warmer or colder than that which they require; yet it follows that under such conditions they cannot be seen to the best advantage. In all cases when a new plant makes its appearance it is desirable to ascertain the lowest degree of heat it will succeed with, as when this is known, it enables many who may be desirous of cultivating it, and yet have not the convenience of a high temperature, to know that they can do so with a chance of success. In times past when less was known of the often considerable range of temperature existent in many of the different countries from which the plants introduced come, it frequently happened that more heat was given to a plant than it really required. This was particularly the case with kinds that were brought from China, Japan, and the hill regions of India and other countries; for instance, it is said that the common *Aucuba* was for some time after its introduction treated as a stove plant through a supposition that this was needful. Many of the

*MEXICAN ONCIDIUMS*, *Epidendrums*, and *Odontoglossums* were long kept so much warmer than was good for them, that they were killed by thousands, and, with others that had enough vigour in their constitution to live under the debilitating influence of too much heat, they either refused to flower altogether or bloomed so meagrely, that they got the name of being shy flowerers. Such species as *Epidendrum vitellinum* is an illustration of this; when kept, as it used generally to be, too hot, probably not one plant in fifty that was imported ever made a flower before succumbing to the over-warm treatment they were subjected to. The *Dendrobiums* from the comparatively cool hills of India were much in the same way, for although their greater tenacity of life generally enabled them to live under the over-exciting influences and usually to produce some flowers, still the plants were wanting in the vigour which, since grown cooler, they have attained so as to enable them, although making shorter bulbs, to produce double the amount of flower. When I first got the beautiful Khosean *Dendrobium*, *D. Devonianum*, like other growers, I kept it in the warmest house, where the plants used to make bulbs 4 feet long; they bloomed, yet irregularly, and scarcely ever gave more than two flowers to a joint. After growing them cooler the bulbs were a foot shorter, but the flowers were more than double in quantity, the strongest bulbs usually producing four at a joint for some ten or twelve joints of their length. The Nepal *Dendrobe* (*D. chrysanthum*) is another instance of the lengthened time some Orchids can live when subjected to the heat which most growers gave this fine old species; growth and bloom were alike irregular, the plants were often almost continuously growing, and the flowers they produced were sometimes on bulbs that retained their leaves, and at others on such as were devoid of foliage. Now when the plant is found to make strong robust growth in a temperature little hotter than that of an ordinary greenhouse, it yields a profusion of flowers.

The Orchids referred to above are an instance of the difference apparent in many plants when grown in a temperature that suits them as compared with the way in which

they succeed when the conditions are less in accord with their requirements. Looking at the matter from the opposite point of view, where plants do not get as much warmth as they want, it often happens that they will live and flower more or less, but still are far from making the growth or yielding the amount of bloom which they are capable of. *Ixoras*, *Dipladenias*, *Allamandas*, and many others will not only live, but will flower to some extent in a much lower temperature than in reality they like; but so treated, they never make near the amount of growth, nor produce half the flowers they do when subjected to more heat, not only in the summer, but also through the latter part of winter and spring. The plants named stand unequalled for the quantities of bloom they produce when grown with as much warmth as they like. Where choice cut flowers are continuously in demand,

*ALLAMANDAS*, such as *A. grandiflora*, *Cheloni*, and the old *cathartica*, should never be omitted; these three sorts are much better adapted for cutting than the larger flowered varieties, especially those that have a natural tendency in the flowers to reflex, like *A. Hendersoni* and *A. Schottii*. To have them in the best condition, both in appearance and for lasting, the flowers should always be cut when little more than half open. When kept warm enough, *A. Cheloni* and *A. cathartica* will continue flowering for eight or nine months out of the twelve. *A. grandiflora* is not quite so continuous a bloomer, usually having alternate spells of growth and of flowering. *Dipladenias*, which for cutting should include *D. amabilis*, *D. Brearleyana*, and the old *D. crassinoda*, with enough heat will keep on flowering without intermission from the beginning of May to November. *D. crassinoda*, although not now so much in favour as the large-flowered sorts, is one of the most beautiful of all flowers for bouquets, or any of the many other ways in which flowers are now arranged. Like the *Allamandas*, the flowers of *Dipladenias* should not be fully open when gathered. Now, when cut flowers are so generally arranged in shallow bowls or baskets, the individual blooms of such things as *Allamandas* and *Dipladenias* can be used with the best effect, thus doing away with the necessity for cutting the whole truss of flowers, which, with the plants in question, is extravagant, as the trusses keep on opening in succession for such a lengthened season.

*IXORAS*, when accommodated with as much heat as they like, may be said to be never wholly at rest, and where several sorts are grown some or other of them will nearly always be in flower. Amongst the best are *I. coccinea*, *I. Williamsi*, *I. Prince of Orange*, *I. Pilgrimi*, and the now all but discarded *I. javanica* (Rollisson's variety). The flowers of this sort are nearer the colour of *I. coccinea* than any of the others named. It also produces smaller trusses, but when well supplied with warmth is scarcely ever out of flower, being in this respect one of the best of all the kinds for keeping up a supply of bloom. Taking into account the large number of desirable plants that are known in cultivation and that require heat wherein to be grown, it follows that all cannot have exactly that which suits them best in the matter of warmth, a compromise often becoming necessary; yet there are some, such as the warm stove kinds named, that when given the amount of heat they require, yield such quantities of flowers over so great a part of the year, that it is worth while making an effort to give them the warmth they want. So far as regards the summer season, there is little difficulty in the matter, as by attention in husbanding the sun-heat in the daytime, and



the use of fire to prevent the temperature falling too low in the nights and in dull weather, the requisite heat can be secured. But it is in winter that the plants in question often suffer by the temperature of the house in which they are grown being allowed to fall too low, and by the season of rest being prolonged much longer after the days begin to lengthen than is necessary for the plants or that admits of their getting into free growth in a way that will allow of a lengthened season of flowering. T. B.

#### FILTERED WATER FOR SYRINGING.

I HAVE often regretted that the syringe cannot be dispensed with altogether, for I believe that if some other means could be found of counteracting atmospheric dryness than that of wetting the foliage of plants so frequently, they would gain thereby in health. Where the syringe is often used the leaves frequently have a dull soiled appearance caused by the earthy matter held in solution in the water employed. If water used for sprinkling could be filtered, this discolouration of the foliage would be avoided, but very few plant growers enjoy such an advantage, and where much lime is present in the water the plants soon present a dirty appearance when syringed daily. I remember when in a large plant-growing establishment that one of the young men in charge of some of the warm houses saved himself much labour in cleansing the foliage by a very simple expedient. We none of us could understand why his plants always looked bright and clean, notwithstanding that he never sponged them, but it was eventually discovered that the secret consisted in having a shallow wicker basket filled with fine pebbles suspended under the tap, from which the water dripped slowly, so that in this simple way it became quite cleansed of impurities and left absolutely no stain on the foliage.

A gardener of some experience once remarked to me that one great fault of young hands is that they do not use the syringe freely enough; now my impression is, that young gardeners are in a general way too fond of wetting plants overhead. There is a natural inclination to give plants under glass a shower bath, because it makes them look fresh and nice for the moment, but I feel sure that debility is often introduced thereby, especially if the proper moment for so doing is not chosen. Nothing will lower the vital force of a plant sooner than wetting the foliage so late in the day that the moisture cannot dry off by night, the more so if the structure is tightly closed. Do this a few days running and the plants will show a weary look, and the natural lustre which those of active functions possess will give place to a dull greyish hue and on which every stain which the water leaves will show up very distinctly.

In very hot weather when the air throughout the day seems to be almost entirely deprived of its moisture, one cannot err in thoroughly moistening every leaf twice a day, but there are times when a sprinkle in the morning of each day is quite enough. Sometimes the weather is bright in the morning, becoming somewhat overcast in the afternoon; then no syringing should be done after midday. I have known a practice to be made of syringing warm houses twice a day, no matter what the weather might be, but I never saw really good plant culture carried out under such circumstances. A moment's reflection will tell us that the only advantage in moistening the foliage is to arrest evaporation and create atmospheric moisture, and that in dull weather it cannot be needed. Even when the days are bright, but not hot, there is often no necessity for syringing, for a certain amount of dryness in the air is indispensable to the building up of the tissues of the foliage. Even when dryness seems to too nearly approach aridity the correct balance can often be restored by damping down the paths and stages. This gives more natural conditions, because the moisture passes upwards through the plants in the same way that it rises from the ground in the open.

What is much better than the constant daily sprinkling is to give an occasional good washing. I have known plants to be syringed regularly, and yet fall a prey to red spider, the reason being that the water never touched this pest in its secure retreats on the

undersides of the leaves. Many warm-house plants, such as *Clerodendrons*, *Linums*, *Dracenas*, &c., are extremely liable to the attacks of this insect, and unless the water spray is brought to bear directly upon them pretty frequently, it leads a happy life and multiplies exceedingly. In the case of all plants liable to be thus infested, a practice should be made of well washing the under surfaces of the leaves once or twice a week. I feel sure, however, that generous culture is one of the best deterrents as regards the increase of red spider; it does not care about the juice of a healthy plant. Vigorous root action with plenty of moisture will often alone suffice to keep it off. A good illustration of this occurred here this spring. Of a frame of Strawberries, some of which were well established and the others planted in spring, only the latter were attacked. It was curious to note how sharply the line between perfect immunity and an infested condition was defined; it seemed as if not an insect passed on to the established plants, although some of them nearly touched the late planted ones. J. C.

*Byfleet.*

**Pereskia aculeata and Bleo.**—These plants are usually grown for stocks, on which to graft *Epiphyllums* and other Cacti. Bleo, however, which has charming rose-coloured flowers, may be used advantageously as a pot plant for decorating when in bloom either the stove or greenhouse. Cuttings of it may be taken about this time of year, and, when rooted, potted in good strong loam, using as small a pot as may be convenient. When established place them in a position where they will receive abundance of sunlight. They should not be stopped, and in spring they will produce fine heads of flowers. In the West Indies *P. aculeata* is called the Barbadoes Gooseberry, on account of its fruits being used for making preserves in the same way as Gooseberries are used by us. It bears white flowers, which have a very agreeable perfume, but are not produced so easily as those of Bleo, the growth of which is much stouter than that of the former, and the flowers have little or no smell. In Panama its leaves are eaten as a salad. —H.

**Primula floribunda.**—This new Himalayan Primrose seems to be a most persistent bloomer, for our plants, which were noted in THE GARDEN on March 14 as having been in flower since October, have ripened a crop of seed and are again in full bloom, with numbers of other spikes just showing, so that they are likely, with short intervals of rest, to flower all the year round. When sown as soon as ripe, the seed germinates readily, though I have found it is some time in the case of old seeds. Our plants are kept in the greenhouse and slightly shaded, and that they are quite at home in such a spot is shown in the dark green healthy foliage and deep golden-coloured blossoms which, though individually small, from their numbers make a goodly display. The seed is very minute and germinates best when sown on the surface of the soil in well-drained pots or pans of sandy compost, with a frame of glass placed over till the young plants make their appearance, which will be in about a fortnight.—H. P.

**Impatiens Sultani for rooms.**—We had last year a few plants of this Balsam in a small propagating house. They were soon removed, and some months ago we saw many seedlings peeping out on the ashes of the bench where the plants had been. When strong enough, we potted and placed them under a frame. These young seedlings, under liberal treatment, soon became nice plants. From a recent note in THE GARDEN concerning this plant we got an idea respecting its use for indoor decoration, so we put some plants in a drawing-room for experiment. We left them for twenty-five days; after that time they were in pretty good health, except that the leaves at the base had dropped off. For room decoration, therefore, we consider it to be a very useful plant, its dazzling blossoms being lovely in any part of the room. We use it now as much as plants of *Gloxinias* and *Achimenes*, the first requiring much care when moving far from the house; and both these and *Achimenes* do not keep in such a good condition so long as *Impatiens Sultani*.—J. SALLIER, *Saint Germain en Laye*.

#### IVY-LEAF PELARGONIUM FURSTIN JOSEPHINE VON HOHENZOLLERN.

"J. C. B." has evidently never seen this new variety in bloom, or he would have hesitated before sending you a notice of it with the raiser's misleading and incorrect description of it; for, as far as the colour is concerned, it is no nearer to scarlet than a General Jacqueminot Rose. It is certainly all that can be desired in form of flower and habit of growth, and is a most distinct and desirable addition to these beautiful and easily-grown plants, and will undoubtedly become deservedly popular; but the true description of its colour is to be found in your notice of the Carnation and Picotee Society's exhibition at South Kensington on July 28, where you say "the colour is a cherry crimson;" this is its colour, slightly suffused with a purplish tint. I consider it unwise to give wrong descriptions of a new plant, as it often induces amateurs to purchase, with the result, when they see the flower, that they are not only disappointed, but blame the nurseryman for having sent them something untrue to name. To those, like myself and others, who are anxious to obtain a pure scarlet double Ivy-leaf Pelargonium, I may say that that desirable object has been attained in a novelty sent out the present season by Lemoine, of Nancy, called "Langson," the colour of which is bright orange-scarlet; there are several others which have very nearly approached this shade, such as *floribundum*, brick salmon, and *Emilie Lemoine*, cinnabar-red. I have all these blooming at the present time and should be glad to show them to "J. C. B." or anyone who may wish to see them. I certainly agree with the remark that it is very confounding to have such long cumbersome names as that given to this Pelargonium, but at the same time I cannot see how we can supply a remedy. If we are obliged to go to Germany and France for our novelties, we must take their names as well, as if we give them new English ones, as some of our nurserymen did with French *Chrysanthemums*, we should have such a mixture of plants with the same names, that we should be far worse off than we are at the present time; therefore until we can induce foreign raisers to give their novelties English names we must content ourselves with the names of French generals and German princesses. W. CLARK.

56, Ferme Park-road North, Hornsey.

**Streptocarpus biflorus.**—Kindly inform me if this *Streptocarpus* is adapted for bedding, or must it be grown merely as a pot plant?—W. M.

\* \* None of the species of *Streptocarpus* will grow well out of doors in England. They will keep alive in a sheltered sunny border during the summer months, but they do not flower. *S. biflorus* is a variety of *S. Rexii*, often known by the name of *S. floribundus*, and is useful for growing in pans for the greenhouse, or as an edging in large houses—as, for instance, in the succulent house at Kew, where there is a broad edging of this species, and the white-flowered one, both of which bloomed freely during the spring and summer.—W.

**Cork dust for drainage.**—The remarks of "Byfleet" (p. 181) on this subject deserve notice, for if the practice which he advocates be adopted, it would prove a boon to many who have much potting to do. The two most important conditions as regards success with pot plants are permeability of the soil and efficient drainage. Ordinary crock drainage occupies time to put it in position, lessens the space for soil, and, as "Byfleet" says, adds materially to the weight. It cannot be said, therefore, that crocks make the best drainage, but cork, when situated so that speedy evaporation cannot easily occur, is eminently suitable. During these last two years I have drained all my pots in the way described by "Byfleet," but I riddle out the dust and use only the nodules. My potting is for the most part among alpine, and so far as I know nothing concerns success or failure in the case of these plants when grown in pots more than drainage. One may easily interfere with the growth of an alpine if, when giving a shift, crocks or coal ashes fall away from some of the best roots, but in the case of cork dust a few roots interspersed among the nodules seem to hold them in position; conse-



quently, root disturbance is, to say the least of it, minimised. In my experience, too, I find that there is another and great advantage in the use of cork nodules, and that is worms do not often disturb drainage of this description. Coal ashes are also good in this respect, but cork, I think, is better, and I know of no fungus which attacks cork in such a position; moreover, I do not think it possible, especially after the separation of the dust, by firm potting to so compress the nodules that porosity becomes impaired. Cork waste, I may add, may be obtained in almost every town free from cost, a point of no small importance in its favour.—R. C. APPLETON, *The Bar House, Beverley.*

#### WISTOW RECTORY GARDEN.

FROM the high ground on the northern side of the stream which crosses the road at the entrance to Wistow, flowing under an ancient, substantially-built bridge (a rather favourite study of fen artists), an interesting view is obtained of the quiet, sleepy, but picturesque village, the white gables and dark thatched roofs of the buildings contrasting pleasantly with the bright green of the foliage of Hornbeam, Horse Chestnut, and Lime trees, which uprise here and there amid the quaint roofs of the houses, as if planted by some artist's hand. On the highest ground of the village stands the neat little church, and near at hand, among its own garniture of foliage, can be plainly seen the chimneys of the rectory. To my mind there is always a pleasure in visiting a garden which has been in one person's hands for a long time. The impress of the individual mind will in most cases be plainly marked upon tree and shrub and flower, and in the present instance the garden, though small, contains many objects of special interest—reflections of a thoughtful and cultured mind. As we entered the gate one sunny afternoon last May we noticed standing out conspicuously in a shady semi-wild spot a mass of *Anemone apennina*. The scene with its surroundings was so pleasant and fresh from its quietness and informality. One cluster has wandered out from the main patch into the mown lawn, and has been permitted to remain as an illustration of the beauty of such informal groupings. In the shade of a group of trees is a pond devoted to Water Lilies and gold fish. Round the pond on the top of the bank is a row of Roses, standards and dwarfs being planted alternately with *Gladiolus brecheleyensis* between, now just peeping through. Roses of all kinds form a special feature of the place in the season, including old as well as new. On the grassy shelving bank are numbers of the common Primrose, and on this bank also at the upper end of the pond is a handsome specimen of *Mespilus grandiflora*, which never fails to blossom well. There is a small tastefully designed flower garden on gravel, with a border for herbaceous plants, on the opposite side of the pond. The bedding plants are not yet out, but round the five central beds runs a broad band of the blue *Gentian*, many bearing large numbers of sky-blue flowers, and looking much happier than commonly seen, and the gardener (Mr. Waghorn) says it grows luxuriantly anywhere about the garden. I have said it is a good thing for the garden, so far as the beauty and interest of the place goes, when the garden remains in the same hands for a considerable number of years; there is time to work ideas steadily out; failures are cleared away and successes are accentuated; and in the course of time that eternal fitness of things, for which all are seeking, stands a chance of being wrought out. The Rev. Thomas Woodruffe has been rector of Wistow for forty years, and the gardener has been there long enough to identify himself with a good many improvements. I believe there are people who have never seen a York and Lancaster Rose. Here there is a row of it which flowers profusely at the right season in summer. In the kitchen garden are two very remarkable trees; one is a very old Mulberry tree, which stands on its own little lawn, and though crippled by storms and age, and cramped and bound up with iron bands and supported by props, made a wonderful growth and bore a heavy crop of fruit last year. The other tree alluded to is a *Maréchal Niel* Rose, covering the back wall of a narrow unheated lean-to house. I have seen larger specimens, but never more healthy and vigorous or fuller

of bud and blossom. I am afraid to hazard a guess, but there must be many hundreds of unexpanded buds still on the tree, and many have been the bouquets of golden blossoms the kind-hearted rector has distributed among his neighbours and friends. The plant has been worked on the Brier standard high, and is fourteen years old, and at present there are no signs of canker. E. HOBDAY.

#### NOTES OF THE WEEK.

**A fine Lily.**—We have in the open ground here a *Lilium auratum* with forty flowers open on it at the present time and over a hundred more still to open. The plant has six stems, 7 feet high.—F. BRIDGER, *Penshurst Place, Kent.*

**The Snake Roots (Liatris).**—Shady nooks seem to be the best spots for the genus *Liatris*, with the exception of *L. spicata*. *L. pycnostachya*, *scariosa*, *cylindrica*, *graminifolia*, and *dubia* are flowering finely in a damp shady border with a northern aspect. *L. pycnostachya* is by far the prettiest. They are now in flower.

**Hibiscus cisplatanus** (syn., *H. spinulosus*) is a handsome plant, about 3 feet high, bearing numerous flowers 3 inches to 4 inches in diameter, white blushed with rose, with a deep base and a capitate head of pretty maroon styles. The leaves are rugose, oval in outline, with sharp, regular teeth. In flower at Kew.

**Mandevilla suaveolens** has flowered splendidly with us this season. We have a large plant of it here (Trelissick) that has stood out unprotected for twenty years. I never saw such grand glossy foliage on this plant indoors as it has outside, but it never flowers freely except in warm bright summers, such as that we are having this year.—W. S.

**Muschia aurea**, in flower in the temperate house at Kew, is an extremely curious plant. It has a shrubby habit, grows about 2 feet in height, the shoots terminating in large flower-heads. The blossoms have large green sepals, which are very prominent, while the golden yellow petals curve round and between the sepals. It grows well with cool house treatment.

**New Zealand Flax fruiting.**—Both the common and variegated varieties of this Flax have flowered freely with us this year here (Truro), and pods (not unlike the small pseudo-bulbs of some Orchid) have been produced on the end of a spike fully 11 feet long. I never remember seeing it flower before, but I hear that it has done so elsewhere this year.—W. S.

**Saccolabium Blumei majus.**—A superb spike of this Orchid has been sent to us by Mr. Reginald Young from his garden in Ullet-road, Liverpool. It measures quite 18 inches long, and is a dense wreath of tiny blossoms, which are deliciously scented. He also sends flowers of the lovely white *Cattleya Wallisi*, an albino of *C. Eldorado*, likewise in bloom at the present time.

**Disas from Straffan.**—Some flowers of the brilliant *Disa grandiflora* reach us from Major Barton's garden, at Straffan, where this Orchid is grown to perfection in pans by Mr. Bedford, who tells us that he has no fewer than 125 spikes bearing open flowers at the present time. One specimen alone has 45 spikes, and so vigorous are they, that they need neither sticks nor ties, their graceful appearance being thus much enhanced.

**Berberidopsis corallina** has done well with us this summer. The great heat which we have had seems to suit it, for it never grew so fast or flowered so abundantly before. It is to be regretted that this lovely wall plant is not better known than it is; it is a perfect gem, both foliage and flowers being distinct and beautiful. It has proved to be quite hardy here (Truro) against a south wall planted in turfy peat; where the winters are more severe than in Cornwall, it would doubtless do well in a cool greenhouse.—W. S.

**Lælia elegans Turneri.**—Of this grand Orchid Mr. Crawshaw sends us a flower from a newly imported plant in his garden at Rosefield, Seven-oaks. It is one of the richest coloured forms we

have seen, the lobe of the lip being of an intensely deep and rich crimson-magenta, while the sepals are of a vinous-purple. From the same garden also comes a spike of the handsome *Epidendrum prismaticum*, a dense wreath over a foot long. The plant from which it was cut bore a dozen similar spikes.

**Montbrettia Pottsi.**—This beautiful bulbous plant has done well with us this season; in fact, I never saw it flower so freely before, a circumstance doubtless attributable to the amount of bright sunshine which we have had this year. It is quite as hardy as the *Schizostylis*, and in a warm sunny border would increase rapidly, and produce a grand lot of flower-spikes for cutting during the early autumn months. It is undoubtedly one of the handsomest border plants which we possess.—W. S., *Truro.*

**Seedling Dahlia prizes.**—In addition to the Turner memorial prize for Dahlias, which is represented by a handsome silver cup, value ten guineas, the overflows of the subscription, which was necessarily limited to Dahlia fanciers, have been devoted to three prizes—£1, 12s. 6d., 7s. 6d.—for the best seedlings exhibited at the Crystal Palace show on the 4th of September next. The prizes are to be additional to the certificates offered in the schedule. The growers of Dahlias should note that this grand national show will soon be upon us.

**Phormium tenax.**—Since its introduction into this district (Wigtownshire), some fifteen or twenty years ago, there has never been such a display of blossom on the New Zealand Flax as this year. Usually it is worthy of being grown for its fine foliage alone, but it is a very striking object when set with gigantic flowering stems, 8 feet and 10 feet long, covered with dusky crimson flowers. At Castle Kennedy there are many hundreds of plants of it round the lake, each bearing numerous flower-stalks, from which a plentiful crop of seed may be expected.—SALMONICEPS.

**August Anemones.**—I send a few *Anemone* blossoms from seed sown on March 14, to show how quickly they begin to flower when sown early in spring in the open ground. They have suffered greatly from drought, as rain so rarely and sparingly visits our hill. Yet on the bed were blossoms at the end of July, thus uniting the flower circle of the year, as there were still lingering blooms from the seedlings of the previous season. The blossoms are as yet small, waiting for moisture and colder days to become more vigorous, when they will continue increasing in size and beauty until the meridian of their bloom.—ST. BRIGID.

\* \* *Anemones in August!* Would that every owner of a garden followed "St. Brigid's" plan. The flowers sent are almost as fine as any we have received from her garden in early summer. They are, as usual, all double and of varied colours.—ED.

**Seedling border Carnations.**—I send you a selection of flowers from my last year's bed of seedling Carnations. Their variety, vigour, and strange colours have surprised everyone. What I want to draw special attention to is that these seedlings, as I have it on the authority of an expert, are equal, if not superior, to some of the finest named varieties, and that if dressed, the extra petals drawn, and that I furnished them to you with a handsome white collar, you would conclude they had been prepared for exhibition. Now, there is not a single seedling stool from which those have been cut that has not given from 50 to 250 similar blooms; they have been grown without forcing and without any special attention exclusively in the open air, and from which I have been cutting for the past three weeks. I maintain that these facts bear out the reiterated contention of your correspondents that there is no occasion to coddle these splendid and useful flowers, and that for all ordinary purposes a package of good seed will yield a wealth of beauty in colour, variety, and robustness. These succeed admirably in town gardens, those forwarded being raised in the small garden attached to my private residence here. Seedlings are much more robust than layers or cuttings.—WILLIAM J. MURPHY, *Clonmel.*

\* \* Excellent flowers in every respect.—ED.



**Ornithogalum thyrsoides.**—As a summer-flowering bulbous plant for the greenhouse or conservatory, this species is, perhaps, the best of the whole genus, of which over seventy distinct kinds are known, among them being *O. arabicum*, also a beautiful flowering plant and which is known as the Star of Bethlehem. *O. thyrsoides* bears fleshy green, lance-shaped leaves a foot long, and an erect flower-scape from 1 foot to 2 feet in length, bearing on the top a wide-spreading umbel-like raceme of large star-shaped flowers, as many as thirty flowers being open together, and forming in themselves a handsome bouquet. They are pure white with a zone or eye of a yellowish colour at the base of the petals. This yellow zone distinguishes this species from the otherwise closely similar *O. arabicum*, the type of which is said to be an exceedingly shy flowerer, whilst the form known as *O. corymbosum*, and which is figured in the *Botanical Magazine* as a good species, and is stated to be a native of Peru, is as easily grown and flowered as is *O. thyrsoides*. Lindley figured the same form as *O. umbellatum*; it has pure white flowers  $2\frac{1}{2}$  inches in diameter, borne upon erect scapes sometimes 3 feet high; they are very fragrant. These two species were cultivated by Clusius as early as 1605, *O. thyrsoides* being the first introduced, Clusius obtaining a living plant through a Dutch ship that had been at the Cape and brought away a root of it. Now-a-days, bulbs of these plants are to be bought cheap from the dealers, and if potted up early in spring and placed in a sunny frame they push up their beautiful blooms in the course of the summer, and remain in good condition for over two months. There are several plants of *O. thyrsoides* now in flower in the Cape house at Kew.

**The Pink North American Water Lily** (*Nymphaea odorata* var. *rubra*).—As a small-growing Water Lily for aquaria in drawing-room windows, or wherever the space devoted to aquatic plants is very limited, this variety of the common North American Water Lily may be specially recommended to notice. Out-of-doors it is not very satisfactory—at all events, such has been the case with all the plants we have known tried in this way; but in a slightly heated tank, or where the water is kept at a moderate temperature by the warmth of the surrounding atmosphere, no *Nymphaea* proves more at home than this rosy-flowered one. At Kew it is now, and has been for the last six weeks or so, one of the most attractive of the *Nymphaeas* cultivated there. Its good points are—first, its habit of opening its flowers in the morning and not closing them again till night; second, the crop of flowers it produces, half a dozen flowers open at one time being a usual occurrence with this species; and, third, the delicate beauty in the form and tinting of its flowers. In size these are as large as a *Niphetos* Rose; the petals are of good substance and ivory white, except at the base of the central ones, and over the lowest whorl where they are rose tinted, sometimes very conspicuously so, at others much more faintly, whilst now and then flowers of uniform whiteness are produced. The leaves are almost circular in outline, with a deep sinus at the base, and are a dark olive-green in colour. A large specimen might be grown in a tank or tub not more than 3 feet across.

**The yellow Nelumbium** (*N. luteum*).—Visitors to Kew just now, and for the next month or two, will have an opportunity of seeing this rare new aquatic plant in flower, a specimen of it having been this year established in the tank along with the Water Lilies, and under exactly the same treatment suitable for *Nymphaeas*. Attempts have been made to cultivate this *Nelumbium* by giving it the same treatment as suits the rose-flowered species, *N. speciosum*, but these have always ended in failure, and it is only now when the rhizomes are planted in a large pot filled with a strong loamy soil and standing in a tank of water where the top of the soil is 2 feet below the surface of the water, that the yellow-flowered one has been got to flowering condition. This may be a useful hint to those who have tried to grow *N. luteum* along with and under the same treatment as is good for *N. speciosum*. The plant at Kew bears about a dozen leaves, most of which are nearly 18 inches across, and one fully expanded flower, with several buds in different stages of development. The flower

is borne on a stalk 3 feet above the water, and is about 8 inches across. The petals number about twenty, each 4 inches long by  $1\frac{1}{2}$  inches wide, the edges incurved; in colour they are creamy yellow—very clear the yellow is, and perhaps paler than the flowers are represented to be in pictures of this plant, but nevertheless very beautiful. The bunch of orange-yellow stamens in the middle of the flower and the paler-coloured anthers add to their beauty. The liberal treatment afforded the plant at Kew, no doubt, accounts for the flowers being larger and clearer in colour than those noticed in *THE GARDEN* last year as being in flower elsewhere. We are inclined to the opinion that this delicate-looking water plant is not capable of thriving in England out of doors; at least, such a conclusion forces itself upon one after noticing what has been done with it at Kew and looking at the delicate nature of the plant even when carefully cultivated.

**The Lattice-leaf plant** (*Ouvirandra fenestralis*).—This singular plant is now represented at Kew by several large healthy specimens, one of which is in flower and fruit. The skeleton leaves radiating from the fleshy rhizome and floating just below the surface of the water are a source of much astonishment to the public generally, many of them suspecting a trick is being played on them, and that the leaves have been in some way skeletonised and then made to appear like a plant. The leaves have long stalks and are oblong in outline, from 8 inches to 1 foot in length and about 4 inches broad. Along their middle runs a stout midrib, and then on each side parallel with it are three or four other ribs or nerves which converge at each end and which are again connected by a large number of short cross nerves placed at right angles to the principal ones, so that the leaf has the appearance of being made up of numerous little quadrangles. When young, the spaces between these nerves are filled up, as in ordinary leaves, but as the leaves mature the parenchyma or flesh almost disappears, leaving nothing but the skeleton. The flowers are borne on forked scapes about 8 inches long, each fork being about half that length and covered with small flowers. These are somewhat singular in structure, as they are composed of two petals which are fixed on one side of the flower, and which soon wither and fall off, six stamens rather wide at the base and three ovaries which ultimately swell to the size of small Peas with beaked tips, and black and shining when ripe. It appears now that the genus *Ouvirandra* cannot be kept distinct from *Aponogeton*, as the only difference between the two is that which exists in the structure of the leaves; in everything else, root, habit, flowers, and fruit, they are identical. We are, therefore, now wrong in calling the plant *Ouvirandra*, though it will take a long time before this name is supplanted by *Aponogeton* for the Lattice-leaf.

#### NOTES ON RECENT NUMBERS.

**Portulacas** (p. 198).—I can imagine the beauty of these in Messrs. Sutton's garden, at Reading, when they have a bit of sunshine on them to open the flowers; they are disappointing in the way they fold themselves up on a gloomy day, and should be planted where they will catch every gleam of light. They look wonderfully well as a broad band by the side of a walk, and are very useful to succeed tuberous Anemones, as they may be pricked out or sown before the latter have died down, and the *Portulacas* go off in the autumn just as the Anemones shoot up again; both want a bright, warm place, and rejoice in a rich, gritty soil. We have not in gardening much knowledge or custom of planting one crop as a preparation for that which is to follow—in the way that in farming Clover is sown before Wheat because its decaying roots are known to leave a large amount of nitrogen in the soil, which is specially good for the production of the grain the following season. Some day, perhaps, we may have some insight into the advantages of certain garden crops as preparing for others not only from a practical, but from a scientific point of view, and it does not seem unlikely but that there are among plants grown for the sake of their flowers some which instead of impoverishing the ground would actually enrich it for those which are to come two or even three seasons afterwards. I am no chemist,

so cannot undertake to prove anything offhand on this subject, but if observation were directed to the point we might blunder against some truth merely from practical experience and not necessarily from scientific deduction.

**Camellia japonica** fruit (p. 203).—I had not seen the woodcut of the *Camellia* Apple which accompanied the plate last week, or should have made the remark that it was of the shape and full size of the red variety, for obviously it was not nearly so large as the measurement I gave just below it, which was taken from a plant with red and white striped flowers. The Apples split open while they are still green very much in the way of the common Horse Chestnuts, the seeds inside being of a chocolate brown colour, something like Coffee Beans. The full number of seeds in the one shell would seem to be twelve, but often not more than one is fertilised or swells to any size.

**Magnolias as lawn trees** (p. 205).—I have often wondered not to see *Magnolia acuminata* planted more for the sake of its foliage. The flower certainly is not showy, but the masses of bright green leaves are most effective in contrast with other shrubs. It has, moreover, a good tree habit, and seems one of the hardiest of the tribe. Many of the sorts seem to have suffered under a false reputation of tenderness for some years. In most parts of the south of England, at all events, all the deciduous ones seem to withstand more cold than drought, but they appear to be coming into favour again, and will no doubt be planted more extensively than they have been. One would have thought that they would have been taken advantage of for small gardens among the never-absent Laburnums, Lilacs, and Red Hawthorn, which seem to constitute part of the stock-in-trade of urban or suburban villa builders. If anything else is planted in the way of trees, it is sure to be some big-growing thing which must inevitably be cut down before many years unless it has the good luck to die in the interim.

Sussex.

C. R. S. D.

## TREES AND SHRUBS.

### THE CONE OF THE DEODAR.

THERE is a good deal of difference between the Lebanon, Atlas, and Deodar Cedars when young as regards habit of growth and colour of foliage, but when old they are not so readily distinguished, the growth then becoming similar; their cones, too, are much alike, except the scales and seeds be examined. On the opposite page we give an illustration of a coning branch of a young Deodar sent to us by Mrs. Gray, Farley Hill, Reading. It is more graceful than coning branches of the Cedar of Lebanon, the foliage being longer and the twigs more slender than those of that tree. It is not often that we see the Deodar coning, and for this reason we have thought it worthy of illustration.

### OVERCROWDING IN SHRUBBERIES.

IN noticing the overcrowded state often existing in shrubberies, the question might be asked, Why in their first formation put in so many more plants than can remain? Yet the reason is so obvious, that a little reflection suffices to answer the question, as if no more were planted than ultimately could find room, the ground for some years after the work was done would have such a naked, unsightly appearance as could not be tolerated. Were it not for this, it would very often be much better if the planting was confined to one-fourth the number generally put in, as it too frequently happens that the requisite thinning is either not carried out in time or left undone altogether, the first fruit



of which is that the whole becomes a close thicket, well enough for a time if only a screen to hide some offensive object was required, but by which every plant so crowded loses its natural character. Yet it is only for a time that this state of matters continues, for the consequences of crowding invariably result in bare naked bottoms through the lower branches gradually smothering each other until there are none left to kill. Unnatural and unsightly as was the formal cutting-in that used to be sometimes practised in shrubberies where the plants were yearly trimmed to keep them from encroaching on each other, still it was not so destructive in its results as unrestricted crowd-

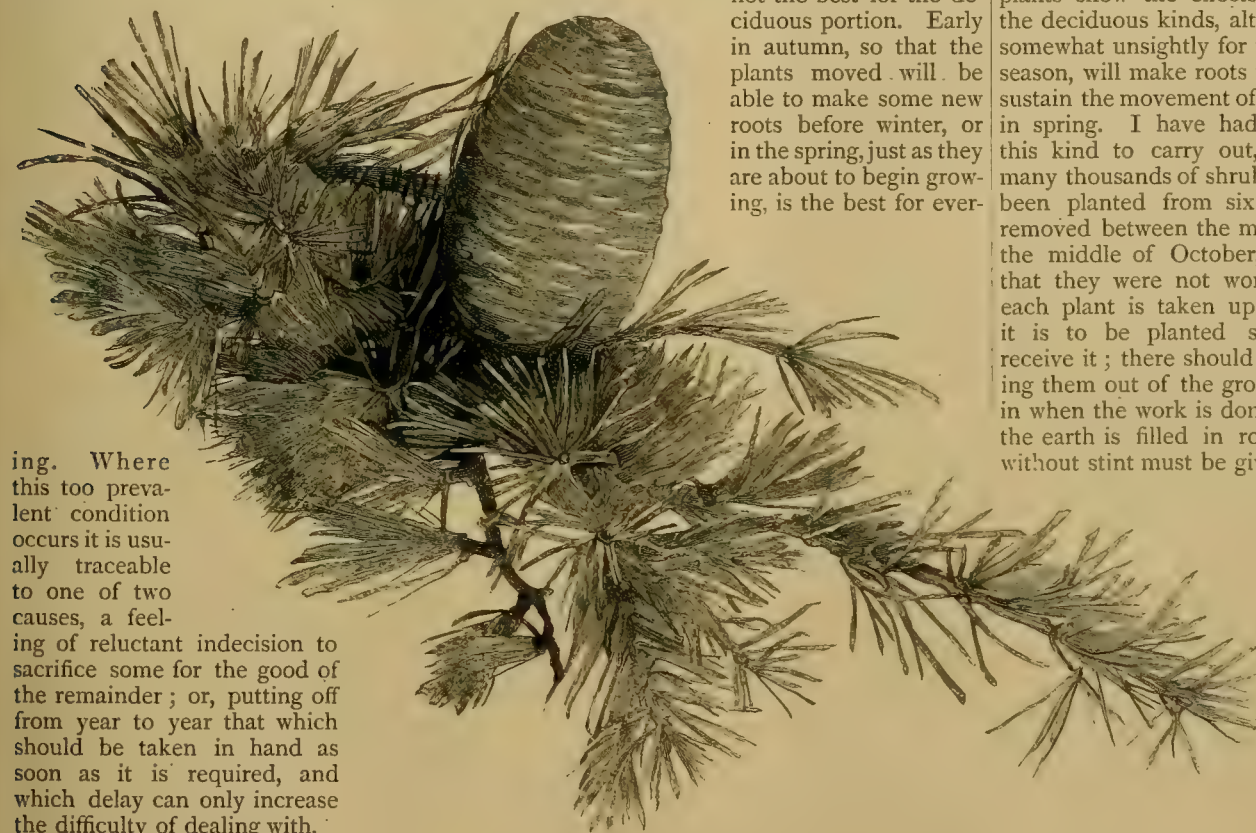
borders are left without thinning longer than the extremities of the branches are about to meet, from that time they begin to suffer.

In many cases the plants that are rejected can be turned to account for planting in some other position within the grounds. Yet, even if not required in this way, and it becomes necessary to destroy them, it is well to face the work boldly instead of letting the whole go on until few are left that are worth retaining. In thinning out operations of this kind, where, as usual, there is a mixture of evergreen and deciduous kinds, the question that first presents itself is what time of the year is best to carry out the work? The time that is best suited to the evergreens is

not the best for the deciduous portion. Early in autumn, so that the plants moved will be able to make some new roots before winter, or in the spring, just as they are about to begin growing, is the best for ever-

of this kind can be carried out with anything like certainty of the plants growing away freely is much shorter than it is in autumn, and if the work is deferred until so far in spring as the evergreens require it to be, the deciduous portion will have broken into leaf, in which state they will suffer much more than if transplanted at the opposite season with still all their leaves on them. The sooner after the third week in August has arrived that operations of this kind are begun, the better will be the result. And the quicker they are pushed on, so as to bring the work to a close whilst there is still enough heat in both the air and earth to set the roots freely in motion, the less will the plants show the effects of moving. Even the deciduous kinds, although they will look somewhat unsightly for the remainder of the season, will make roots that will be ready to sustain the movement of the buds and leaves in spring. I have had re-arrangements of this kind to carry out, in some of which many thousands of shrubs and trees that had been planted from six to ten years were removed between the middle of August and the middle of October, with so few losses that they were not worth naming. Before each plant is taken up the hole in which it is to be planted should be ready to receive it; there should be no delay in keeping them out of the ground, nor any heeling-in when the work is done thus early, and as the earth is filled in round the roots water without stint must be given, so as to make it

like puddle, and each plant that requires support should be staked before it is left. It would be difficult to place too much stress on the necessity for there being no delay in getting the plants replanted immediately they are taken up, and their roots well soaked, especially the deci-



Cone of the Deodar (*Cedrus Deodara*). Half natural size.

ing. Where this too prevalent condition occurs it is usually traceable to one of two causes, a feeling of reluctant indecision to sacrifice some for the good of the remainder; or, putting off from year to year that which should be taken in hand as soon as it is required, and which delay can only increase the difficulty of dealing with.

The length of time that will elapse between the formation of a shrubbery and its requiring thinning will obviously depend on the more or less progress the plants make. Soil and situation, as well as the size and condition the plants were in at the time of planting, will each have an influence on the growth made within a given time. But in most cases, supposing the plants have been put in at a distance of 5 feet or 6 feet apart, in the course of half-a-dozen years many will require thinning out, and a considerable number of those that remain will want rearranging as to position. Unless the planting in the first instance was carried out with a clear conception as to the particular kinds that were ultimately to be retained, many of those that are left after the thinning has been effected will be found not to stand in the right positions, and so will require moving. Where the plants in shrubbery

greens; whilst the deciduous sorts would be better if moved after the fall of the leaves. Consequently, it becomes a question which, the evergreens or the deciduous, are to be favoured in the matter of time. For it may be well here to remark that, as already said, many of the plants that are to be retained, both evergreen and deciduous, will require to be moved more or less from the position they now stand in; therefore the only practical course is to carry the operation out thoroughly by moving all that require it, evergreen and deciduous, as the work proceeds. This being the case, it at once is apparent that the close of summer and beginning of autumn is the time when such operations can best be performed. There are other reasons that go to make the latter end of summer preferable for such planting. In the spring the time that work

deciduous kinds, when moved whilst their leaves are still quite fresh and green. If this is not done, they will suffer severely, as with the weather dry and sunny, as it usually is at this time of the year, the evaporation is such that if their roots are not at once placed in contact with soil that is wet enough, there is nothing to replace the moisture that escapes through the tops, the result of which would be that the bark on the current season's shoots would shrivel.

It is scarcely needful to say that there should not be any carelessness in the taking up; as many roots as possible ought to be secured with as little injury to them as may be, for in the case of trees and shrubs like those in question, that have stood so long undisturbed, they are in much less favourable condition for removal than ordinary planting stock. Where work of this descrip-



tion has to be done and there is an opportunity, it is a good plan early in the winter previous to go round each of the deciduous trees and shrubs, and such of the evergreens as do not move with good balls, at a distance of 20 inches or 2 feet from the stem, with a sharp spade, driving it well down. In this way a good deal of the roots will be severed, and during the time that intervenes before the plants are taken up young feeding fibres will be formed that will help them much to bear removal without suffering.

T. B.

**Hedges of Sloe.**—This shrub (*Prunus spinosa*) is by some called the Spring Plum; by others the Sloe Thorn; but most generally it goes under the name of the Sloe or Blackthorn. In situations where the soil is loamy and not overcharged with moisture, this shrub is found to answer very well for the purpose of fences. It grows rapidly, has formidable spines, and is very lasting. It has no claim upon our attention, however, beyond the Hawthorn, whilst it falls very short of having all the recommendations applicable to that tree. The great fault of the Sloe is its suckers, which it sends up in such profusion as to threaten the usurpation of whole fields in its neighbourhood. The plants should be invariably grown from seed, in which case few or no suckers will rise from the roots. The fruits are ripe in October, when they should be gathered and laid in a heap, mixed with sand, in the open air, and turned over several times during winter until the pulp is decomposed. Advantage should be taken of open weather during January for the purpose of sowing them, which should be done in beds, with a covering of 1½ inches in depth. When two years old they should be transplanted into rows to remain for one year, when they will be fit to be removed into hedge-lines as recommended for the Hawthorn, to which reference is made for all necessary instructions. The Sloe being deciduous, it is to be planted chiefly to divide arable fields.—G.

**Pinus ponderosa** grows in the north of Scotland with great vigour, and resists the severest frosts, but it is found that old specimens become top-heavy and require support. It is, besides, much liable to become infested with a small beetle (*Hylurgus*), which perforates longitudinally the more luxuriant shoots of one year's growth. Unless these casualties, to which this plant is particularly subject, can be overcome by sowing the seed where the tree is destined to remain, or by planting it at a very early age in poor soil, where it may become more fixed and spreading, and produce young shoots less luxuriant, and consequently of a harder texture, its vigorous habit will be of little avail.

**Pruning Conifers.**—I noticed the other day a fine plant of *Pinus Pinsapo*, the lower branches of which had a few years ago become rather straggling and bare, and which were therefore pruned back in order to get them to make fresh growth. This plan has resulted satisfactorily, for the branches at the bottom are now as dense as at the top, and equally green and healthy. No one need therefore fear to prune *Pinus Pinsapo* should such an operation become necessary.—S.

**The Weeping Willow** seems to have had a romantic history. The first scion, it is said, was sent from Smyrna in a box of Figs to Alexander Pope, General Clinton brought a shoot from Pope's tree to America, in the time of the Revolution, which, passing into the hands of John Parke Curtis, was planted on his estate in Virginia, thus becoming the progenitor of the Weeping Willow in America.

**Escallonia macrantha** is certainly one of the finest wall shrubs in cultivation, the foliage rivalling in depth of verdure that of Ivy itself, showing up the numerous rosy pink flowers with which it is covered in its season to advantage. In the southern counties and in a sheltered position this evergreen flowering shrub has an excellent appearance.—J. C. B.

## FLOWER GARDEN.

### VALUE OF THE GLADIOLUS.

AFTER seeing the remarkable show of Gladioli of the gandavensis section which the Messrs. Kelway displayed the other day at South Kensington it is hard to refrain from asking why such flowers are not found in every garden. Such a show as is made from the Langport Nurseries can hardly be excelled by any other flower, for the spikes of the Gladiolus set up as grown, and so brilliant and varied in colour, produce an effect that is almost unique. We meet occasionally with a few fairly good sorts in private gardens, but the most common one, because most permanent and enduring, is the old *branchleyensis*, whilst some kinds seem to lack the constitution which that old sort possesses, and soon die out. No doubt for their beautiful varieties the Messrs. Kelway find plenty of customers, and it is well they should; still, the Gladiolus is not a popular flower—that is, not so popular as many other flowers—and the fact seems to need explanation. I have wondered whether that is to be found in this—that the spikes are ill fitted to furnish cut flowers. To remove a handful of these is to destroy so much beauty, to make such a sacrifice that few care to do so. In this respect these autumn Gladioli compare badly with the harder early summer-flowering or *Colvillei* section, as these give spikes less in size, but far more abundantly. The new hybrids shown recently at Kensington seem to be even less valuable as decorative flowers than are Messrs. Kelway's favourites, for although introducing not a few curious forms and colours and much that is interesting, yet the spikes fail to carry more than just a few expanded blooms at once; hence they produce no considerable effect. It must be admitted that much as we may admire beautiful flowers in the garden, yet they are much more highly esteemed if they are available for cutting. A neighbour who has a large quantity of *branchleyensis* blooming was asked why he did not market the spikes, and he replied that they barely fetched enough to repay the trouble. That will perhaps indicate that, added to the loss to the garden, the Gladiolus does not furnish popular cut flowers.

A. D.

### NOTES ON HARDY PLANTS.

**LYCHNIS LAGASCÆ** is certainly a brilliant alpine where it happens to do well, but I cannot say that my experience of it is such as to enable me to recommend it to any but those who have a limited collection to look after. To give the facts, I find it to be an indifferent grower, a shy bloomer, and of lax, untidy habit, and all summer long it holds a lot of leaves in a sere state. Added to all this, it never makes a stand, as a true perennial should, for a second year's bloom. I have bought plants, and they have always come to hand looking unhappy. I tried seed, and I thought I had hit on at last, but after the first check of the seedling growth they never looked really healthy again. Some were in pots, others on sunny slopes with plenty of rich loam to work in. All were alike—half naked of foliage, many of the stems dead or dying, and the best giving but an occasional flower. I never saw it elsewhere in any better condition, and it would be a favour if those who do get it to flourish would inform us under what conditions. It grows but a few inches high, and seems as if it ought to have numerous brittle stems and form spreading tufts. The flowers are the size of a sixpence, and truly beautiful bright carmine. If the plant is really biennial in this climate, and we have not all of us learnt how to grow it, it seems desirable that those who know should teach us. On the other hand, if it proves generally to be fickle, seldom flourishing even with care, it is a question whether it should not be given the "go by," as one of those tempting and disappointing things which does more harm than good.

**SAXIFRAGA HIRCULUS MAJOR.**—I have grown this some years. I think I had it from Mr. Ewbank's garden at Ryde. When liberally cultivated, it is a handsome form. It has dense evergreen tufts of oval leaves, very small, and compared with which the flowers are very large—three-quarters of an inch in diameter—of a rich golden yellow, freely spotted. These flowers are valuable, not only because few Saxifrages are represented in August, but they are very lasting, and superior to those of the rarer *diversifolia*, having none of the stem-decaying habit of that species. This pleasing kind is worth looking after, and I say this because its tendency to grow out of the soil renders cultural care essential; besides, its vigour is vastly improved by division and transplanting. Moisture it must have; in the damp parts of rockwork, at the base, or even in the walk gutters, it may be had in perfection. Soil is not of much moment if the condition of moisture is maintained. There are some

**PLANTS TO AVOID**, that is where space is limited or where no provision has been made for rampant growers. During the past week, notwithstanding the dry, bad-growing season, the following have given us some trouble, first by eradication and then the extra care needed by such plants as had been all but smothered: *Crucianella stylosa*, which roots from every joint of its prostrate stems, and by its density killing outright all in its way. *Borago laxiflora*, which is simply a horrible weed; a few of its pretty blue flowers cut are pleasing, but the plant in the garden is intolerable. It seeds freely and grows into big plants the first year if not pulled out, which it should be, for all the good things said of, and high prices charged for, it. *Geranium phæum*, *Corydalis lutea* (pretty, but tiresome), *Polemonium cœruleum*, all Stonecrops of the Wall Pepper section; biennial (*Enocheras*, *Astrantias*, *Lupines*, *Musk*, *Linaria pallida*, *Pulmonarias*, *Snappedragons*, *Alkanets*). Of course no attempt is being made to give a list, only, as above stated, of such as have proved troublesome just of late, and in a small garden where, though it is wild enough, wild gardening is not intended. Some of these things, I know, may be desirable in many places, but the hint sought to be given is that where they are grown they should be watched, and more especially should they be stopped from seeding.

**LILIUM AURATUM DEGENERATING.**—It is the old story: Good-sized, newly-imported bulbs are used; they are pregnant with bloom, and they produce it the first year. A chance few do, perhaps, pretty well the year following, but all deteriorate and many decay completely. We should save ourselves a deal of disappointment did we but expect a year's bloom from such bulbs, the same as we expect from the artificially-grown Dutch Hyacinths. When we wish to establish fruitful trees, shrubs, or plants, we find it better to begin with young specimens or seed, and though bulbs may differ considerably in their adaptability for removal in their mature stage, there is always less risk, and not always longer to wait, for the desired results by beginning with young stuff. Even if the newly-imported large bulbs could be got into our gardens without a flaw of injury, we could hardly expect but that they would deteriorate; they might, in fact do, recover, but considering the time it takes and the numbers which fail to make anything out at all, it is about as expeditious to begin at the bottom of the ladder. Anyhow, when bulbs are in that condition that every time they are moved they drop their scales, it is only a waste of time to bother with them, and unless the bulbs were perfect in the number of their outer scales, cankerless, crisp, and weighty, I would prefer to cut them up and use the best scales for a fresh start. I consider home-grown bulbs cheaper at three times the price of the usual stamp of freshly imported ones. Five years ago I planted over fifty imported bulbs from 6 inches to 11 inches in circumference. Nearly all flowered; some finely. The season following but few set up stems capable of sustaining flowers; most produced but stemless, Grass-like foliage. In the autumn all were dug out, when not a sound bulb of any size was to be found; bulbils in quantity were found growing from the old scales. The mistake was seen and the hint taken. The infant bulbs were carefully set, and whilst a few freshly imported ones



have been bought and bloomed every year since, only the batch of bulbs can be relied upon for soundness and progress.

*THE ALPINE CAMPANULAS*, Allioni, Zoysi, Waldsteini, and a few others of the less common and dwarf sorts, are not of such vigorous growth as to be left at the mercy of ravenous slugs. Wood-ashes keep such things pretty safe, but to make sure another precaution has been adopted. It had been observed that even pink and double Wallflower cuttings had never been molested in a cracked seed-pan, which had hoops of rusty wire round it to hold it together. Some *Ranunculus Trautmanni*, *Aster alpinus*, together with its white form, were untouched in iron-bound boxes. Shallow troughs, hooped with now rusty iron, are safe striking pans as regards the encroachment of slugs. Evidently corroded iron is a preventive to one of our worst garden pests. Cor-dons of zinc we have long proved of use, but somehow they get out of position; rusty iron is not a pleasant object in the garden, but where things are grown in tubs or boxes it is scarcely noticed if banded round them. It is simply a case of necessity in many gardens to have if possible one little spot absolutely unapproachable by slugs. If such an object can be achieved, one feels to have gained a strong position.

*THE EVERLASTING PEA* (*Lathyrus latifolius*) as a vigorous growing plant has been the subject experimented upon with a view to learn the effect of obstructed sunshine during the earlier part of the morning in summer. At the risk of being thought crotchety, I will give the facts: In April seedlings of this Pea were set in two boxes of equal size; the same quality of soil and of similar depth was placed in each; the same hands did the planting. One box was placed so as to get the sunshine from rising to 4 p.m., the other so that it could not be reached until 10 a.m., and without it at 4 p.m., same as the other. The former has made double the progress of the latter, and it might have done better still had the plants had more top and root space. Not only is much to be placed to the credit of the extra sunshine, but between the two sets of plants the contrast of growth must have been widened by the fact that the sun would strike the shaded plants with great and sudden power at 10 a.m. in summer. If such small matters are deemed crotchets, they need not be further thought of, and for the comfort of listless gardeners it may be added that the sluggish box of roots are still living; but if we would learn, very much indeed can be learned by simple observation.

There can be little, if any, doubt that the condition illustrated by the above facts is largely responsible for want of success in gardening in the shaded and restricted plots of town gardens; and in any garden it may be worth while to remember that sun-loving plants should not only be set where they can get it, but, if it can be so contrived, where they can get it naturally—directly and gradually. J. W.

**The single Pink** (*Dianthus plumarius*).—Very few persons—perhaps, I had better say gardeners, lest the hardy plant amateurs be indignant—probably know the single form of *Dianthus plumarius*, or the common Pink. One so seldom meets with it in gardens, that I was surprised to come across quite a big bed of it in a garden field here the other day, the owner growing it to provide cut flowers to make into bouquets. As a garden flower it is exceedingly pretty—I think very much more so than is the double white form, and perhaps of some other doubles. The flowers are about the size of a florin-piece, flat and rounded, but very beautifully fringed, even more so perhaps than are the best forms of Heddewigi. It is perfectly hardy, grows freely, and seeds freely, so that a stock is soon obtained in that way. I am sure that ladies who employ flowers for domestic decoration would be delighted with a handful of this old Pink at any time. The colour is chiefly white, but some few flowers are pink, and those in either case which have distinct crimson or maroon circles round the eye are singularly pleasing. I have selected some few of the very best flowers from this bed, and shall sow the seed almost immediately, hoping to get in a few years a decidedly improved strain. If this Pink

would cross with such a beautiful form as the crimson red Heddewigi Brilliant, what delightful results might not be hoped for. This latter annual is just now a grand garden flower. It would give a truly superb bed of colour, for its flowers are large, exceedingly rich, and abundantly borne on short, stocky plants. I have found it to thrive remarkably well in spite of the drought. I have not in all cases so much regard for single as for double flowers—Carnations and Picotees, for instance; but this single Pink is a long way more pleasing than are the best single Carnations, and as we have so many double Pinks, and not a few of those are difficult to grow and oftentimes not free to bloom, there is some good reason for striving to bring the old single Pink once more to the front.—A. D.

### THE HOLLYHOCKS.

THERE is reason to believe that the Hollyhock is re-establishing itself as a popular florist's flower in this country. It is a remarkable fact that while a few years ago, when that disturbing influence—the Hollyhock fungus—was most severely felt, growers were led to think that dry weather helped the disease, and hence it was recommended that Hollyhocks should be planted in trenches, in the same way as Celery, so that during hot, drying days the plants could be freely and thoroughly watered, and, perchance, they would grow out of it. Now, it would appear a dry season suits it best, and certainly during the long dry season of 1884 Hollyhocks did better than we have seen them for years past.

Much can be done in the way of seedling Hollyhocks. During the past season I saw in the seed grounds of Messrs. Sutton & Sons, at Reading, a large plantation of seedling Hollyhocks in fine character. They were all seedlings, but they represented a very fine strain, the plants robust and healthy, and the foliage and flowers both good. The plants were growing in the open in a full sunny exposure; a mulching of manure had been placed over the ground in early summer, which kept the soil cool and moist. Some of the flowers were good enough to name, and if anyone could start with seed from these, an improvement would surely result. Then a good variety can be propagated by taking off the young growths thrown up from the base of the flower-stem at the end of the summer, potted singly in small pots, and, if rooted in time, have a shift in November, or be kept through the winter in cutting pots in a cold frame. These should make good plants for planting out in May or earlier to flower. And in regard to seed sowing, the Hollyhock can be treated as an annual by sowing the seed in a little heat early in the year, pushing on the plants with all dispatch, planting them out in good soil, and keeping them well watered and thriving. If the season is at all favourable, nearly the whole of the plants will bloom at the end of the summer. The surest plan is to sow the seed in July, pot off the seedlings in autumn, keep them through the winter in pots in a cold frame, and plant out in good ground in April. By May the plants should be extra strong, and if the weather be favourable, they will grow away merrily, and be strong and vigorous by flowering time in August. R. D.

**New Auriculas.**—Mr. B. Simonite, Rough Bank, Sheffield, is distributing at the present moment one of his fine seedling Auriculas, viz., F. D. Horner, a green-edged flower of sterling merit, gold tube, quite fine and pure, black ground, edge pure green, a good, robust grower, which carries a fine truss of bloom. Horner's Sapphire, a fine deep blue self, can also be had from the same source. It has a good tube and paste, and a fine, smooth, rounded pip. Any person desirous of forming a select collection of show Auriculas will find no difficulty in securing good plants of the following: *Green edges*: Anna (Trail), Colonel Taylor (Leigh), Lovely Ann (Oliver), Lycurgus (Smith), Prince of Greens (Trail), and Talisman (Simonite). *White edges*: Acme (Read), Ann Smith (Smith), Frank Simonite (Simonite), Smiling Beauty (Heap), and True Briton (Hepworth). *Grey edges*: Alexander Meiklejohn (Kay), C. E. Brown (Headly), Dr. Horner (Read), George Lightbody (Headly), Lancashire Hero (Lancashire), and Silvia

(Douglas). *Selfs*: C. J. Perry (Turner), Lord of Lorne (Campbell), Mrs. Douglas (Simonite), Pizarro (Campbell), Ruby (Read), and Topsy (Kay). Now is a good time of the year to obtain plants from the growers.—R. D.

### PROPAGATING HARDY FLOWERS.

**PENTSTEMONS.**—In the case of the choice named kinds of these beautiful hardy flowers it is absolutely necessary to annually put in some cuttings, as plants which have passed one year in the open ground are so liable to go off in severe winters. I do not think that they much fear cold alone; it is the alternations of mild and hard weather which often occur in our English winters which destroy them. They are roused into a state of semi-activity by a month or so of weather almost spring-like in its geniality, to be immediately seized in the grasp of a severe frost. The Pentstemon is not so fortunately constituted as to be able to resist such climatic vicissitudes; hence the necessity for keeping in hand a reserve—a thrifty young plant to take the place of the old ones which succumb. An error often made is that of deferring propagation until late in summer. August is considered to be the month for propagating very many things, but if July happens, as this year, to be very hot and dry, good cuttings will be scarce on plants that have flowered. The process of flowering alone exhausts the plants, and when to this is added a parching atmosphere and an over-dry soil, there is no wonder if succulent shoots are scarcely to be found. I have just been overhauling a collection of good named kinds, with the result that not 20 per cent. of the cuttings taken are what I should like them to be, and yet they have been watered daily. Six weeks ago there would have been no lack of tender, juicy shoots which would easily have struck in three weeks; now they will hang about double that time, and many of them will probably not make roots at all, and if they do, will not come into healthy, vigorous plants. There is a natural reluctance to take cuttings when the plants are going up to bloom, under the impression that by so doing the display will be diminished. This is an erroneous idea, as in taking cuttings has necessarily the same effect as stopping, causing a multiplication of shoots, the only difference being the bloom of some of them is thrown back, which is more of an advantage than otherwise. The slender shoots which spring from the base are the best for propagating. They should be inserted in sandy soil and be kept close in a cool place until rooted, seeing that they never get dry, but giving a little every calm morning, which will keep them healthy. Where a stock of any particular kind is required, plants well established in pots may be put in warmth early in the year. The succulent growths produced under such circumstances root very quickly in a temperature of 65°. Those, however, who do not care to be troubled with striking cuttings will probably find seedlings to answer their purpose. A good strain will yield flowers but little inferior to named kinds, and if the seed is sown in April and the plants grown on during the summer they will make good flowering specimens for the following year. In the case of both cuttings and seedlings, it is best to keep them in cold frames through the winter, planting out about the middle of March.

**PYRETHRUMS.**—These are much hardier and longer lived than Pentstemons, but they are nevertheless liable to die off suddenly, and as young plants give the best blooms and last rather longer in flower, it is well to put in a cutting or two of each kind when they are in the most favourable condition. When the shoots get hard and wiry they do not strike readily; in fact, all that has been said of Pentstemons will equally apply to Pyrethrums. Seed of Pyrethrums may be sown at any time during the spring. If sown early in the year in warmth, grown along in a genial temperature, carefully hardened off, and planted out by the beginning of May, they will give some good blooms late in the season. Although, in the case of carefully saved seed from double kinds, a considerable portion of the plants will come true to character, those who wish to have good double varieties should obtain some of the best named ones. Many of these are amongst the most handsome of cultivated flowers, and are far too little grown.



**HOLLYHOCKS.**—The right time to propagate these is as early in autumn as the cuttings are obtainable. As soon as the plants have done flowering they should be cut down, and be encouraged to make young growths freely by means of frequent soakings of liquid manure. There is no difficulty in propagating Hollyhocks from cuttings if these precautions are taken. They soon make roots if placed in a cool frame, taking care to give a little air for an hour or two every morning, and sprinkling them early enough in the afternoon to allow of the moisture drying off by night. With ordinary care there will be but little danger of mildew coming, but should it come, the leaves should be at once lightly dusted with sulphur. It is better to put the cuttings singly in small pots, as they can remain in them through the winter, and there will be no root disturbance till they are planted out the following spring. Keep them in cold frames with plenty of air till the middle of March.

**PANSIES AND VIOLAS.**—In the case of choice named kinds of Pansies, either of the show or fancy sections, it is advisable to commence propagating almost as soon as the plants begin to grow in spring. This is the more necessary in the southern counties, where losses are so often experienced through the plants dying off suddenly in hot weather. No care seems to be able to guard against such loss, the only way to keep up a collection being by means of continued propagation. It is only when plants are blooming freely that they are liable to die off, so that if some of the young growths are taken off in June and put out when rooted in good soil they do not flower till the dangerous time is over, and they come with the freshness of youth to furnish some good late blooms. If a stock of any particular kind is required, the plants should be cut over, leaving the slender growths only which spring from the base of them in June, at the same time top-dressing with old, thoroughly decomposed manure or leafsoil, giving a good soaking of water in dry weather. This causes the formation of good succulent growths, which, taken off when about 3 inches long with a little bit of heel to them, soon make roots. Where Violas in quantity are required this is the way to get them. Although I have often inserted Pansy cuttings in frames in summer, I have always thought that they seemed to resent the confinement, and never seemed to do so well as when dibbled in a north border where no sun came. If they are put under cover, air should be left on at night, and they should be fully exposed when the nights are calm or, at any rate, moist. A cool damp atmosphere is what Pansies and Violas like. Old plants which have stood through the summer may be divided in the early part of October. It is said that the blooms which such plants give do not equal those produced by plants from cuttings, but I have never been able to perceive any difference between them. As regards seed-sowing, if you want good strong plants to bloom in spring sow by the end of June at the latest, and prick the young plants out on to a good piece of soil in a sheltered and, if possible, cool situation, where the sun passes off by mid-day. Keep them well watered and sprinkled overhead and they will grow into fine sturdy specimens by the end of the autumn. For summer blooming sow in September or early in spring in warmth, placing in cool frames as soon as the young plants have a pair of leaves, hardening off and planting out by the end of April. Planted in generous soil and kept moistened, Pansies will continue to bloom freely all through the late summer and autumn months.

**PINKS AND CARNATIONS.**—In the case of choice named kinds of Carnations, the safest way of increasing them is of course by means of layering, as if this operation is properly conducted, every free shoot will make a plant. Skilful propagators will probably succeed in striking most of the cuttings of even such difficult kinds as *Souvenir de la Malmaison*, but most people like ease combined with safety, and layering ensures us this desirable combination. An important point is to do this as early as possible; no sooner is the blooming time over than it should be seen to. A delay of a fortnight makes a vast difference in the strength of the plants, as if they make good roots by early autumn they will have every chance of becoming well established by winter, and the risk of loss in a severe time will be much diminished. Some free

soil should be placed round the old stools to peg the shoots into, and these must be so firmly fixed that they cannot shift. Every evening in dry weather they ought to be well watered. If layered early in August, they ought to be well rooted by the end of September, and can then be taken off and potted or planted out at will. Delicate varieties can scarcely be trusted out in cold soils all the winter, and if sheltered in frames and planted out in March will in a general way flower much better. If propagation by cuttings is preferred, they should be dibbled in firmly in sandy soil in frames, and I think they root better in a position where they are exposed to the sun, merely shading during the hottest portion of the day, probably because the soil becomes warmer than in a shady situation. Air-giving in the morning for an hour or two must be attended to, or the foliage will turn yellow. The soil in which they are inserted must also be very sandy and tolerably light, and should be pressed firmly round the cuttings, giving a good watering to settle it well. It may be as well to say a few words respecting winter-flowering kinds, the treatment of which has undergone something like a revolution in the course of a few years. Called, in the first place, Tree Carnations, it was considered to be the right thing to keep them several Pears in pots, and the lankier the plants the more the tree-like habit was developed, the greater probability it was thought of getting a good lot of bloom. This notion prevailed until Tree Carnations were found to have considerable market value, and then simultaneously their capabilities and the best way of propagating and growing them was developed. In the early days of their culture they were layered in the ordinary manner; now, by all who grow them largely, they are propagated in spring from cuttings in that growing succulent condition which gentle heat produces, and are grown along freely through the summer, getting by autumn well established in 5-inch pots. Such plants bloom more freely and yield flowers of better quality than old ones. They form compact tufts of foliage from which the flower-stems are thrown up in the usual manner of Carnations, and are, therefore, much more ornamental than the leggy specimens which are the result of several years' growth. A successful grower of these Carnations states that the cuttings strike much better if put in water two or three times before insertion. They, of course, require a brisk bottom-heat and a constantly high temperature generally till rooted. Some growers "pipe" them in the old-fashioned way; other use the knife. As the raising of Carnations from seed has been much discussed of late in *THE GARDEN*, I need scarcely recommend this way of raising them; but I would simply observe that those who need an abundance of cut flowers should bear in mind that Carnations from seed are extremely floriferous, and that it is much easier to get up a stock of flowering plants in this way than by means of cuttings or layers. Some sow early in the year in warmth. I prefer to do so in July, and keep the plants in frames through the winter, planting out the following March, or, better still, sow in April and plant out in September, which gives good established plants by winter that cannot fail to bloom well the following year. This is the better way for light soils; in those of a moist cold nature the first-mentioned method is preferable.

**PRIMROSES AND POLYANTHUSES.**—I consider the best time to divide double Primroses and choice kinds of Polyanthus to be the beginning of September, just as the heat of summer is passing away and frequent showers and cool moist nights exercise their refreshing and stimulating influence. Some prefer to divide and replant as soon as the blooming time is over, but in this case considerable attention in watering through the summer is needful, and they should have a shady position. Seed may be sown any time up to September, but I prefer to sow as soon as the seed is ripe, as it certainly comes up more readily, and if the young plants are set out in good soil in the autumn they will nearly all bloom sufficient to show their true character so that inferior flowers can be at once discarded. The seed germinates best in a frame, and when they have three or four leaves they may be planted out about 4 inches apart in good well-pulverised soil. If kept watered and sprinkled overhead every evening in hot weather, they will make rapid progress and will get sufficiently firm hold of the soil

to insure them against being thrown out by frost or drawn under by worms in winter. If not large enough to be planted out by the beginning of September, it is better to prick them out in pans or boxes and winter them in cold frames. Where any large amount of seed is to be sown, it may be committed to the open ground, choosing a shady place and watering frequently when needful, but it will not, of course, germinate with so much certainty as if sown under glass.

J. C. B.

## GARDEN FLORA.

### PLATE 507.

#### ODONTOGLOSSUM ROSSI MAJUS.\*

THE genus *Odontoglossum* is supposed to contain in round numbers about a hundred species, most of which are beautiful in a garden sense, and have been in cultivation at some time within the last twenty years or



*Odontoglossum madrense.*

so. At present the number of true species existing in gardens may be estimated at about fifty, and in addition to these there are almost countless varieties of some species, such, for instance, as *O. crispum*, *O. luteo-purpureum*, *O. vexillarium* and the species with which we are specially concerned here. Almost every one of the introduced *Odontoglossums* is happy under the artificial treatment of our glass houses, the one or two exceptions being fortunately with sorts of little importance.

*O. Rossi* ranks among the most popular of cool Orchids, a fact due as much to its accommodating nature and floriferousness as to the beauty of its flowers. Good healthy plants of it may be grown in a Cattleya house or fernery, whilst in a cool house such as suits *Masdevallias* or where ordinary greenhouse plants are grown, it may be cultivated very satisfactorily. There is, however,

\* Drawn in Messrs. Shuttleworth, Carder, & Co.'s nursery, 191, Park-road, Clapham, March 28.





ODONTOGLOSSUM ROSSII MAJUS AND VARIETIES.







a certain course of treatment which may be specially recommended for this species, and which is as follows :—

Newly imported plants should be cleaned and at once fastened on to rafts, such as are now commonly used for many Orchids, or, failing the rafts, small pots almost filled with clean crocks may be used. In both cases a little fresh Sphagnum should be placed about the base of the plant, and this should be kept uniformly moist till the plants have plumped and made new roots. Water may be then liberally supplied at least once a day during the summer if the rafts are used, and in sufficient quantities to keep the Sphagnum



O. Rossi (typical).

in vigorous growth if the plants are grown in pots. Cool treatment, or such as suits *O. crispum*, *O. Pescatorei*, and the cool sorts generally, will be found proper for *O. Rossi*. If it is intended to grow them in houses containing mixed plants, then we should recommend the temperature and position accorded such plants as *Pelargoniums*, plus an abundant supply of water during the warmer months.

*O. Rossi* was first introduced to gardens from Mexico about forty years ago, a Mr. Ross, collector for Mr. Barker, having sent it to England, where it soon flowered and was figured by Dr. Lindley, who named it in honour of its discoverer. This plant, which we may call typical *O. Rossi*, has a pure white labellum an inch or so across, the margins crisped or undulated; the sepals an inch long, green and yellow and marked with numerous large brown blotches; petals the same length as the sepals, narrow, recurved, the edges wavy, and with a few reddish brown spots at the base of each. Contrasting this with the large-flowered, beautifully coloured varieties of the same species which seem to be so plentiful among recent importations, we at once see how variable a plant this must be in its native haunts; and as the forms intermediate between these two extremes are numerous and varied, there is in this one species alone sufficient variety in form and colour to make in themselves a most interesting collection. Comparing the description of the type with the large rose-tinted flower represented in the centre of the

plate, it is easy to understand a somewhat similar variety having at one time been considered a good and distinct species and named *O. Warneri*. It is rarely that one hears of this species under the simple name *O. Rossi*; the additional name *majus* is invariably added to it, be the plant a large or a small form. A very distinct variety cropped up last year from an importation of *O. Rossi*. It is similar in habit and growth, and the flowers are as large as the finest forms of *O. Rossi majus*, but the sepals are of a soft canary yellow, while the labellum is quite white. Hence it is a most pleasing variety, and, being so different in colour from all the others, it is much sought after. It is named *O. adpersum*, as if it were a distinct species, but it is doubtful if it is really so. It is also known as *Humeum*, but if, as some say, the latter name represents a different variety, the two are so near as to be undistinguishable. *O. adpersum*, I believe, was first found in Mr. Horsman's nursery at Colchester, but since then it has appeared elsewhere, and by far the finest form that has been seen of it was one which was exhibited at South Kensington by Messrs. Shuttleworth & Carder, at whose nursery could be seen last spring every form of *O. Rossi* that has yet appeared, ranging from the original small-flowered form through every shade of size to the largest of the major forms, and through every variation of tint from that of *adpersum* and the pure white-

green leaf with pale veins, and about 4 inches long. The flowers are borne on semi-erect racemes, also enveloped in sheathing scales, and 6 inches or so long; sepals and petals an inch long, half an inch broad, and pure white with transverse zones of red on the lower half; labellum white, shovel-shaped, an inch long, and bearing at the base a pair of calli of a pale yellow colour. Introduced in 1855. This is a beautiful little Orchid, which thrives under the same treatment as is here advised for *O. Rossi*.

*O. EHRENBURGI*.—This is not easily distinguished from *O. Rossi*, differing only in having smaller flowers produced in not more than three on a scape, and in the sepals being white and banded with brown: the substance of the flowers is also more delicate than in *O. Rossi*. When out of flower it would puzzle anyone to distinguish these two species from each other. *O. Ehrenbergi* is also a native of Mexico.

*O. CERVANTESI* is a large-flowered plant very similar to *O. membranaceum*, differing, however, in the cordate, acute-pointed form of its lip, in the shade of pink which suffuses the whole flower, and in the fragrance of the flowers. In all other respects the flowers and habit of the two plants are very similar. *O. Cervantesi decorum* is a well marked and pretty variety, which always is more sought after than the type. Also a native of Mexico.

*O. MADRENSE*.—This species has pseudo-bulbs longer and more oblong than in *O. Cervantesi* and leaves 5 inches to 7 inches in length. The racemes are four to six-flowered, and the flowers 2 inches across, the sepals being white with a large red-brown spot at the base, and the



O. Rossi Warneri.

sepalled form to the ruddy tinged flowers like those of the variety *rubescens*. Good cultivation affects both the size and colour of the flowers of this Orchid; the racemes generally bear from two to seven flowers each and are produced in greatest abundance during early summer, whilst stray racemes now and again appear all through the year. The section of *Odontoglossum* in which the above is included comprises also the following pretty flowered species, all of them being characterised by a large white lip, hence the name of the section, viz., *Leucoglossum* :—

*O. MEMBRANACEUM*.—A Mexican species with short, compressed pseudo-bulbs, half enclosed in long membranous scales (whence the name), and which bear each a solitary, dark

petals white blotched with a darker shade of brown. The lip is small, 1 inch long, the edges wavy, pure white with a blotch of pale yellow on the base and a pair of prominent lemon coloured calli; a very elegant species, some of its forms comparing with *O. nebulosum* as far as regards size and substance of bloom. It is figured in the *Botanical Magazine*, t. 6144, as *O. maxillare*, a species to which it is supposed to have close affinity, but which we suppose has not yet found its way into cultivation. There is another equally beautiful ally, called by Lindley *O. Galeottianum*, also unknown in cultivation. Both these unimported kinds are natives of Mexico.

*O. NEBULOSUM*.—The finest plant of this section of *Odontoglossum*, and, like its relations, variable in the size and markings of the flowers, some of the varieties being pure white with a



blotch of pale yellow on the base of the lip, others being blotched with pale brown. The flowers measure quite 3 inches in diameter, and the large lip is usually deeply notched or toothed. Scapes a foot high and bearing from three to six flowers each. This species thrives best if placed in a slightly heated temperature during its growing period, which is early in spring, the flowers being produced towards the end of winter. I have known the flowers of this Orchid remain five weeks in perfection when left on the plant. One of the most distinct of the named forms is that called *pardinum*, which has flowers more heavily spotted than those of the original. A native of Mexico.

*O. BICTONENSE*.—A very distinct member of the white-lipped section of *Odontoglossa*, in that it bears upright flower-racemes quite 3 feet in length, the upper half clothed with flowers an inch across, the sepals, and petals green spotted with brown, and the lip white slightly tinted with lilac. This species was figured in error as *Zygopetalum africanum* in the *Botanical Magazine*, t. 3812. I saw a large plant of it bearing four tall spikes of flowers at Kew in the early part of the summer. B. W.

#### BORDER CARNATIONS.

AMONGST the many statements put forward in favour of these popular flowers, I have seen no mention of their ability to withstand long spells of drought with impunity, and I may add that in this locality, where so many good border flowers have of late succumbed to the combined influence of heat and drought aggravated by parching east winds, it is no small satisfaction to be able to rely on even a few plants that will keep up the floral display after two months of most intense drought. I need not comment upon the merits of any particular class of Carnations, for they are all beautiful, but would rather direct attention to the number of really good varieties that may be grown as border Carnations, and by this term I mean those that will grow and yield good flowers out of doors without any coddling in pots or under glass, for they are by no means tender subjects, but enjoy the fresh air as much as any alpine, and they certainly do not mind a good stiff breeze direct from off the sea, for here upon the coast I frequently come across old plants with thickly barked stems, like miniature trees that have probably not been moved for a quarter of a century. In old-fashioned cottage gardens on the south coast, in company with grand masses of white Lily and old-fashioned Roses, I daresay that those who pay special regard to the exact points of a flower would think these Carnations hardly up to the mark. But for decorative effect I have seen nothing to surpass them. The clearest fringed whites are, when seen in large clumps, most striking. The scarlets and crimsons, with the many striped and flaked varieties too numerous to mention, give a charm to these gardens that few other plants can. For simply yielding a continuous and plentiful supply of cut flowers no plant is more useful. I grow them in beds about 4 feet wide, putting the plants in cross rows about 1 foot apart each way, and letting them form a complete mass; they then need neither stakes nor ties, as there can be no splashing of the blooms where there is no bare soil; a few stakes along the side of the bed to keep the blooms clear of the alleys, and a stout string run all round the bed, and you may cut sheaves of bloom from a very small space. Beds well prepared before planting will last for several years without renewal. Let the raising of seedlings be encouraged by all means, but let us, above all, place chief reliance on good, free-flowering kinds, like the fringed double white, the blooms of which may be counted by the hundred on a single plant.

Hants.

J. G.

**New Pansies.**—The following new show varieties are being distributed by an Edinburgh firm, viz. —*White grounds*: J. Douglas Dick, white, belted with deep purple, well-formed dense blotch, fine size and substance; *Lochbui*, white, margined with dark maroon, a very fine and smooth show flower; and

*Lady Francis*, pure white, belted with deep violet, a fine flower of great substance. *Yellow grounds*: R. Glasgow Brown, yellow, belted with deep plum purple, solid dark blotch, a fine stout flower. *Selfs*: *My Lady*, a pure white self of the best form and substance, and dense violet blotch; and the *Mahdi*, a remarkably fine dark self, very stout and smooth, and of the most approved quality. *Fancy Pansies*: Andrew Dougall, crimson, edged all round with white, fine purple blotch; Captain Callender, dark purple blotch edged with cream, the upper petals dark crimson, extra fine; Harry Veitch, an extra fine variety, golden yellow, the upper petals yellow streaked with purple; Joseph Fleming, rich maroon blotch edged with yellow, the upper petals purplish violet edged with the same; Leo Ross, bluish purple blotch edged with white, the upper petals rosy lilac; Mary Anderson, dark velvety blotch edged with deep yellow, the upper petals bluish purple edged with white, extra fine; Princess Beatrice, white, dark violet blotch and extra fine smooth flower; and Prince Edward, dark purple, margined with white all round, extra fine. — R. D.

**A fine Martagon Lily.**—Mention is made in the *Gartenflora* of a Martagon Lily, the dimensions of which are far beyond anything I have ever seen. Last year it produced forty-eight stems, bearing each one from fourteen to eighteen flowers, which, taking an average of fifteen to the stem, would give a total of 720. It is stated that the Martagon grows naturally in that part (Eisenach, Saxe-Weimar) of Germany, but that it is rare to find more than half a dozen flowers to a stem. The plant in question grew in a shady position amongst Grass.—J. CORNHILL.

#### FLORISTS' CARNATIONS OUT-OF-DOORS.

THERE is just a tendency on the part of some of the writers in *THE GARDEN* to make it appear as if the fine varieties of the florists' Carnations and Picotees cannot be grown in the open ground. I do not say this is intended, but it is more than probable that an impression is left on the minds of some interested in Carnations and Picotees that the florists' varieties—which they grow for exhibition—are so wanting in the characteristics of vigour and hardihood, that they must be cultivated in pots. But this is far from the actual truth, as anyone could have seen in the gardens of the Royal Horticultural Society this season. There in the open ground, in an open spot, exposed to the influence of all kinds of weather, could be seen beds of the best named Carnations and Picotees growing freely and flowering finely, and without any assistance from shading we saw blooms fit to take a place on the exhibition table. Mr. Barron—who does everything of this kind well—prepared the beds by placing some good loam in them; the plants were carefully placed in them, the soil was well mulched with some short manure, and although the season has proved a very trying one for such plants, and we have seen beds of the commonest sorts pretty well dried up, the Chiswick beds have proved a distinct success. And what has been done at Chiswick can be done elsewhere with equal success.

At Oxford, Mr. E. S. Dodwell blooms all his fine seedlings in the open air, and they are from carefully recorded crosses of the best varieties. The seeds are sown at the end of March in pans; when large enough they are placed out in the store beds in the open ground. Later on they are replanted and given more room, and here they flower the following season. A bed of something like 1000 plants is now in full bloom; among them are many bizzarred and flaked Carnations and edged Picotees of great promise, as well as distinct novel and fine fancy and self Carnations. They are simply watered during dry weather; beyond that no protection is afforded them. Anything specially fine is lifted, put in pots, and layered, because it is so much more convenient to layer in pots than in the open ground.

The exhibitor of Carnations and Picotees generally grows his Carnations and Picotees in pots, because he has them under better control, and at the time of blooming he can protect his flowers from being burned by the sun or spoiled by rain. Mr. Dodwell has the greater part of his 1500 pots of Carnations in span-roofed houses without glass, and covered only with

white canvas, the sides being perfectly open. Being shaded from the sun, the white or ground colour of the flowers is purer because of the shade afforded them, and if it rains the cultivator is not prevented from getting among his pots. He simply aims at bringing his flowers to the highest state of perfection; and surely he may do this if he pleases. Those who betray a tendency to decry his work can grow their Carnations and Picotees in the open air if they choose; he does not say they shall not do so, nor condemn the practice. The florist simply seeks for a higher level of development in his flowers, which he could not be certain of were they grown in the open ground.

Many show blooms of Carnations and Picotees are taken from plants growing in the open ground. Some method is adopted for shading the flowers to keep them pure, because purity is an inherent feature of the flower developed by the simple means of a little extra care. R. D.

#### PERPETUAL CARNATIONS.

I QUITE agree with Mr. Baines (p. 177) as to the value of these when planted out of doors. For several years past I have so grown them, and if anyone will but give them a trial for one season they would ever after retain them.

Border Carnations are very beautiful, but their season is soon over, and even the flowers produced are only a tithe of those from their brethren the perpetuals. I have had the latter in flower here outside by the end of May, and continue without intermission until November. I have often planted the plants from pots, and which had flowered all the winter indoors against the walls, and from such have picked a few passable blooms at Christmas. With slight protection in the shape of old lights, such plants, I believe, would have flowered throughout an ordinary winter here in the south.

I am surprised at Mr. Baines' statement regarding the seeds and seeding of these. Why, how does he suppose Mr. Turner gets his fine varieties of these? And I am sure it takes no longer time to perfect the seed of perpetuals than it does border Carnations, and we do not need to send to France for good strains of them. The truth is we send to France for far too much, both in the way of seeds and garden produce, and also articles for the household.

Now, I have had seeds of Carnations from several Continental houses, but in every case the result has been very far below my anticipations; in fact, none were good enough for me to hybridise with, and the remaining stock of the foreigners consists of two dilapidated specimens which have seen better days.

I have been a raiser of Tree Carnations for several years past, and have no difficulty in getting my seed thoroughly ripened every season outside. Of course, inside it is a very easy matter. I sow my seed in September, in boxes of light soil, and winter them in a light airy house near the glass. In the end of February or beginning of March, according to their growth, I prick them into other boxes in good material, and finally plant them out on the 1st of May. I give them good culture, and attend them with a mulch and a good watering before hot weather occurs. To get the majority to flower the first season to prove them, I take up the leading shoot only, and keep the others pinched back. If this is likely to be late in flowering I disbud it the whole length, only leaving a few flowers to open. In this way I can weed out singles and worthless plants, and mark as I go the best to lift for specimens for the conservatory. The flowers produced from these plants the following season is simply incredible. My strain has so improved from yearly selections, that I have discarded the whole of the named ones with which I began hybridising, and believe that to-day it is unsurpassed. J. KNIGHT.

The Oaks, Epsom.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to



reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.

## FERNS.

### A BEAUTIFUL SUBURBAN FERNERY.

THE fernery in Mrs. Tredwell's beautiful suburban garden at Leigham Court, Streatham Hill, is one of the most striking I ever saw. Its distinct features lie in the way in which it is built. Instead of ordinary winding walks such as are seen in most ferneries large or small we have here a very irregular and gradually ascending path, made with flat stones, but with rugged edges, terminating at about the centre of the house in an elevated spot. Being a lean-to structure, instead of either flattish borders or else great surfaces of huge stones insufficiently covered with vegetation, as are generally noticeable in larger gardens, we have in this case projecting rocks surmounted by such noble Ferns as *Lomaria gibba* with hundreds of beautiful fronds, or covered with the massive growth of the curious *Polystichum capense*, the trailing stems or rhizomes of which bear such a resemblance to some of the gigantic forms of *Davallia*. Miniature ravines tastefully disposed on either sides of the walk, and the whole of these are beautifully covered with undergrowth of the common *Selaginella Kraussiana*, or as it is erroneously called *S. denticulata*. The luxuriant growth in this place leads one to believe that it has only recently been planted, yet fifteen years have elapsed since it was first made. But very little indeed is done every season in the way of adding or changing the soil, and as to replacing sickly plants by fresh ones, such a thing is unknown in the Leigham Court fernery. This is the more surprising when it is taken into consideration that, in order to accommodate a certain quantity of plants, the requirements of which are wholly dissimilar, such, for instance, as hardy Hart's-tongue Ferns (*Scolopendrium*), Maiden-hairs (*Adiantum*), and *Lomarias*, the place is heated artificially. The hot-water pipes pass under the rockwork, where they are completely hidden from sight. Yet, contrary as are the requirements of the various kinds of Ferns grown here, not a plant shows any sign of ill health. The masses of *Adiantum cuneatum* and *A. decorum* form quite a thicket of exquisite greenery, as do also the masses of *Nephrolepis tuberosa* and others; in short, the luxuriance of the whole abundantly testifies the judicious treatment which the fernery receives from Mr. Butts, the gardener. Among other noteworthy features of the house are the elegant *Selaginella caulescens* with its long feathery fronds rambling over a mass of *Blechnum occidentale*, whose bronzy foliage forms quite a charming contrast with all the other light foliage of different kinds of green by which it is surrounded on all sides. The dark glossy fronds of such *Scolopendriums* as *digitatum*, one of the finest of the numerous crested varieties, produce a fine effect, as does also *S. crispum* Jonesi, by far the handsomest of all the known forms with goffered or scalloped foliage. Some elevated boulders are taken possession of by such sturdy plants as *Pteris argyrea* and gigantic *P. straminea*, also by *Leucostegia immersa*, which completely covers

them, its slender rhizomes overrunning them entirely, and whose close resemblance to the better-known *Davallia Mooreana* is very suggestive of much warmer treatment. Other boulders on more elevated positions, and, therefore, situated nearer to the light, are rendered most agreeable to the eye by being densely clothed with the round-leaved *Saxifraga sarmantosa*, which, when covered with its numerous panicles of white flowers, add another charm to the place.

Here is a large clump of *Adiantum formosum* with numberless dark fronds, some measuring 3 feet long. Lower down, a recess filled to repletion with the beautiful *Selaginella Wildevoni*; while lower down still, but more in the open, one admires a grand mass of *Adiantum concinnum latum*, whose numerous fronds, from 3 feet to 4 feet in length and gracefully arching, are abundantly furnished with pinnules almost as large as those of the much-admired *A. farleyense* and of a lovely pale green colour, contrasting singularly with the bronzy hue of a neighbouring *A. Sanctæ Catharinæ* and the sombre green of *Asplenium Belangeri* opposite.

Although not of large dimensions, this remarkable fernery contains some splendid plants of *Woodwardia radicans* and *radicans cristata*, which, planted on projecting boulders, have their massive and handsome fronds gracefully hanging all around them, and also a perfect specimen of *Dicksonia squarrosa*, which, on account of the size of its fronds, is particularly adapted for such a place, and which, peeping out as it does between two large stones, seems exactly as if it had sprung up there of its own accord. An exceedingly pretty effect is also produced by a strong plant of *Lygodium japonicum*, best known, however, under the name of *L. scandens*, being trained against the glass, and showing to perfection the light green colour of its barren fronds as well as the singular mode of its fructification on its fertile ones. Lastly, one of the most striking features is the introduction in a sufficient quantity, but not in excess of exotic plants with ornamental foliage of a massive character, such as *Caladium esculentum* and the beautiful *Maranta zebrina*, which appears quite as much at home there as in the swamps of the native Brazilian forests. The same may also be said of fine-foliaged *Begonias* and variegated *Cyperus alternifolius*, all of which are disposed in a natural way.

S. G.

### WATERING LAWNS SIMPLIFIED.

As everyone knows how difficult it is to keep gardens in a fresh condition during such dry seasons as the present, any plan that will tend to lighten labour in this respect is welcome. Lawns particularly demand attention in watering in order to keep them in a presentable condition, and with this view Messrs. Merryweather, the hydraulic engineers, have introduced various systems for automatically distributing water. They devised a system of non-corrosive metallic tubes in short lengths mounted upon easy running carriages and connected with flexible joints, the metal pipes being perforated throughout their whole length, so that by simply attaching one end to a hydrant or stand-pipe the water will run through a length of 60 feet or 90 feet of piping, dispersing itself on the land through the whole course of pipes by means of the perforations. It is very easy to move the apparatus from place to place at intervals. Another system brought into notice by the same firm consists in having similar movable pipes without the perforations, but to open at the extreme end, to which a distributing nozzle is attached. This nozzle is capable of throwing the stream in either a jet or a spray at the will of the operator, who can, of course, walk about freely, dragging the tubes after him. A third kind of apparatus consists of a portable

revolving fountain upon a stand, to which hose may be connected. Garden hose, or lead or iron pipe, so small as half-inch diameter, can be connected to the inlet coupling, and the water supply taken from the house cistern, 8 feet or more above the fountain or direct waterworks pressure. The sprinklers are nickel-plated, and they rapidly rotate by the action of the issuing water, scattering a shower-like spray over a wide area. The adaptation of this latter system is arranged in an inverted manner, so as to screw up to the ceiling a fernery or conservatory, and thus scatter the water downwards and sideways.

### PERFUME IN FLOWERS.

MAY I ask for greater attention to the wants and desires of our noses? What I mean is that in describing plants particular stress should and ought to be placed on their perfume. Hardly any plant lists issued give this in anything like perfection. I have just had lists of bulbs and Roses, for instance, and as I wish to grow nothing but sweet-scented flowers, I want to know particularly which are the most highly scented. There was a little book published many years ago entitled "*Flora Odorata*." I think if it were re-issued, it would command a ready sale. As regards Roses, ought not perfume always to be made a point of? I fear many judges think little or nothing about this. It ought to be a *sine qua non*. I should like our friends in the trade to take the hint of the desirability of appending this information when their new lists are printed. Figures or letters might be used thus for abbreviation—P, sweet scented; PP, very sweet; PPP, very highly scented.

N.

## GARDEN IN THE HOUSE.

### ON FLORAL DECORATIONS.

THE remarks of "C. R. S. D." in a recent number of THE GARDEN on the "Arrangement of Cut Flowers" prompts me to offer with diffidence a few suggestions; they are but suggestions, as no exact rules can possibly be laid down. Clever floral decorators, like poets, are "born, and not made," and you might as well give directions for composing an epic or a sonnet. Still, there are certain principles which bear on this interesting subject, though these should always be liberally interpreted. There should, in the first place, be no overcrowding, no senseless mingling of inharmonious colours; foliage, particularly of the flowers themselves, should be lavishly used. Where contrasting colours are liked, these contrasts should be carefully managed, so that glaring effects are avoided. Due attention should be paid to the position in the room which the flowers are to occupy. In spring and summer no one who has a good garden need ever be at a loss for simple effective decorations. To begin with foliage. In addition to that of the flowers used much more is often required, either to form a background for vases which stand on shelves or brackets, or to mix in with the flowers in a bowl or other receptacle. Branches of Lime in blossom, or of the Plane, the Sycamore, the Oak, or the Larch, are very suitable. The lovely variegated Maple is a graceful addition, and it contrasts well with the darker leaves. Pieces of the *Berberis Aquifolium*, now so beautiful with its clusters of dark purple berries and its glossy leaves of different shades of green, brown, and scarlet, look very well in large massive arrangements.

A good garden mostly produces several kinds of hardy Ferns, which may be advantageously employed to vary the background. Overcrowding is a fatal error. When I see (as I often do) a heterogeneous mass of blossoms of various colours and sizes thrown together "in a lump,"



as the Laureate would say, I am reminded of that audacious parody in "The Critic"—

Now flowers unfold their beauties to the sun,  
The striped Carnation and the guarded Rose,  
The vulgar Wallflower and smart Gillyflower.  
The Polyanthus mean—the dapper Daisy,  
Sweet William and Sweet Marjoram, and all  
The tribe of single and of double Pinks.

How different this confused *mêlée* is to a really artistic arrangement! The vessel which is to hold Flora's gifts should be carefully chosen; no trumpet-shaped vases; they were always ugly and unsuitable, and have been justly (by all persons of taste) consigned to the limbo which ultimately awaits decorations which are not "things of beauty." Old blue and white china bowls, many Doulton jugs, some Japanese vases, with others picked up at curiosity shops, both here

The stately *Gladiolus*, particularly the scarlet variety *brenchleyensis*, *Heliotropes*, *Geraniums*, *Dahlias*, the purple and mauve *Clematis*, the *Jasmine*, late *Roses*, *Mignonette*, and that peerless gem, the Japanese *Anemone*. These may well console us for the loss of our early favourites. "They are the flowers of middle summer," said *Perdita*, and with such a list we can never be at a loss for our floral decorations.

The difficulty of arranging *Roses* has always been a subject for discussion; it never strikes me as unsurmountable. Let the stalks be cut sufficiently long, with plenty of leaves and the colours carefully arranged, and they are perfect. A few sprigs of *Mignonette* may be added or the delicate white *Jessamine*, now the *Honeysuckle* is nearly over, but the fewer mixtures of inferior

green Moss as a foundation, a few blooms of *Gloire de Dijon*, and the white Japanese *Anemone*, relieved with sprays of *Heliotrope* *Miss Nightingale*. The subject of planting graves is one which does not seem to be understood. Here and there you notice in crowded cemeteries some grave which is nearly all the year round sweet with flowers of the season, from Christmas *Roses* peeping from their covering of January snow down to the latest blossoms of "chill October," but this is the exception. Not long since in a God's acre near one of our manufacturing towns I was asked to visit the grave of a friend who had been remarkable for his love of flowers. What was my surprise (it was in early May) to see nothing but the brown unfurfed space planted



Hawthorn in a German jar.

and on the Continent, are admirably adapted for the purpose; they do not offend the eye, but rather add a charm to Nature's loveliness. I saw the other day a pretty arrangement which pleased me. An old-fashioned vase, with rather a wide neck, capable of holding a good many flowers, stood on an Oak bracket. The background was composed of two branches of variegated *Sycamore* and two of variegated *Maple*, one spike of the fragrant *Hedychium* *Gardnerianum*, with its fine broad leaves, two perennial *Sunflowers* with buds and foliage, one scarlet *Cactus Dahlia*, and a piece of deep red *Coleus*. The whole was perfect—the work of a practised hand; the simplicity of the arrangement and the harmony of colour ensured success.

Our gardens are now full of lovely things.

The Sunflower shining fair,  
Rays round with flames her disc of seeds,  
And many a Rose Carnation feeds  
With summer spice the humming air,

flowers the better. One word (as we are on the subject) anent funeral wreaths. There is no time of the year when a good garden does not afford something which may be used to adorn

The sacred ritual of the dead.

In mid-winter, the Christmas *Rose* with the shining leaves of the *Holly*, the *Laurel*, and the *Berberis*; in spring, *Primroses*, *Violets*, *Snowdrops*, and *Narcissi*; and in summer—but here the store is so abundant, that it is unnecessary to enumerate. One word of caution; beware of formality and getting into a groove. I have seen wreaths in nurserymen's shops nearly all alike in their stereotyped neatness. This should be eschewed. Various kinds of foliage may be used. That of the *Copper Beech* is very appropriate if the wreath is intended for an elderly person; it contrasts well with violet and white flowers. A lovely chaplet was lately sent to a friend of mine. It was composed of *Copper Beech*, with

with a few starved *Polyanthuses*, while a wreath of *Everlastings* occupied the centre, and these were carefully protected by a glass shade. Now it would be very useful if some one competent to advise would give us his views on the planting of graves in a future number of *THE GARDEN*.

W. N.

#### A BUNCH OF HAWTHORN.

JUST as in ornamental planting the best of our native trees and shrubs are often overlooked in favour of less suitable exotics, so in flowers cut for indoor decoration woods and hedges may occasionally yield as good a bouquet as may be cut in the garden. The engraving shows some well-flowered branches of wild Hawthorn placed quite freely and naturally in a large jar of the common blue and grey German stoneware. This ware is becoming to white flowers generally, and especially to those of large size and solid texture such as white *Lilies*. The Thorn flowers are rather too strongly scented for a sitting-room, but are admirable in a hall or entrance.



**Arranging cut flowers.**—"C. R. S. D." is right in saying that some never learn the art of arranging flowers. My remarks were intended to give a few hints and a leading principle or two which would be likely to result in pretty groupings. The loose groups which I suggested would, of course, look best if the flowers were all on the same level, or crowded into a single lump. Using one kind of flower only has often a good effect, but that can scarcely be called grouping, and has the disadvantage of offering no contrast of form or colour. Roses cut with long stalks, as I suggested, bring the blooms high over the vase and into the middle of the group, and allows subordinate flowers to be placed so that some of them fall below as well as above the principal object. Roses cut with short stalks are useless for that kind of grouping, as they must rest on the vase or other receptacle used to hold the flowers, and so can only be employed in bunchy arrangements, except as single blooms in very small vases. The groupings which I suggested are suitable for arrangements from 18 inches to 3 feet high.—J. D.

**Tinted Carrot leaves.**—The Carrot bed should now be searched for red-tinted leaves to arrange with flowers. Their use is much to be recommended in a glass bowl or vase either with white Japan Anemone alone, or in combination with the pink one or with pink monthly Roses; if a few red Bramble leaves can already be found, they could be added with advantage.—G. J.

#### WORK DONE IN WEEK ENDING AUG. 25.

AUGUST 19.

It is still dry and sunny by day, and the nights very cold for the time of year—so cold, indeed, that if tender bedding plants had not previously attained their full growth, it is doubtful whether they would have done so this season. I never saw them better nor the foliage kinds so bright in colour. We water them every day, and now that the nights are so cold, this is done in the early morning in preference to doing it at night. At the commencement of the drought herbaceous plants were not watered; consequently they soon began to get so shabby, that watering became a necessity, and now they are flowering as grandly as ever. Phloxes, Galeas, Helianthus, Rudbeckias, Potentillas, Achilleas, Gladiolus, and Hyacinthuscandicans are at the present time extremely effective, and my notions as to hardy plants being a very indifferent class of plants for summer flowering are changing to the opposite opinion, my only regret respecting them being that but few of them are adapted, owing to their varying height and season of flowering, to take the place of ordinary summer bedding plants, and more particularly so in a garden laid out in geometrical fashion, as the one I have to deal with is. Tied up Gladiolus and the flower-stems of Rudbeckias, and cut off decayed foliage and seed pods from other plants, and weeded and tidied up the borders. Digging and housing Potatoes; they turn out infinitely better—larger—than was expected, and there is scarcely a diseased tuber. The ground is so dust-dry, that even the latest kinds have already ripened their tubers, and though very small—after much consideration—we have decided to immediately harvest the lot. Finished top-dressing and re-arranging Pines. Potted on successions, and added to the plunging material—leaves and litter—in the sucker pits. The bottom-heat in fruiting and first and second succession pits being close on 90°, fresh material has not been added. Weeded and pricked off runners from Strawberry plants in pots. Disbudded a few of the earliest Chrysanthemums, and tied all to their supports.

AUGUST 20.

The shower, 0.11 inch, that fell this afternoon is a most welcome hint to the large amount that is now due to us. Watering shrubs and wall fruits all the morning; digging up and housing Potatoes; mowed weeds and Rushes round sides of lakes and cleaned up the same. The large clumps of Arundo conspicua planted on the banks of the lakes being now in full flower, produce a magnificent effect, the stems and long feathery plumes being in some instances 10 feet long. Had another turn at thinning Pears, the late kinds, Glou Morceau, Ne Plus Meuris, Josephine de

Malines, Winter Nelis, and Beurré Rance having heavy crops, and, being small for this advanced period, a goodly number of the speckled and smallest fruit was pulled off. Gathered more William Pears and the first ripe fruit of the Early Albert Peach from the open walls. This variety I consider to be one of the very best of the early kinds both as to quality, size, colour, constitution of tree, and productiveness. Cleaned, weeded, top-dressed, and partially pruned pot Roses that are to be forced, and replunged the whole in coal ashes to save watering. Vegetable Marrows and Ridge Cucumbers have also had their turn of overhauling to-day. Weeded and thinned out shoots, pinched back others, and cut all fruit that was ready to prevent premature exhaustion of the plants. Peas and French Beans being so blighted, the Marrows will probably be in great request, and are therefore worthy of more than the usual attention as to culture. The second crop of Figs is now ripening up, and syringing has been discontinued, but, as a preventive of rust and red spider, we still keep the atmosphere moist by syringing floor, walls, and border; the fruit is looked over daily, and is gathered if there is the least crack at the eye. Why is the skin of the second crop of fruit more tender than that of the first? Such is the case here, and I am unable to account for it. Peaches in latest house we now shade with stout tiffany, in order to lengthen out the supply to the utmost, and with the same intent we let down the wall coverings over ripe Apricots, but, of course, draw them up at night, that the trees may get the benefit of the night moisture.

AUGUST 21.

Dull, and several attempts at raining, which ended in a total fall of 0.05 inch. Truly we are compelled to be thankful for small mercies in respect of rainfall this season. Thinned out Turnips; they are sown on a border facing the east, and the site and the frequent sprinklings of water have suited them, so that we hope to get a good winter supply; and also of Lettuce and Endive, which have come up well and are almost fit to thin. Sowed another lot of winter Spinach; weeded and pulled off side shoots from Celery and partly earthed up, a good soaking of water having previously been applied. Again digging Potatoes; we house them thinly as possible in a dark underground cellar, laid on straw, and covered with the same, to prevent greening. Gathered all the Orleans Plums—a fine crop of good fruit. Wasps have come, and the annual autumn warfare with these pests has begun by our searching out their nests for destruction, and by netting over whatever they attack at the first opportunity after the discovery. Watering inside Vine borders; there has been so much outside watering that there has been a tendency to neglect inside, and in one instance we seem likely to have to pay the penalty by "shanking" of Grapes, and though the affection does not appear as if it would be very injurious, it will be sufficiently so to prove an effective warning for the future, and has already made us anxious in respect of our latest Vine borders having a sufficiency, and this I think they have got to-day. Layered a few more Carnations, and put in cuttings of others. They strike well under handlights, that can be placed in any sheltered shady position; a dewing overhead is necessary after a hot day, and the soil in the pots should at all times be kept moist, though not wet, and the ingress of worms be prevented by standing the pots on coal ashes or slates. Propagating bedding Pelargoniums. Pulled up exhausted frame Cucumbers, and cleared out pit in order to get in fresh leaves for propagating Heliotropes, Ageratums, Coleuses, and other soft-wooded bedding plants.

AUGUST 22.

This has been a busy day in the houses and flower garden. Pine-pit lights have all been thoroughly washed, and this completes the all but routine work that will be needed in this department for some weeks to come. Late Vines have been gone over to stop laterals, also washed doors and glass at ends of houses, and cleared all other parts of the house of cobwebs, and the inside borders have now been covered with clean straw, but of course the old mulching is retained. The plant stove has also been cleaned out and re-arranged, and our Strawberry house that is now filled with tuberous Begonias and

Gloxinias has also been made to look its best by arranging the plants with due regard to colour, and by interspersing at intervals ornamental foliaged plants such as Grevilleas, Palms, Aralias, and Adiantum cuneatum, and Lomaria gibba Ferns. In the flower garden the Grass verges and edgings of Herniaria glabra have been trimmed up, and the dwarf carpeting plants that were getting top-heavy had a tie. Single Dahlias have been relieved of seed-pods, and those in beds pegged down. Violas, Calceolarias, and Verbenas required a lot of picking; they having flowered so profusely, will only continue so to do if seed-pods and bad flowers are frequently removed. Bedding Pelargoniums I never remember to have seen in better form, and there is now abundance of cuttings, and many were taken off to-day by way of making the beds look better, that is less one-sided, as some of them were beginning to look owing to inequality of growth. Large-growing seedling sub-tropical plants had here and there a leaf or shoot cut away, the better to show up adjoining plants. Salvia argentea is a super-excellent plant for use, as a setting to Ricinus Gibsoni; some of the leaves are quite 12 inches across and 20 inches in length, and of the purest white, contrasting finely with the beautifully undulated rich brown foliage of the Ricinus, a few of the under leaves of which we to-day cut out, that the white groundwork might look more massive. Swept up under Limes, also walks and roads.

AUGUST 24 AND 25.

Though by no means enamoured of the north—from a gardening point of view—at the present time, however, I envy our friends there, when I read of rain falling during last week to the extent of from 2 inches to 5 inches, whilst here it is, as usual, very dry, and we have to keep hose and water-pot going from morn till night. The watering is of more service now that the sun is less fierce and the nights damper, and, provided we have not a return of excessive heat, the drought may be battled with successfully for another week or two. Vegetables and fruits in the kitchen garden had a monopoly of attention as to watering yesterday, and to-day we had a turn at the wall trees, Roses, flower garden, and shrubs. Dug up more Potatoes, and housed all that had been previously dug. Magnum Bonums are really a fine crop and a good size for this season, and this leads us to hope that other late kinds may also turn out better than was expected. Late sown Peas are literally so covered with fly, that we have determined to destroy them, and sow another lot of Turnips on the ground, which, if they do not bulb, will at any rate ensure us a harvest of greens in the spring. Got leaves and stable litter in pits to make up a propagating bed; two-thirds of the former to one of the latter produce a lasting warmth that needs no renewal till propagation is finished, or rather till the tender section of plants are struck; then we make use of the frames in which to strike and winter Calceolarias, Violas, Gnaphalium lanatum, Leucophyton Browni, and variegated Thyme, the cuttings of each species being inserted in fine light soil, which is placed to a depth of from 4 inches to 6 inches on the old fermenting material, that is now being put in for striking in pits Coleus, Heliotropes, and such plants, as it is needful to strike in quantity sufficient for stock from which to get spring cuttings. All other work about the houses has been purely of a routine description. HANTS.

#### FRUITS UNDER GLASS.

FIGS.

EARLY forced trees from which the second crop has been gathered will derive great benefit from full exposure to the elements during the remainder of this fine summer weather. If the roof-lights are portable they can be very well spared for five or six weeks, a period that will admit of their being repaired, painted, and thoroughly hardened before they are again wanted for the protection of the young fruits on the approach of frosty weather. If not already done, rub off every fruit that has attained the size of a large Marrow Pea, as anything over that size, while robbing the trees during the season of rest, will not swell to maturity when forcing is again commenced. If any of the trees are infested with spider or brown



scale ply the hose or engine vigorously to rid them of the first, and syringe with hot water at a temperature of 120° to clear them of the second. Cut out exhausted lengths of wood that will not again be wanted, and regulate the promising successional shoots to give them the full benefit of light and air, but avoid tying down the points too closely, as they ripen best when allowed to point upwards from the trellis. Should the roof-lights be permanently fixed, throw open all the doors and ventilators, cleanse the trees, and syringe occasionally to prevent insects from hastening the ripening of the foliage.

*Pot trees* that have been allowed to root into the plunging material must now be disturbed to check their growth, and if a shift into larger pots is found necessary, cut away all the roots that have escaped through the drainage holes, shorten others that have passed out over the rims, and repot without delay. Use light, rich calcareous soil, dry enough to stand ramming without becoming adhesive, and return the trees to the plunging bed where latent heat will favour the formation of new rootlets before the leaves fall; but keep the house cool to prevent the points of the shoots or the embryo Figs from pushing into fresh growth. If potting is not considered necessary throw off the lights after checking the roots and rubbing off half-swelled fruits, or transfer the trees to a warm south border in the open air. All trees that produce two crops annually require a decided rest through September and October, and this can best be secured to a heat-loving subject like the Fig by the substitution of dry warm autumnal weather for tropical heat and moisture.

*Succession houses* in which fruit is now ripening will require plenty of dry warm air on fine afternoons and throughout the night to prevent the Figs from damping and to favour the thorough maturation of the points of the shoots. The best and only agent is gentle fine heat from the time the sun declines until it again rises; but in order to avoid a too sudden check on the flow of sap it will be necessary to give the roots moderate supplies of warm diluted liquid, and to keep the borders well mulched with rather short stable litter. The best time to apply the water is early on bright mornings, when solar and artificial heat will favour the escape of superfluous moisture before nightfall. Brown Turkey trained thinly on the extension principle has not yet been surpassed either for unheated houses, cases, or walls. The shoots require plenty of room, and they should never be stopped until they have reached the utmost limit and have yielded their crop, when they may be cut away bodily to make room for successional growths, from which the earliest and finest fruit will be gathered next season. Trees on open walls will now begin to pay for the attention devoted to them through the long drought by swelling up fine large fruit of exquisite flavour; while others, if they have not already done so, will resent neglect by casting it wholesale, and rendering futile all the labour of the past year. Good mulching with fresh stable litter and an occasional drenching with water are not heavy items, but they often make up the difference between success and failure in the culture of the Fig, as the trees are almost invariably kept fruitful by means of root-pruning, and it is hardly necessary to predict the fate of the tree, much more the fruit, where root-pruning during the prevailing drought has not been followed up by mulching and watering. But, assuming that these matters have been attended to, and fruit is on the point of ripening, preparations must be made for warding off the gluttonous wasps, which, judging from present appearances, will shortly be very troublesome. It is generally supposed that the taste for Figs is an acquired taste; if so, the wasp acquires it when very young, as he flies straight from the nursery to the tree, and nothing short of ingeniously fixed hexagon netting will prevent him from satiating his ravenous appetite.

#### MELONS.

The crop of wall fruit in many places being extremely partial and the culture of Pines on the decline, good Melons this autumn will be found a valuable acquisition to the dessert. In many gardens young plants are not put out after the end of July, but where an abundance of heat and light is at

command, numerous cultivators will have been tempted to extend the season by turning out a later batch and chancing the result. Some kinds of Melons answer better than others, but none that I have yet met with are more reliable for early or late work than Improved Victory of Bath and Read's Scarlet Flesh. Then, again, the mode of culture is a very important matter. Brilliant days in August may favour the extension system, but the plants in question will have to brave the long cold nights of September and October, and the better to enable them to do this there must be full command of bottom as well as top heat, and a system of training that will keep the fruit close at home and free from superfluous spray and foliage. All these conditions can best be secured under the pot system, as the roots can be kept dry or moist at will, and feeding can be concentrated and controlled to a nicety. If plunged in fermenting material immediately above the bottom-heat pipes, occasional renovation of the first supplemented by a constant circulation from the boiler, will keep the roots at a temperature of 85° to 90°, and blinds for running down at night will economise fuel and prevent the escape of heat by radiation. Manipulation may be successfully managed in the following way: Run up the Vines say 3 feet to 5 feet, pinch out the leading points, also the lower laterals and male blossoms, to favour a simultaneous flush of fruit-bearing laterals higher up; stop these close to the fruit before the flowers open; fertilise four and select two or three of equal size and age for the crop.

#### CUCUMBERS.

If plants that have been in bearing all the season must be retained until others raised from seeds or cuttings in August come into bearing, this is a very good time to cut a portion of them over and thoroughly renovate the bottom-heat by the addition of fermenting leaves and well-worked stable manure. The latter, be it observed, should be turned several times before it is introduced, and by way of precaution a chink of air should be kept on for a few nights afterwards. It not unfrequently happens that the roots of summer Cucumbers get down amongst the pipes and rubble during the time the fire is shut off and do not suffer until strong heat is again applied, when red spider and thrips set the cultivator at defiance. The remedy for the first is sulphur and water, for the second repeated fumigation; but, prevention being better than cure, copious supplies of warm water passed down into the drainage chambers will have the desired effect and keep them satisfactory until the compartment can be cleared and cleansed. Hitherto the plants in houses have grown rapidly without the aid of fire-heat, but hot as days may be, nights will now be cold and long, and gentle warmth from the pipes husbanded by night covering will tend to preserve them in health and fruitfulness. A few seeds of Telegraph should be sown at short intervals to keep up a stock of fresh healthy plants for filling up the compartments now occupied by Melons. A light pit or frame with plenty of fermenting and decaying material about it is the best nursery for young plants, as they can be kept close to the glass where they become stout and robust, a strong point in their preparation for winter culture, while in such places insects hardly ever attack them. Pot-bound plants should never be used, neither need they be where the management of the nursing pit is reduced to a system.

*Cucumbers in pits and frames* will now require more diligent attention than has lately been bestowed upon them. The first great moving power is heat, and this must be secured from linings, as it is generally understood that this class of structure is in no other way heated, and a great mistake it is, as a single 4-inch hot-water pipe would often supersede many linings, and very soon pay for itself in economy of labour. Another important point is the retention of heat after it is generated, and this can best be secured by having all fermenting linings carefully protected from wet by means of shutters or corrugated iron coverings, and by well matting the glass from sundown to sunrise throughout the autumn. As nights increase in length and growth becomes less rapid gradually reduce atmospheric moisture. Keep the Vines and foliage thin to let in light and solar heat, crop lightly, and cut all fruit before it attains

full size and becomes an unnecessary strain upon the plants.

#### STRAWBERRIES.

*Pot culture.*—Give early and late plants an abundance of room to let in light and air. Keep them free from weeds and runners and move the pots occasionally to prevent the roots from striking into the face of the station upon which they have been placed for the summer. If the early varieties occupying rather small pots have completed their growth and show signs of going to rest, water more sparingly, but on no account allow them to become dry, as pot plants should never feel the want of water from the time they are pegged down until the fruit is ripe. The better to facilitate or economise the application of water to pot-bound plants in dry seasons like this it is a good plan to partially plunge them in ashes or other non-conducting materials free from worms from this time forward until they are wanted for forcing. The only drawback to this mode of autumn management is the tendency to root through the apertures in the pots; but this can always be prevented by lifting or turning the pots round once or twice during the month of September. The general stock of plants occupying 6-inch and 7-inch pots, owing to the difficulty which attended the procuring of good runners, will now be growing fast, as the pots in many places are not yet full of roots. These must be encouraged by the careful application of well chilled aerated water from an open tank or pond and an occasional supply of clear soot water, for the twofold purpose of stimulating the roots and preventing the entrance of worms. Overhead watering, provided the plants are clean, must not, however, be too freely indulged in, as it is a mistake to attempt too much in the formation of large plants which do not always ripen their crowns well, and it is a well-known fact that imperfectly-matured plants do not throw up fine scapes, neither do they set their fruit freely.

*Open-air culture.*—Where the intense heat and drought have interfered with the securing of good runners for the formation of new plantations, and this work is still in arrear, but little, if anything, will now be gained over spring planting, particularly on cold, heavy soils, that have not been well broken up and thoroughly pulverised. In all such cases it will be well to keep the young plants in nursery beds a few inches apart, trench the ground once or twice during the winter, and transfer them to their permanent quarters next April. Plantations that were made early in the present month, and have been well mulched and regularly watered, will now be taking to the new soil and throwing out runners. Some growers take these off as they appear; others allow them to ramble over the mulching until growth ceases, when they are removed, and the mulching is worked well up to the collars of the plants for their protection through the winter. The first system favours the formation of ripe crowns, the second stimulates root action, and it is a well received fact that the best roots force up the finest and best fruit. If old beds have not already been cleared of sticks, ties, weeds, and runners, no time should be lost in carrying out this operation. We always make it a rule to dress the plants as soon as they are clear of fruit; the beds are then well hoed to cleanse the foliage and moisten the roots. The best mulching at command is placed between the rows, and no further attention is needed until the old leaves which have sheltered the crowns are dressed off in the spring. The spring dressing consists of finely broken lime rubble and a little soot thoroughly mixed with heavy loam or old compost from a Vine or Peach border.

W. C.

#### QUESTIONS.

5384.—*Pansies.*—Will any of your readers clearly explain the difference between show and fancy Pansies? I should also be glad of a list of the best show Pansies.—C. B., *Farrington, Essex.*

5385.—*Eradicating bees.*—For several years past a swarm of bees has taken up their quarters in the portico of the house here. Lately they have become very irritable and troublesome, attacking visitors and workmen. Can any of your correspondents help me to drive them away, or, if necessary, to destroy them without injury to the woodwork or paint? I have been told cyanide of potassium is effectual: I should like to know how it can be applied.—J. M., *Charmouth, Dorset.*



## KITCHEN GARDEN.

## WHEN TO LIFT SEED POTATOES.

ON more than one occasion a statement has been made in these columns as to the results of taking up Potatoes for seed at a very early period of their growth. It was determined in 1883 to make a small experiment by taking up Potatoes for seed at the end of three periods by planting the whole on the same day in the spring of 1884; and by lifting the produce of all on the same day and comparing the yield. Potatoes were dug for seed June 19, on July 2, and on July 16, 1883. Each day's digging and each variety were carefully kept apart and wintered in shallow trays in a light room with a southern aspect. On April 2, 1884, all were replanted. The varieties experimented with for the first experiment were (1) true old Ashleaf, (2) another early Ashleaf kidney, which is distinct from the first in having shorter and darker haulm and tubers somewhat more rounded; it came here as Walnut-leaf kidney. (3) Woodstock kidney obtained from Sutton's. On June 21, 1884, all these were taken up. There were in all three cases—but especially in the last, *i.e.* (3)—a great superiority in forwardness in the produce of those rows for which the seed was taken up June 19. In every case there was a considerable difference between the produce of the seed of June 19 and that of July 2. The produce of the seed of June 19 more than doubled the produce of the seed of July 16. The most marked effect was with the Woodstock kidney, which, generally considered to be a second early, yielded, from the seed of June 19, by far the largest tubers of any variety, many being above the size of a pheasant's egg. In every case the size of the tubers of the crop taken up June 21, 1884, exceeded that of those of the crop raised June 19, 1883, thus showing that the varieties have gained in earliness under the treatment. This was especially the case with the Woodstock kidney, and probably because the stock of this variety has been treated in similar fashion for four consecutive seasons, and the others only for two. The first seed taken up in 1883 did not range much above the size of an acorn. Those taken up in 1884 exceeded in size on an average a partridge's egg, and this year's experience fully confirms, so far, all that has just been stated in reference to this matter.—G.

**Hathaway's Excelsior Tomato.**—After growing a good many sorts of Tomatoes, I have come to the conclusion that none are better than Excelsior. It is a good cropper, and bears large clusters of fruit of a brilliant red colour, round and solid. Excelsior is in great demand here for kitchen use, being better liked for many purposes than the ribbed varieties.—G. JUPP, *Brantridge Park, Balcombe, Sussex.*

**Gilbert's Late Queen Broccoli.**—This well deserved the first-class certificate that has been awarded it; the last of it was cut here on June 29, when Cauliflowers had been in use ten days. I tested it and found it to be excellent in all points. Being on a visit to Burghley when the crop of this Broccoli was just coming into cutting (May 20), I was able to judge of it in bulk. It was a fine, even sample. It is a useful addition to late Broccoli—the latest of all grown here.—WM. DIVERS, *Wierton, Maidstone.*

**William I. Pea.**—I quite agree with "J. C. C." that this is a valuable early Pea. I sowed it this year in January on a border facing the south side by side with Ringleader. It was eight days later than that variety, but it is well worth waiting that much longer for it, as it is a better Pea in all respects than Ringleader. The Peas are individually larger and better in flavour and colour when cooked than those of Ringleader; in fact, I shall not grow Ringleader any more. I still find Ne Plus Ultra to be one of the very best mid-season and late Peas grown. In spite of the very dry season, I have been picking from it every day for the last month, and hope to continue to do so for another fortnight.—G. JUPP, *Brantridge Park, Sussex.*

**Spring-sown Onions.**—These are always shown in large quantities at horticultural exhibitions during August and September, but the judging of them is often very peculiar. By some it is considered

a great and main point to have the bulbs as much dried as one would expect to find them at Christmas, and unless they have necks about the thickness of a quill twisted into the very crown of the bulb they are passed by. As a rule the smallest bulbs get the prizes when judged under this system, as I have heard judges say, even before July was out: "These are the ripest, and must be placed first." Now, I should like to ask those who entertain ideas of this sort what advantage there is in having spring-sown Onions ripe at such a time? The natural period of their growth extends from the middle of March until the end of August at least, and to pull them up and dry them off in July should have no encouragement; indeed, when prizes are awarded to such it is not for cultivation, but for the process of drying. Anyone can draw up a dozen or more bulbs in July with a circumference of 6 inches or 8 inches, and dry them off to perfection in a fortnight or so by putting them in a hot dry place; but everyone cannot grow a spring-sown Onion to be 14 inches or 15 inches round by the middle of August, and it is in this the merit of culture rests and the award of a prize most deserved. I have often been sorry to see large fresh spring bulbs passed over in favour of small prematurely-dried specimens. Should high cultivation or pure manipulation win? that is the question.—J. MUIR, *Margam.*

## SOCIETIES.

## ROYAL HORTICULTURAL.

AUGUST 25.

ON this occasion there was in addition to the usual fortnightly meeting a competitive exhibition of cottagers' and artisans' garden produce, which proved to be the largest that has been held this season, the conservatory being crowded in every part with exhibits of fruit and vegetables. There was a good number of plants and flowers placed before the committee, and first-class certificates were awarded to the following:—

**LÆLIA SEDENI.**—A magnificent Orchid, possessing a colour unsurpassed as regards brilliancy by any other in the genus. It is, moreover, different from other *Lælias*, but may be best compared with *L. elegans*, though the flowers are somewhat smaller, the sepals narrower and different in form from those of that species. The lobe of the labellum is of an intensely deep and brilliant carmine-magenta, and being of thick texture the rich effect of the colour is heightened. The sepals are plum-purple. Exhibited by Baron Schroeder, The Dell, Egham.

**ANGRÆCUM LEONI.**—There were no fewer than five plants shown of this new species, which is now flowering abundantly in many collections about London. All the plants shown were small, but all bore several flowers, thus indicating the floriferous character of the plant. The flowers are produced on short spikes and have broad white shell-like lips and long, twisted greenish white spurs. The foliage is arranged in a fan-like manner, and altogether the plant has a most distinct appearance. It was shown by Sir Trevor Lawrence, Mr. Vanner, of Chislehurst, Mr. R. H. Measures, of Streatham, Mr. Dorman, of Sydenham, and Mr. Bull.

**LÆLIA ELEGANS LITTLEANA.**—A handsome variety very similar to *Turneri*, but differing in having a broader lobe to the labellum and in having the upper part of the lip pure white instead of purplish. The lobe is of a splendid carmine-magenta, forming a striking contrast to the white part. The sepals are of a vinous purple. Shown by Mr. Little, Hillingdon Place, Uxbridge, with whom it first flowered the day previous to the show.

**BLANDFORDIA FLANMEA.**—A beautiful plant, perhaps the finest of the genus. The flowers are produced in a dense umbel on the top of a slender stem about 2 feet high; they are bell-shaped, about 2½ inches long, dull red, and tipped with bright yellow. The foliage is long and grassy, and therefore graceful. A fine plant of it was shown by Sir Trevor Lawrence.

**GASTRONEMA HYBRIDUM.**—This is a very interesting plant, the result of intercrossing the rare *G. san-*

guineum with *Vallota purpurea*. The hybrid thus produced is intermediate between the parents, the flowers most resembling those of the *Vallota*, but paler. This beautiful variety was raised from seeds sown in 1883 in Sir Trevor Lawrence's garden at Burford Lodge, Dorking.

**CALADIUM CONTESSE DE MAILLE.**—A new variety, with large and very beautiful leaves, adorned with a variety of tints, white, green, and crimson, disposed in the form of mottlings and veinings. Shown by Mr. Bull.

**DAHLIA MRS. J. WALKER.**—A large double show variety, of perfect form. The florets are white, delicately tipped with purplish pink. Shown by Messrs. Rawlings, Romford.

**ANDROSACE LANUGINOSA LEICHTLINI.**—A pretty variety, differing from the original in having white instead of rosy pink flowers. Each flower has a purplish centre, which adds to its prettiness. The trailing habit of growth and manner of flowering differ in no way from the type. Shown by Herr Max Leichtlin, Baden-Baden.

**DAHLIA GERMANIA NOVA.**—A distinct and extremely pretty variety. The flowers are double, but as each floret is fringed they give the flower a different appearance from that of ordinary double Dahlias. The colour is a pleasing rose-purple. It is, we should say, a capital garden variety, good in habit, and floriferous. The flowers shown by Messrs. Cannell, of Swanley, were much admired.

**RHODODENDRON PEARL.**—One of the Javanese varieties having large trusses of wax-like white flowers delicately tinged with rose. Shown by Messrs. Veitch.

**ODONTOGLOSSUM INSLEAYI SPLENDENS.**—A very handsome Orchid, differing from the typical form in being of a brighter colour; the lip is particularly attractive, the colour being a clear chrome-yellow dotted with reddish orange. Flowering at this season, it is doubly valuable. Shown by Mr. Bull.

**GLADIOLUS PRINCESS OLGA,** massive spike, flowers white, flaked with carmine; **PRINCE ALBERT VICTOR,** vivid scarlet, lower petals white; **VISCOUNT CRANBROOK,** scarlet, with purple lower petals; **PRINCESS IRENE,** white, with petals broadly tipped with rosy carmine; **SIR H. D. WOLFF,** vermilion-purple lip; **PRINCE HENRY,** carmine-rose, flaked and tipped with white. These were all new varieties of the *gandavensis* class, and as they were shown by the raisers, Messrs. Kelway, of Langport, it need hardly be said that they were perfection in every respect.

**GLADIOLUS MASQUE DE FER.**—Another of the new race of hybrids of the *Lemoinei* group. The present sort has intensely rich red flowers, with the lower petals flushed with maroon-crimson. The flowers, though smaller than those of *gandavensis*, are extremely attractive. Exhibited by Messrs. Veitch.

Other noteworthy plants shown included the following: From Sir Trevor Lawrence came *Stanhopea inodora*, a rare species with large ivory-white flowers, not possessing the characteristic perfume of the *Stanhopea*. A *Cattleya* under the name of *C. magenta* was sent by Mr. J. Linden, of Ghent; it is very similar to *speciosissima*, therefore extremely beautiful. We should like to have the two plants side by side; the difference then, perhaps, would have been more apparent. Mr. Bull showed several new plants, among them being some beautiful *Caladiums*, those named *Ibis Rose* and *La Perle du Brésil* being particularly fine. He also had *Dion edule lanatum*, a handsome cycadaceous plant; *Aerides flavidum*, *Cattleya crispa venusta*, a beautiful, smallish-flowered variety and richly coloured, the plant having eight flowers from the sheath. Mr. Buchan, of Wilton House, Southampton, sent a small flowering plant of *Aganisia cœrulea*, an interesting Orchid, with curiously-shaped slaty purple flowers. Messrs. Cannell sent a beautiful new *Begonia* of the *Rex* type named *Ville de Namur*; its foliage is highly attractive, being a mixture of claret and emerald-green dotted with silver. Mr. Owen, of Maidenhead, sent some new tuberous *Begonias*, one named *Maréchal Niel*, with full sulphur-yellow blossoms, being the best.



A silver medal was deservedly awarded to Messrs. Kelway for a magnificent collection of Gladioli, consisting of some 150 spikes and almost as many varieties, some being seedlings now in flower for the first time. These Gladioli, being so fine in spike, so brilliant and varied in colour, were the centre of attraction to the many visitors. The New Plant and Bulb Company, Colchester, took a bronze medal for a large display of *Lilium auratum* from spikes representing a great variety of forms, some being barred, as in the variety pictum.

Messrs. Veitch showed a pretty group of different sorts of Salpiglossis, which won many admirers on account of their brilliant and strangely mixed colours. They also had some more new sorts of hybrid Gladioli and some two or three Rhododendrons, those named The Dyak and Gloria Mundi, salmon-pink, being the best.

Mr. Ware, of Tottenham, again had an extensive array of hardy flowers, which filled one side of the conservatory. The most conspicuous among the sorts shown were *Lilium superbum*, *L. tigrinum* and its varieties, *L. speciosum*, *L. auratum*, *Helianthus multiflorus*, *H. m. maximus*, *Gaillardia grandiflora* in eight varieties, *Montbretia Pottsi*, *M. crocosiniiflora*, a collection of New Zealand Veronicas, the most noteworthy being *V. salicornioides*, *V. chathamica*, and *V. epacridea*. There was also a basketful of the bright flowering *Zauschneria californica*, *Veronica longifolia subsessilis*, and *Vallota purpurea superba*, the latter with longer petals and brighter colour than usual. Summer-flowering *Chrysanthemums* made their first appearance, and a large collection of Dahlias was shown, including show, Pompon, and single varieties, as well as Cactus-flowered sorts.

Show Dahlias in variety were also contributed by Messrs. Rawlings, of Romford, and Messrs. Keynes and Williams, of Salisbury. In both of the collections there were several fine sorts, and among them we singled out those named Hamlet, Pelican, Salamander, R. Dean, Mrs. J. Walker, and George Paul as the most attractive.

### Fruit and Vegetables.

An exhibition of Plums was anticipated, but beyond a numerous collection from the society's gardens and a few from Messrs. Rivers, of Sawbridgeworth, there were but few shown. Messrs. Bunyard, of Maidstone, showed a large and very fine collection of hardy fruits, their Apples being particularly remarkable for size and good quality having regard to the early date. The most noteworthy were dishes of Cellini (full sized and rich in colour), Lord Derby, Potts' Seedling, Cox's Orange Pippin, The Queen, New Hawthornden, Lord Suffield, Stirling Castle, and Duchess of Oldenburg. There were also a large number of small dessert sorts, such as Kerry Pippin, Quarrenden, Early Harvest, Early Julien, Mr. Gladstone, and Red Astrachan. Among the Pears were Bijou (a good-looking new sort), Dr. Jules Guyot, Durondeau, Jersey Gratioli, Beurré d'Amanlis, Triomphe de Rennes and Beurré Giffard; and of Plums there were The Sultan and Oullin's Green Gage, both first-rate. Messrs. Bunyard were deservedly awarded a silver medal for this fine group. A cultural commendation and bronze medal were accorded to Mr. Ward, of Longford Castle, for three magnificent bunches of Buckland Sweetwater Grape. These were simply perfection—large, handsomely shaped, and rich in colour. Mr. G. F. Wilson received a cultural commendation for a fine dish of Transparent Green Gage Plums gathered from small orchard-house trees which had not been potted for twenty-eight years. Messrs. Paul, of Waltham Cross, showed three kinds of Pears—Beacon, Peach, and Beurré Giffard, the first being considered by the committee to be the best. A Red Currant named Mrs. Gladstone was sent by Mr. Robertson, of Jedburgh; it was considered good, but not sufficiently distinct from others in cultivation. In Messrs. Rivers' collection of Plums, which was awarded a bronze medal, the following sorts were conspicuous: Rivers' Petrel, Yellow Impératrice, Belle de Louvres, and Oullin's Golden Gage; besides the two dozen kinds of Plums from Chiswick there were some fine dishes of Lord Suffield and Duchess of Oldenburg Apple, and Mons. Hâtive Pear, a fine early sort. Some seedling Melons were

shown, but none were remarkable. Messrs. Kelway, Langport, showed fine examples of their new Cucumbers Hero of Langport, Melton, and Conqueror, for which they received a cultural commendation. Fruits of the Cherry Plum (*Myrobalana*) were shown by Messrs. Rivers and Mr. Earley, of Ilford.

### Cottagers' and Artisans' Show.

Superficial observers even must have been struck with the high standard of excellence maintained throughout the entire number of classes devoted to cottagers' produce. Looked at from an horticultural standpoint, this show must be pronounced to be one of the most successful of the series inaugurated by the society for the present season. Such displays as that now under notice clearly demonstrate that first-class garden culture must have been maintained by the competitors for many seasons previous to the show in order to render their gardens capable of growing such excellent produce. Not only is this a decided gain as regards increased food production, but it tends to foster habits of frugality and industry. The example thus set will be copied by others, and of this we have ample proof in the increased competition and popularity of small local shows throughout the country. The dissemination of cheap and good horticultural literature also aids those who seek for information which cannot be obtained from their more immediate circle of acquaintances.

The display on this occasion furnished but slight evidence of the prolonged drought of the present season. The success of some few exhibitors over and above the rest simply indicated that they were more favourably situated as regards soil capabilities than their neighbours to perfect their crops during such a season as the present. From the districts around Sherborne in Dorsetshire, Petworth in Sussex, Maidenhead in Berks, Shrivenham in Wilts, Maidstone and Sevenoaks in Kent, Betchworth in Surrey, Blethington in Oxon, Loughborough in Leicestershire, Penn and Tyler's-green in Bucks, and Malden in Essex, came examples of first-rate culture. The first prize for a collection went to Penn, and the second to Sherborne. There were thirty-two entries in this class. Among twenty-seven lots of three dishes each of round Potatoes the best and second best came from Bucks, whilst in the corresponding class for kidney-shaped kinds from amongst twenty-one exhibits the first went to Sevenoaks and the second to Petworth. From thirty-six dishes of rounds, Petworth was again to the front, Malden following, whilst for the same of kidney varieties, out of twenty-nine entries, Petworth again won, the second in this case going to Dartford. Of rounds, Reading Russet, Vicar of Laleham, and Schoolmaster were the favourite kinds, and of kidneys, Lapstone, Beauty of Hebron, and Mr. Breesee were most prominent. Peas, considering the dry season, were good; sixteen entries were made in the two classes, the best in both instances coming from Loughborough. The same district also furnished the finest Onions, and Malden the second best out of twenty-seven entries. Cabbages were somewhat coarse; fifteen entries were made, the first and second prizes going to Sevenoaks and Enfield respectively. Lettuces were somewhat weak; out of thirteen exhibits the best were from Shrivenham. Scarlet Runners were an extra strong class, there being thirty-nine entries; the best and second best came from Hertford and Shrivenham. Kidney Beans were also fine, Canadian Wonder being the favourite. From amongst twenty-seven entries the first went to Blethington, and the second to Betchworth. For Broad Beans there were but nine entries, the best being a fine lot from Dingwall, and the second, a fine dish of Broad Windsor, from Sherborne. The class set apart for Turnips was well supported by twenty-three entries, the Snowball type being chiefly represented; the premier honours went to Petworth and Sevenoaks. Carrots were a remarkably strong class, some wonderfully fine roots being shown, Long Red Surrey and James's Intermediate being most prominent; the first went to Bucks and the second to Sherborne, twenty-nine bunches being exhibited. In the Beet-root class there were twenty-seven entries, many of the specimens being somewhat in excess of the size generally preferred, the Sherborne and Shrivenham

districts winning first and second prizes. Cauli-flowers, though not shown in great numbers, were of excellent quality; out of six lots some very fine samples from Petworth took the first and Loughborough the second prizes. The winning lots of Cucumbers were evidently grown in either pits or small houses, where they could hang suspended from a trellis. There were twenty entries, the best and second best coming from Tyler's-green, Bucks, and being excellent examples of culture. To Sevenoaks and Sherborne were accorded the first and second prizes for Vegetable Marrows out of twenty-six competing lots. Tomatoes were shown remarkably fine by thirteen exhibitors, the best coming from Blethington and the second best from Ealing. Fourteen collections of herbs were produced, and of good quality. To Tyler's-green was awarded the first prize in this class. Out of twelve lots of salads the best were from Maidenhead and Blethington. In the fruit classes the Apples were the prominent feature. For three dishes of dessert kinds (rather too much for a cottager to manage) there were seven entries, the best, coming from Petworth, a really first-rate lot. The kinds were Lady Sudeley, Duchess of Oldenburg, and Devonshire Quarrenden, the second going to Loughborough. For culinary sorts an exhibit from Maidstone was well to the front out of eight entries, Lord Suffield and Hawthornden being very fine and clear. From amongst some twenty single dishes of Apples, forming an excellent class, the best were from Maidstone, the sort being Lord Suffield. Gooseberries were represented by fifteen dishes, some excellent samples being shown of the larger kinds, the best two dishes coming from Loughborough and Sherborne. Currants were also an excellent class; out of eighteen entries the best were from Petworth, a fine dish of Red Grape, the second award going to Ealing for a fine dish of White Grape. Morello Cherries were not in large numbers, but the two best winning collections were remarkably fine fruit, the first prize going to Allington, Kent. Some fifteen entries were made for Plums, the finest coming from Yalding, and the next from West Wycombe. In the miscellaneous class there were several good exhibits, notably some Apricots, Parsnips, Celery, and Artichokes. A class for Parsnips and Celery would, no doubt, have produced as good a competition as was to be seen in most of the other classes.

### LATE NOTES.

**Vine leaves** (*R. P.*).—With the exception of a little scalding, your Vine leaves seem healthy. The little green excrescences on their under sides will do no harm; they are the result of too close and damp an atmosphere.

**Rose Dr. Baillon**. I may state for "H. A. W.'s" information, is still in the Rose list of Messrs. Smith & Co., Worcester, who supplied us with it a few years ago, and also in the Rose list of Messrs. Lucombe, Pince, & Co., of Exeter.—*R. P.*

**Weeds on walks** (*Reader*).—Smith's weed destroyer, advertised in another column, will eradicate weeds and vegetable growth on the sides of carriage drives and gravel walks, but it must be kept off the edgings by means of boards if of Grass or Box.

**Naming plants**.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs**.—*J. M.*—*Rhus Cotinus*.—*J. W. K.*—*Pelargonium echinatum*, *Adenophora polymorpha*, *Saxifraga retusa*.—*R. Young*.—*Cattleya Eldorado* Wallisi; cannot name the other.—*R. C.*—*Clematis* is like one called Vesta; other is *Campanula persicifolia alba*.—*Billieue*.—Please send specimens again.—*E. T. H.*—1, *Achillea Parmica* fl. pl.; 2, *Panicum variegatum*.—*E. R. C.*—*Dutchman's Pipe*, *Aristolochia Sipho*.—*J. Davison*.—*Stapel* a variegata (not suitable for figuring).—*W. Sanderson*.—Next week.—*C. Ball*.—A fancy variety, cannot name, apparently a good sort.—*G. F. G.*—1, *Aster acuminatus*; 2, *Lysimachia vulgaris*; 3, *Chrysanthemum Leucanthemum latifolium*; 4, *Silphium perfoliatum*.

**Naming fruit**.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

**Names of fruit**.—*E. W. D.*—The Cherry or Myrobalan Plum, a variety frequently grown in shrubberies as an ornamental tree.

We have received several Apples and Pears to name during the week, but in all cases the fruits are too immature to enable us to ascertain their names. We would direct the attention of our readers to the note above concerning our conditions for naming fruits.



## WOODS & FORESTS.

### THE OAKS IN DEAN FOREST.

MR. J. N. BLUNT, in his letter to THE GARDEN of May 30 last, as to sowing *versus* transplanting, asks for the height and contents of the marked trees in the Dean Forest experiment. These I now give, but I am sorry to say they will not be of much use to him so far as the height is concerned, because the leading shoots of these and of many others were cut off at, or soon after, transplantation, in order to make bushy heads from which to get boat-crooks, knees, &c., for navy purposes, while those not transplanted were left untouched to grow into plank timber.

I may add, however, that this practice was not continued for any length of time, and the other transplanted trees not so treated grow in height as well as girth quite as well as the non-transplanted ones.

Length of stem. Cubic contents.			
Transplanted	A	21 feet.	50 feet.
"	B	27 "	41½ "
"	D	33 "	52 "
"	F	23 "	73½ "
"	N	37 "	71 "
Average length 28 feet, and contents 57½ feet.			
Not transplanted	L	34 feet.	28½ feet.
"	M	36 "	24 "
"	X	33 "	33 "
Average length 34 feet, and contents 28½ feet.			

Showing an average of 6 feet in length in favour of the non-transplanted, and of 29 cubic feet against them. All the lettered trees have been regularly measured, biennially, on the same paint mark as the original measurement.

I also repeat the information given in my letter published on December 10, 1884, in *Woods and Forests*, as to 100 of each kind, adding length of stem:—

100 transplanted—	
Length of stems	2973 feet; contents 4116 feet.
Average	29½ feet; average 41¼ feet.
100 not transplanted—	
Length of stems	3206 feet; contents 2934 feet.
Average	32 feet; average 29½ feet.

It will thus be seen that the average length of stem per tree is 29½ feet for the transplanted, as against 32 feet for the non-transplanted, caused by the cutting off of the leading shoots of the first, as mentioned above, so that the comparison is not on equal terms. The average contents, however, per tree are quite 41 feet for the transplanted, and only 29½ feet for the non-transplanted.

Two other correspondents of *Woods and Forests*, "Yorkshireman" and "J. C.," have also asked for further information with reference to my letter published in December last, which I will now endeavour to give, so far as I understand their wishes.

The history of the Acornpatch Nursery, given in Drivers' report on Dean Forest in 1787, is as follows: No. 9 (on the plan which accompanied it), "Gorsy Green Enclosure" (5 a. 0 r. 6 p.). "This piece has been enclosed four years by the deputy-keeper, about half planted with Acorns, from which there

are a good sprinkling of young Oaks now coming up; the remainder has been kept in tillage by the keeper, and sowed with Corn."

All we know in addition is, that the remainder was soon afterwards sown with Acorns, that the plants were removed from time to time as required for plantations, and that a sufficient quantity was left in the nursery to correspond with the surrounding plantations. It is impossible now to say how often it has been thinned, but only one crop of Acorns was sown in it, and in the memory of our oldest people here, who are seventy years and upwards, it has been thinned and treated in the same way as the surrounding plantations.

The trees transplanted from it in 1800 and subsequently, which form the Dean Forest experiment, have no doubt had the advantage not only of change of soil, situation, and increased air and space, but also of transplanting, which, in my opinion at least, is no small advantage; and I am strengthened in this opinion by the result, so far as it yet goes, of my own experiment of 1861, which I explained in my letter of December last, above alluded to, the six replanted trees having increased in the aggregate (and including the loss from being dug up and replanted, which has been recovered between 1863 and 1884) nearly 9 inches, as compared with 4 inches by the six not dug up and replanted.

I tried this experiment to test the value of transplanting alone, as against that and the other above enumerated advantages combined, and not as "Yorkshireman" supposes, because I was dissatisfied with the results of the one in 1800. There is no ground either for his assumption that all the best trees were taken out of this nursery and only the worst specimens left to luxuriate in the impoverished ground.

"J. C.," in the same article, goes further than this, and assumes that "it had been used as an Oak nursery perhaps for a century," whereas, as I have said, there was only one crop of Acorns sown in it, and the trees still left in it have every appearance of having been the best and probably the largest trees at the time of transplanting the others. "Yorkshireman's" theory that it appears to him "to be as reasonable to suppose that transplanted trees will grow into better specimens than those that grow where they were sown, as that the boy will grow into the best man who has suffered some constitutional check in his infancy," however natural, must, I think, give way to the fact given above, viz., that 100 transplanted trees have gained between 1808 and 1884 an average of nearly 12 cubic feet each more than the 100 others of precisely the same age which have never been transplanted. If transplanting trees, therefore, in the way the Dean Forest experiment was done improves their growth in this way, it seems to me that the opinion given in my letter of December last is correct, viz., "that it will pay to raise trees

in nurseries for making plantations," and that transplanted trees "eventually make more rapid progress than those grown from Acorns," because not only is it cheaper to make use of surplus trees by transplanting them rather than to cut them down for firewood, but it shows that trees which have been transplanted, especially to fresh situations, are likely to arrive at a valuable size at least fifty years sooner than those raised direct from Acorns.

"J. C." asks what has been done to a tree that has been "transplanted in reason." Only this; the tree has been dug up carefully, all the earth shaken off, damaged roots trimmed and the long straggling ones shortened; then it has been carried or carted to its new situation, it may be a few yards only or several miles, and replanted in a hole or pit as large as required. There are ten or twelve thousand acres of Oak trees in Dean Forest, thriving well, which have all been nursery plants, and moved at least twice—from seed-beds to rows in the nurseries, and from these to the plantations; and there are two or three thousand acres more in which the trees have been transplanted a third time—from the plantations to open spaces elsewhere, as in 1800 and to the present time. A good many have even been removed oftener, from one cause or another, and have not suffered from it, but the contrary; so that in Dean Forest transplanting undoubtedly pays, if carefully done, both in improving the growth and in utilising surplus trees, which would otherwise be cut down in the way of necessary thinning. Of course I do not mean to say that it would pay to treat whole plantations as I treated the six trees in 1861, without further proof at least; but I hope I have shown that transplanting is better than sowing.

Dean Forest.

JAS. CAMPBELL.

**Hedgerow trees.**—If "Yorkshireman" will read my paragraph fairly, he will see that it was not the main object of my remarks to discuss the exact amount of advantage or disadvantage to the farmer, but rather to point out that the encouragement of hedgerow and field trees will increase the value of a property as a whole. To this I still adhere. The exact words I used were: "The woods and plantations occupy large acreages, whilst the trees in the hedgerows interfere in a very small degree with the value of the land they shelter; the scale, in fact, often turns in favour of the sheltered land." I then added, "It may be possible, no doubt, to have too many trees in our hedges, but the evil is oftener the other way. It costs nothing to encourage the growth of the hedgerow tree, but the return is often considerable." How "Yorkshireman" can construe this into an argument, "that fields without trees in or around them are the worst for agricultural purposes," I must leave him to discover. This, however, is by the way, as the whole gist of the matter lies in the fact that I believe in the judicious encouragement of hedgerow and field trees, whilst "Yorkshireman," from the way he argues, apparently does not. Tastes differ certainly, but this would to me be a strange country if it were deprived of its field and hedgerow trees. I do not deny that these are often very far from what they should be, but this arises more from the lack of intelligent exploitation than from any other cause, and can form no argument against the trees themselves. I know nothing of the district from which, I presume, "Yorkshireman" writes, but if, as he says, hedgerow



trees there "rarely make good saleable timber," I am not surprised that the land invariably lets low. If it is not good enough to make good saleable timber, it can certainly be of comparatively little value to the farmer. If, however, he means to imply by this that the value of otherwise good pasture land, for it is of this of which I am principally speaking, is lessened by the presence of trees in the fields and hedges, my experience and observations do not tend to show anything of the kind. As a general rule where there is a reasonable number of trees (excluding woods and plantations), the land is of higher value to the farmer. I do not mean to argue from this that the trees impart the value to the soil, as such a supposition would be untenable. The reason probably is that where good trees grow, the land will also raise other produce equally good. With regard to the timber value of such trees as these, the principal drawback is that, from their comparatively isolated positions, the habit of throwing out large branches is encouraged, and consequently they do not grow so tall or straight in the bole as is the case with trees grown in the coppice. A partly compensating advantage is that the trunks of the trees up to the first branches generally contain a relatively larger amount of timber than those growing closely in woods and plantations; so although there certainly must be a preference accorded to coppice grown timber, the difference is not so great as some would make it appear. The great enemies to hedgerow trees are the men who thoughtlessly use the axe and the hammer and nails. This is an evil which can scarcely be entirely prevented. Woods and plantations are mostly under the immediate control of the owner or his agent, but the fields and hedgerows are not so; consequently away goes to work the axe and saw, the hammer and nails, and mischief is done which will take a quarter of a century to undo, if the trees are not altogether ruined. Notwithstanding all this, I hope the day is far distant when counsels will prevail enjoining the destruction of our hedgerow and field trees. They are already sadly decimated in many places, and, as I remarked in the original paragraph, instead of our having too many, the evil is oftener the other way.—D. J. YEO.

#### RELATIVE VALUE OF THE PINES.

I AM glad to observe by "Yorkshireman's" latest remarks on the Pines that the Corsican and Austrian are doing so admirably well with him. But as I never have denied that these trees have good qualities under congenial circumstances, therefore so far I agree with "Yorkshireman." That to which I have demurred is that these Pines are of the same common utility as the Scotch Pine for general planting purposes. Therefore I find it impossible to become enthusiastic over the qualities of these Pines (the true value of which has yet to be tested) as trees for general planting, since I never have seen them growing anywhere on estates except under the most favourable situations to be found.

Moreover, what I never have seen are these Pines growing up the bare slopes of moorland mountain in the poor sandy soils in which the Scotch Fir luxuriates so well, yielding such wonderful bulk and excellency of timber. I would be obliged to "Yorkshireman" or anyone who could tell me where I could see a plantation, say, of a hundred acres of Corsican or Austrian Pines of sixty years' growth growing on the barren sides of moorland hill in soil similar to that in which the Scotch Pine not only grows, but produces useful-sized timber, the excellent red wood of which is difficult to distinguish from that of the best grown Larch. Nay, I would even be satisfied if anyone could tell me where such a plantation might be seen on the plain.

As to the Corsican Pine being proof against the rabbit, it is not so; and as to the Austrian Pine, it is an easy prey to the tree bug, and succumbs much more readily to its ravages than either the Larch, Nordmann's Fir, or the common Silver Fir. I am aware that there are a great many isolated Corsican and Austrian Pines scattered over the various properties of Great Britain and Ireland now, but I am not aware that this fact is of itself sufficient reason, or any reason, why we should over-rate the qualities of these trees, to the exclusion of trees respecting whose pro-

perties we are certain. No, we must be sure of our way before going too fast or too far. And to be sure of that it must be proven by experiment, and this is at least an experiment that will take from fifty to a hundred years to carry out. There is no haste in the matter, and it will pay better to move slowly and judiciously than to hurry in such an important matter.

GLEN DYVE.

#### THE TIMBER OF SEEDLING AND TRANSPLANTED TREES.

IN comparing the quality of seedling timber and timber of transplanted trees, it does not appear to me that Mr. Webster's comparison on this subject is so just or so cautious as most of the opinions that he communicates to us. He says "That the timber of transplanted trees is harder, better packed, and firmer in texture than that grown from seed on the spot . . . growing side by side on the same ground and conditions equal as regards age." Now if the transplanted trees and the naturally sown trees have been subject to the same conditions, save the artificial cultural treatment in the one case, otherwise I think it would defy the most searching experiments to distinguish between the quality of transplanted and naturally sown timber. But I allow that if there were only a partial crop of seedling trees on the ground and full crop of transplanted trees, the fault in the quality of the timber is evident. Nevertheless, the fault in the quality of the timber is not owing to the fact that the tree is the voluntary produce of Nature; because the naturally sown trees, having had too much room to grow, run away, in fact, to strong lateral branches with dumpy trunks, yielding at once a coarse, soft, lax quality of timber, which quality of inferiority is particularly apparent during the earlier years of growth.

However, what is true in the one case is true also in the other, the conditions being alike. Should Mr. Webster doubt the truth of this, he can prove it by practical experiment. The evidence which he brings forward to substantiate his opinion is very frangible, and will not stand the test of even conditions. For if there are two plantations of trees, one naturally reproduced the other transplanted, which start life together, both being properly confined in the first years of life and equally and rightly treated throughout their growth, it will be hard for the most expert woodman who ever handled an axe to tell which are the transplanted and which are the naturally sown trees by the process of felling. Mr. Webster seems to have forgotten that we have the whole natural product of the timber world to testify to the superior quality of the timber of naturally produced trees.

I have often seen natural seedling Scotch Firs growing so close together, as not to be more than 6 inches to 12 inches apart when seven or eight years old, and I assure Mr. Webster they were not overdone with strong branches, whilst they were highly vigorous with fine uniform stems and strong branches. Carrot-grown-like trunks are the result of too much growing space. When the growing area is exactly that which trees require for their healthy development, trunk and not branches will be produced. The growing area will depend on the immediate conditions of the area, and the thinning of the trees must be tempered to fit those conditions.

There is a danger of thinning too much, as there is a danger of thinning too little and too late. To enhance the quality and quantity of timber we must plant close, and thin opportunely, for the period through which trees suffer most in their vitality is from the age of nine to thirty; the force of vitality being then in high action is easily impaired, but not easily

repaired. In fact, negligence in early life is too often disastrous to the future timber crop, and this is especially observable on small properties where woods are entrusted to the care of a general manager, or other inexperienced person. Evidently Mr. Webster is not favourable to Nature's plan of planting; but, in spite of all opposition, Nature's plan, sooner or later, will doubtless become the prevalent system in this country wherever the parent trees are found sufficiently productive to propagate their own species. Meantime there are some hindrances in the way of Nature, that must be got rid of before she can show her power of reproduction to best advantage.

Rabbits and hares are the greatest obstacles in the way of forest-tree culture above all other tree pests which infest the country. One is inclined to ask the question, "Whom do these creatures benefit?" The answer might well be, "No one except gamekeepers." If there is any profit to be got from such vermin, the gamekeepers pocket it; so that they, and they alone, are the only parties materially interested in the preservation of these destructive vermin. As for the proprietor, he is hundreds and hundreds of pounds out of pocket to preserve creatures which afford him neither sport nor profit. For my part, I would they were extinct. The proprietor would be much more a gainer if they were so, or if he were to pay his keeper £50 or £60 more yearly to have the vermin destroyed. As a matter of course there are other creatures which would have to be destroyed ere the method of voluntary reproduction of trees can be successfully carried out.

GLEN DYVE.

**Mixed plantations.**—I will not go so far as to say that if the trees growing in Britain were not meddled with they would attain the dimensions of many that grow abroad, but at the same time there is much in what "J. S." says (p. 212) that I agree with, particularly with regard to mixed plantations. Perhaps we are apt to theorise too much instead of depending more on accomplished facts. One reason I take it why mixed plantations were adopted was the idea of planting deeply-rooting species with those of a more superficial habit. There may be something in this, but not so much as many may imagine. As a case in point, if we take a Beechwood we often find this surface-rooting tree growing to a great height, and in such close proximity that no branches appear except at the extreme top. The trees, being of the same nature, keep pace with each other, produce fine timber, and although underwood is seldom found growing beneath them the progress they make is quite a compensation. This is not often the case with mixed woods, for, as your correspondent remarks, the trees neither grow in the right shape or at the same pace. I do not go so far as to say that this promiscuous planting of trees amounts to the same thing as mixing up Wheat, Beans, Barley, &c., on the same area in a field, but there is a certain analogy about it.—D. J. Y.

**Mining timber.**—Conditions of course will vary greatly according to the district in which a writer or reader is situated, but although my remarks, "Yorkshireman" says, will not apply to his neighbourhood, it is hardly fair to set them down as altogether speculative. I know but little of the Yorkshire district, but the west of England and South Wales I know well. In the docks at the Monmouthshire and Glamorganshire ports I have seen thousands of tons of imported props, so I know pretty well what they are. I have also had the handling and disposal of no inconsiderable amount of home-grown mining timber, and my experience shortly is, that for clean-grown, sound Larch of suitable size, colliery owners will give a better price than for imported wood. The present season of course is not the one for making bargains for this class of wood, but it is contrary to my experience that colliery owners refuse to buy home-grown woods. They certainly will not buy any rubbish it may suit the seller to send them, but when



the requirements are properly understood there need be no difficulty in selling if the wood is so situated that it can be delivered at current rates. The real reason why more Larch is not used is that it is not to be obtained in sufficient quantities or at competing prices.—D. J. Y.

#### FORESTRY IN ENGLAND AND SELLING HOME-GROWN TIMBER.

THE letters of "Yorkshireman" and "J. N. Blunt" in your last number open two questions of importance, though the former's knowledge of German, French, and Indian forestry is of the slightest. I have seen a little of forests in all these countries, and have no hesitation in saying that though in India many mistakes have been made from want of local and practical knowledge, yet, as a rule, we in England are behind all these three countries, if not in our knowledge, certainly in our practice of the subject. German foresters almost always carry out their work with respect solely to the £. s. d. side of the question, and the forest laws are so stringent, even with regard to private proprietors, that they would not be tolerated in this country. On the many estates in England where I have been, I do not know one where profit is the first object of the forester. Sometimes ornamental planting and sometimes sport are considered, but even when, as of late years, land which no longer pays to cultivate is planted with Larch or Ash for profit, the return is in most cases so small, that the proprietor gets little more than the interest of the money he has spent on it. When "Yorkshireman" says that the whole subject may be resolved into half a dozen questions and answered in a few minutes, he is wrong, and in proof of it I will ask him to answer himself or get an answer to this question:—

Does the Larch disease, which has been so prevalent of late years, and which has destroyed so many millions of trees, arise from a deterioration in the trees planted? and if so, how can it be prevented? Or does it arise from a change in the climate? Or what is the cause, and is there any remedy? If he can answer this, I will at once confess that his knowledge is superior to that of any of the Indian, German, or Scotch foresters I know.

One of the principal reasons which makes English landowners so backward in planting for profit is the extreme difficulty of marketing the timber when grown. In this district we are in the hands of a very few local men, who combine together either not to buy at all, saying there is no sale for English timber, or if they buy, to take only the very pick of the timber and underwood. I am now prepared to offer from 40 acres to 70 acres of underwood, mostly Ash and Hazel, of from sixteen to twenty years' growth, either felled or standing; and in order to attract strangers, I will find three teams, with timber carriages and wagons, to haul it to the station, which is from four to seven miles distant. If this was in Sussex or Surrey, it would be worth £12 to £20 an acre. Here I cannot even get a bid for it. Labour is abundant and cheap, but money seems to be wanting. I have sold many thousand Larch thinnings of twelve to twenty years' growth in recent years at prices which hardly paid for cutting and hauling them out of the plantations, and though there are collieries within thirty miles, they seem to be abundantly supplied with foreign pitwood. Clean Ash poles and large, sound Ash and Larch are the only sorts of timber which are really saleable. If any of your correspondents know of enterprising men from a distance, I should be happy to make most favourable terms to attract them, and the use of an excellent saw-mill to convert what would not pay to take away in the rough. Free trade and foreign competition seem to me to be, with timber, as with other articles of home produce, ruining the value of land in England. H. J. ELWES.

Preston, Cirencester.

**Planting in accessible places.**—It was stated in the evidence taken before Sir John Lubbock's committee lately that planting in Scotland or elsewhere should be "in accessible places near rivers." If by this it was meant that the rivers might transport the timber to its destination, I fear the suggestion is not a very practicable one, because,

except in fitful spates and floods that could not be anticipated, few of our rivers could be used in that way to any great extent. Dr. Cleghorn was, however, right in pointing out the need of convenient transit for the timber. I pointed out some time ago how some extensive planters were handicapped by being far from a railway, and I may now point out the desirability of planting near railways wherever possible. These form such a network now all over the land, that a very large portion, at least, of our woods of the future might be near to the rails. Hereabouts for years not less than 3d., and more frequently 4d., per foot was paid for leading timber from two to three miles, and at present 2½d. is about the average price. As the custom is to quote for delivery of the timber at its destination, it will be seen therefore what an advantage it is to be near to the railway. The same considerations suggest the need of considering well the kind of timber to be planted. The more saleable the kind and the better the quality the better chance has it of paying wherever situated. Owners of Spruce woods far from railways are now finding out that they can hardly give it away; whereas the Larch and Ash, &c., does find a sale at reasonable prices.—YORKSHIREMAN.

#### TRAINING FORESTERS.

I AM inclined to think, as has already been mooted, that unless a change comes over the proceedings of this committee, that very little real light will be obtained on the subject, and that what should have been the real object of the enquiry will be missed. What we want to know is not a lot of abstract theories or narratives of a certain set of occurrences which have happened or are happening in remote quarters of the globe, or in foreign countries where the conditions are different, but first of all to know where we are really wrong at home. It is useless to try and find a remedy until we know what is the matter; therefore the first thing is to find out all that is unsatisfactory in our present system, or rather lack of system, and then enquire how far the evil can be mended.

It seems like putting the cart before the horse to be enquiring about planting larger areas on the strength of the belief that timber will before long become a scarce commodity whilst we are neglecting to look into what we already have. I do not mean that it is necessary to set about coddling up the timber we have already growing, as this excessive interference is as great an evil as no interference at all. Can the area at present under wood in this country be rendered more productive by educating a class of men to look to it? Not if their education is to be confined to botany, physiology, and the like. I have a great respect for the sciences in the abstract, but to imagine that a man who can run the gamut of them is necessarily capable of managing or regulating the timber supply is an absurdity. I would have more faith in a man who has spent his time in practically dealing with the subject—if he is a man of observation and capable of putting two and two together, a man who has always been amongst the woods, if he did not know a single scientific term—than I would in a whole host of graduated students who have, from the nature of their training, been crammed with a lot of stuff which when they find themselves face to face with their work they will rather be a hindrance than a help. The men are not to blame; it is the system that is at fault. There is many an illiterate woodman who could not read a single line of a book, and has never heard of the term of forestry as such, to whom I would rather intrust the management of a forest than I would to one on whom a fortune has been spent on education. I do not wish to be misunderstood or to be taken as underrating the value of what is commonly termed education, but I wish earnestly to point out what is self-apparent to

everyone who has had experience in the work that a forester mainly trained on paper is a fatal mistake. The education wants to be inverted. Get the practical knowledge first, and then the theories can be tested. If they are worth anything, they will be helpful; if they are not, discard them. If the individual has to swallow everything he is offered and has no judgment of his own to test it by, the information he is supposed to get is not only useless, but is absolutely a snare. J. N. B.

#### ESTATE PURPOSES.

"YORKSHIREMAN" says that "the term 'estate purposes' is so often used, that it might be imagined estate purposes found employment for most of the timber that is grown." I do not think your readers entertain such a view, but I take it that the subject is constantly referred to on account of the apathy which apparently surrounds it. That on most estates, whether large or small, the amount of home-grown wood used in comparison to what is produced is very small does not admit of a doubt. That, however, anything like the proper proportion of home-grown wood to the total of woods of all kinds consumed on the average estate is used I believe is seriously open to question. What "Yorkshireman" says about joinery woods and appliances is true enough, but it must not be overlooked that the amount of joinery in any given building, at any rate such as cottages, farm buildings, and the like, is very small when compared to the amount of wood in the structure, and what I think cannot well be disproved is, that for the bulk of these uses our British-grown woods are as suitable, and, after allowing for cost of cutting up, do not cost more, if so much, as foreign woods, which do not last so long.

Our position is not like the man who goes to the market with his check-book, and does not trouble from whence his commodities come, so long as he gets them at a given figure. The timber-producer has his timber to dispose of in some way, and if he cannot sell to advantage, what I and others say is, see that every possible use is made of it at home first. The balance must go for what it will bring; but why sell nearly the whole and have to buy again out of the fire? To do so cannot be true economy, and if it was only to impress this one fact there would be abundant reason for publishing these *Woods and Forests* pages. D. J. YEO.

**Sapwood.**—"Yorkshireman's" note on this is interesting, but if the presence of the moisture in the fibres of the sapwood in trees does not tend to its more rapid decay, why is the sapwood of the Oak when felled in the winter found to be more durable than when felled in the spring? Again, if the presence of moisture does not induce decay, why should not any timber felled in the spring, summer, or autumn be as durable as what is felled in the winter? I do not offer any decided opinion on the matter, as it is, more or less, one of theory, but to the most superficial observer it must be known that the presence or absence of the fluid makes a considerable difference in the durability of the sapwood itself. The instance he quotes of the fallen tree is of course a familiar one, and probably after this lapse of time the sapwood would have been rotted away, whether it was felled in spring or winter, though not so early in the latter case.—Y.

**Firewood.**—My remarks upon this were merely suggestive. Whether in practice it is possible to prepare our waste wood for the market on competing terms with what is imported I am not prepared to say. Locality must have much to do with this. If it is possible, there need be no hesitation in deciding which would gain the preference. "Yorkshireman" thinks the prices would probably be two or three times that of coal. In a colliery district this may be so, but the fact must not be overlooked that in many places distant from the coal-fields coals often sell at from 20s. to 22s. per ton. Some wood is and must be used, and in many places it could be sent to market at much less than 40s. to 60s. per ton, in preference to lying on the ground to rot. If pit props have to be delivered at the colliery at from,



say, 20s. to 25s. per ton, why should not wood, useless for any other purpose, be delivered to consumers at a somewhat similar price?—D. J. YEO.

**The Pines.**—It would be interesting and profitable if "Yorkshireman" would give us a few of the prices he is able to obtain for these different species of Pine. The order will be as follows: Corsican, at per foot; Austrian, at per foot; Scotch, at per foot; Spruce, nil.—B.

#### TREE NOTES FROM STRATHEARN.

**DALCHONZIE-HILL.**—Viewing the strath from the top of Dalchonzie-hill, one cannot but be struck by the beauties it presents on all sides. From Loch Earn to Crieff, a distance of thirteen miles, by perhaps a couple of miles in width, there is a richness of colour, from the fresh green appearance of vegetation generally, that one is reminded more of that "Eden of the West" than what we dared to expect in a rocky Highland valley. The timber here is also of exceptional size; indeed, whether taken individually or collectively, we have nowhere seen finer specimens of forest trees. Pleasantly situated on the greensward near the base of the above mountain and commanding an almost uninterrupted view of the valley in front, stands the castle of Abruchill, once the abode for a short time of the famous outlaw, Rob Roy MacGregor, and now Mr. Dewhurst's summer residence. The castle is in the old Scottish style of architecture, though, unfortunately, much of its original character has been destroyed by the so-called improvements. Dotted around the castle and bordering the sides of a carriage drive are some of the largest specimens of the Linden tree that we can remember having seen, their stems being of gigantic size and with large spreading heads. Several of these I measured, and found them to be 16 feet in circumference of stem at 2 feet from the ground and 14 feet at 5 feet up. A Beech of unusual dimensions, standing close by the latter, girthed at 3 feet and 5 feet 2½ feet and 23 feet respectively. Near the entrance to the stable is a Walnut about 60 feet in height and with a stem girth at 3 feet of 12 feet 2 inches. Other trees of no mean proportions, which, however, time did not permit our measuring, were the Sycamore, Ash, Birch, Scotch and Spruce Firs, while amongst the new and rare Conifers we took particular note of the healthy and thriving appearance of those two noble and beautiful trees, *Picea nobilis* and *Abies canadensis*.

In a rocky wood at but a short distance from the castle is the burying-place of the Drummonds, of Strageath, the original owners of the estate, a shady secluded spot in the thickest of the wood, and encircled by goodly specimens of the Yew tree, Oak, and Larch. Five tombstones within an iron railing mark the resting-place of various members of the family, most of whom, we noted from the simple inscriptions, died in India. At an angle of the grassy path which leads to the burying-ground stands in vigorous old age a gigantic specimen of the British Oak with a clean straight bole rising to between 80 feet and 90 feet, and girthing at 2 feet and 5 feet 16 feet 4 inches and 16 feet respectively. The large umbrageous head, covering a space of 75 feet in diameter, indicates perfect health, although one side of the trunk close to the ground shows slight signs of decay, which, however, we attribute to the result of an accident. Larch and Scotch Firs of goodly proportions are scattered throughout the same wood, many of the former containing over 100 feet of clear measurable timber, with straight, gradually tapering stems rising to heights varying from 60 feet to 80 feet.

Adjoining the Abruchill estate is the house

and farm of Dalchonzie, around which are some grand Spruces, graceful Birches, and wide-spreading Oak and Beech trees, interspersed with Larch and Scotch Firs, straight as an arrow and rising with clear branchless stems to nearly 100 feet in height. The Spruce, more especially along the banks of the Earn, are magnificent, many containing upwards of 200 feet of timber, and with stems girthing from 7 feet to 8 feet at a yard up. The soil on which these fine trees are growing is principally composed of loose gravel with an admixture of alluvial matter deposited at various times by the Earn during floods.

**AN AVENUE** leading from the farm to Abruchill, and said to have been planted by the soldiers of General Wade while stationed at Dalchonzie, is perfectly straight for nearly a mile in length, the sides being planted at intervals of 21 feet with Oak and Beech. Some of these have attained large dimensions, notably the Beech, one of which taken at random girthed 13 feet at a yard from the ground. There are also many fine Sycamores, Ash, and Silver Firs, all finely grown trees, and showing well that both the soil and climate of Perthshire, and Strathearn in particular, are well suited for the production of large and valuable timber. Whilst speaking of Sycamores, with which the woods are particularly well stocked, it may be mentioned that one of these growing near the base of the hill, the decaying stump of which was pointed out to us, realised £13 when cut down a few years ago. Many giants of the same race and of almost equal proportions with the latter are, however, not uncommon, more, perhaps, as standard or hedgerow timber than general woodland trees.

**AT DALCHONZIE HOUSE**, the residence of Captain Dundas, several trees of great stateliness and beauty were pointed out, amongst these being an enormous specimen of the Beech, the dimensions of which we found to be as follows: At 2 feet up the stem girthed 23 feet; at 5 feet 13 feet; and at 11 feet, where a slight enlargement took place, 15½ feet in circumference. At 15 feet the stem divided into four massive limbs, each like an ordinary tree, and rising to the height of about 80 feet. Near to the latter is a very remarkable old Spanish Chestnut, which, although a tree of no small proportions, has assumed a procumbent form, and covers with the most luxuriant foliage a spread of 54 feet by 61 feet. The stem girth is 7½ feet, the whole forming a low shady canopy of unusual dimensions and appearance. On the grassy lawn in front of and around the house we noticed many fine healthy specimens of the rarer Conifers, among which *Abies nobilis*, *Thuja borealis*, *Arthrotaxis selaginoides*, and Cedars of various kinds were the most remarkable. The golden and silver variegated Hollies were also noteworthy, not only from their beautiful healthy appearance, but large size and wide spread of branch. A few specimens of the Irish Yew were also noticeable in the collection, while scattered over the grounds in graceful irregularity were several of the more ornamental flowering shrubs, amongst which the Deutzias, Guelder Rose, Weigelas, Barberry, and Mock Orange were particularly attractive.

The ascent of Dalchonzie-hill amply repays those who undertake it, the extensive and varied scenery visible from the highest point—George's Peak—being very fine, and also by the numbers and rarity of the plants which every now and then are to be met in with. The alpine Lady's Mantle (*Alchemilla alpina*) enlivens with its pretty creamy flowers and silvery-edged leaves the banks of streams and rivulets to within a

short distance of the top. From its bright yellow flowers and dense cushions of dark, glossy-green foliage, *Saxifraga aizoides* was discernible for a considerable distance, while in marshy ground the Grass of Parnassus was just putting forth its pure white *Anemone*-like flowers in the richest profusion. Amongst orchidaceous vegetation the Butterfly *Habenaria* (*H. bifolia*) was unusually abundant and luxuriant. The fragrant Orchis (*O. Conopsea*) was also noted, but, except in one station near the base of the hill, not in quantity; while, on the other hand, *O. maculata* and *O. latifolia* were plentifully distributed. Growing at the root of an old Highland Pine in a rocky wood close by the latter we were fortunate to meet in with several plants of that rare British *Pyrola*, *P. media*. Of Ferns, we particularly noted in a rather damp, sub-alpine wood great numbers of that beautiful, but somewhat perplexing, plant *Lastrea spinulosa* growing in company with its supposed parent, *L. dilatata*. That the two are, however, specifically distinct few would be inclined to doubt who could see them growing in quantity in their native wilds. *Cystopteris fragilis*, *C. dentata*, *Asplenium viride*, and *Polystichum lobatum*, the latter growing almost in company with *Antennaria dioica*, were also met in with, though hardly in sufficient quantity to be called plentiful. The Heath family was also well represented, for, in addition to the *Pyrola* already referred to, we found *Vaccinium Myrtillus*, *V. uliginosum*, and *V. Oxycoccus*, *Erica vulgaris*, *E. cinerea*, and *E. tetralix*, while *Empetrum nigrum* covered with its low, creeping Heath-like foliage many of the rocks after a height of over 1000 feet had been reached.

A. D. WEBSTER.

**Low undercover.**—I have a cover on my estate planted with Firs, excepting a space all round the centre, which is now Grass and almost bare. I want to get some kind of cover for game, that will not exceed about 2 feet in height, to grow on this part. Rabbits are numerous, but the cover is intended for hares and pheasants.—W. W.

\* \* Plant thickly with common Privet and common Mahonia. Nothing better for the purpose.—ED.

**The Eastern Plane.**—Nurserymen ought to direct their attention to growing the right sort of Eastern Plane, *i.e.*, the Weston Park Plane. Rubbishy varieties are propagated instead of the true Eastern trees. Nurserymen or anyone else whom I have questioned have been unable to describe the true Eastern Plane; there are so many seedling sorts, that the matter has become pure supposition as to which is which.—OLD FORESTER.

**Quercus pannonica.**—This is truly a noble Oak, with handsome incised leaves, and one of the quickest growing Oaks in cultivation. The wood is said to be very enduring and valuable. The timber has been used in old mines in Hungary for centuries, and without showing decay; as compared with our own Oaks, its growth when young is as two to one. There is also a good specimen in the Edinburgh Botanic Gardens. It is also known as *Q. conferta*.—T.

**Price of thinnings.**—At p. 105 "X. Y." quotes the price of his first thinnings at 15s. per 100; these he makes into stakes for sheep nets. Now I belong to the south of Scotland, where it is nearly the universal practice to eat the Turnips off the ground by sheep, and, of course, there are a good many stakes used, and in a great many cases these are cut off at the proper length and pointed by the proprietor or wood merchant's man, and sold at 1d. each, or 8s. 4d. per 100. They are also advertised in the local newspapers at the above price—8s. 4d. per 100. I think "X. Y.'s" prices are very misleading to proprietors and others interested in the sale of such wood. I may here add that such wood is almost unsaleable here in Stirlingshire.—J. S. R.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## NATURE IN THE GARDEN.

"THE introduction into a garden of statues, fountains, and vases is not art, but an attempt to embellish a space of ground in a fanciful way by the placing of art objects. . . . It is always a mistake to place art by the side of the Nature it is derived from." So writes "J. D." in *THE GARDEN*, August 29, and I think a statement conceived in so contracted a spirit should not be permitted to go unchallenged. Entering heartily as I do into the reaction from a style of gardening which banished everything informal to borders in the kitchen ground, which sanctioned the use in masses of intense colour (which in Nature occurs for the most part in sparks and points, or at most in scattered showers), which left our parterres flowerless for nine long months in each year, and made the garden a place of monotonous repetition instead of incalculable variety, I see a danger ahead in carrying the "natural system" too far. Does "J. D." see nothing to admire, nothing that appeals to his imagination, in such a garden as that at Chiswick House, for example, where grey and moss-stained statues stand embowered in leafy bays or flowering glades? One of the prettiest floral groups I have seen this year was in that garden. A common pink China monthly Rose straggled over the grey column which supported a carved vase, spreading a shower of delicate pink blossoms against the cool neutral-tinted stone, and looking infinitely purer and more gay than if it had been growing in a common border. In the days when single Dahlias were unfashionable, I employed an artist to paint for me a large plant of the scarlet Dahlia coccinea growing at the foot of a grey wall. The whole charm of the picture lay in the contrast of the warm and cool colours, the formality of the wall, and the freedom of the plant. Again, let me ask has "J. D." ever been in Genoa? and if he has, has he ever stood towards sunset in the garden of the Palazzo Doria? Does he mean to say that the solemn spires of Cypress are less impressive or less rich in depth of colour because they stand now, as they have stood for generations, beside the great fountain with its marble eagles? Does the severe façade of Corpus Christi College, at Oxford, enhance or detract from the luxuriance of the enormous Wistaria which has flung itself along its southern front? The plant may be gone now; it is twenty years since I saw it, but it remains in my memory with a clearness it never would have possessed were it not for the union of cut stone and tender leaf and flower. To act up to the letter of "J. D.'s" advice would

be fatal to some of the scenes in English gardens, which have most of old-world beauty and fanciful sentiment associated with them. SALMONICEPS.

## FRUIT GARDEN.

## HOME-GROWN V. FOREIGN FRUIT.

IN a season like the present, when both home-grown and foreign fruits are plentiful, one has a good opportunity of comparing the merits of both, and if market value may be taken as a fair criterion of merit, English growers need not fear about holding their own in nearly all cases. Here we get foreign fruit landed almost at our doors without transshipment or rough railway handling and in beautiful fresh condition; yet buyers are content to give double and in some cases treble the price for home-grown samples that they give for foreign simply because of their better quality. Take, for example, Grapes, now plentiful in every fruit shop window—the foreign are marked 6d. per lb., and English from 2s. to 3s. per lb. Plums are also imported in great quantities, but they are inferior in flavour to English fruit and realise little over one-half its price. The best of the foreign fruits are the Green Gages, but they have not anything like the flavour of good English-grown Gages, and for dessert good carefully picked English fruits covered with bloom realise good prices, even in a season when fruit is more abundant than it has been for some years. Early Pears stand in much the same position, and although common tasteless fruit have been plentiful, good kinds, like the Jargonelle, realise good prices. Perhaps, however, the most remarkable differences between home-grown and foreign goods are to be found in Tomatoes. In this case one would think the foreigner could certainly beat us; but no. The fact is, the better the imported and home-grown become known, the wider get the differences in price. Foreign Tomatoes are marked at 4d. per lb. in all greengrocers' windows, yet there has not been supply enough of home-grown fruit to meet the demand at 8d. per lb. I could enumerate other cases, but sufficient have been given to support my statement, that English fruit growers need have no apprehension of finding their occupation gone, provided they care to keep the lead now that they have got it, by growing only the best goods. No more trouble or expense is involved in growing a good variety than a bad one. The old plea that anything will do for market is no longer tenable; for, although almost any kind of produce finds customers, it is only the very best that really pays the grower. As growing fruit for market is becoming a subject of national importance, all old worthless fruit trees and bushes ought to be grubbed up and burned, and only the best planted. JAMES GROOM.

*Gosport.*

**Waltham Cross Grape.**—I have not seen this Grape till quite recently, since it was first sent out when I assisted to plant a Vine of it, and saw it pulled out again on account of its apparent worthlessness. In the vineries connected with Mr. Brutton's establishment at Yeovil there is now a strong Vine of this variety which has perfected a heavy crop of bunches. It is growing in a mixed house, in which Muscat of Alexandria, Black Alicante, and Gros Colman predominate, and all are started early in February, and receive rather high temperatures in order to have the various sorts ripe and fit for exhibition during August. The border is not a rich one, and is rather thickly planted, and this would appear to check undue luxuriance to which this

variety is somewhat liable. Under such conditions this Vine produces plenty of bunches, and the high temperature would also appear to suit it, as the bunches are neat and compact, and the berries very fine and oval-shaped, and fairly good in quality. It is singularly distinct in appearance, as all the berries are more or less speckled near the points, and in a mixed show house of Grapes would prove very attractive. It proves to be a good keeper, and this would not be doubted after one has tasted the thick-skinned fleshy berries. It was recently remarked to me of a certain gentleman, and who has a very clever Grape grower for a gardener, that he did not know what to do with the berries of Lady Downes when he had them in his mouth, as they proved much too solid for his taste, but Waltham Cross must be still worse in that respect, and would suit those possessing quite opposite ideas regarding Grapes.—W. I. M.

## NEW FORMS OF FRUIT TREES.

Now is a good time to judge the fruit-bearing capacity of the different forms of fruit trees, and to determine the particular shape to adopt in future, provided always that the management and other conditions are favourable to fruit production. It is quite necessary to take a wide view of this subject, because there are so many points that have a bearing upon it, and none more than the degree of shelter which the trees receive. In one garden we may find, perhaps, tall and well developed examples of pyramid trees bearing well, while in another, trees of the same dimensions may be seen fruiting but indifferently. Now, it would be bad policy to condemn this form of tree because it had failed in one case, and it would be still worse to do so without making an effort to find out the cause of failure. It might be that the soil is unsuitable or the treatment defective, but the failure is more likely to be the result of difference of shelter. The form and position of the latter should also be noted, as to some extent shelter may be derived from the trees themselves being planted near enough to each other to afford a certain amount of protection, and it is quite possible to do this without unduly crowding the trees. As regards other forms of trees, the old-fashioned espalier will probably be found the most fruitful of all, except large standards—*i.e.*, taking into consideration the space it occupies.

After having given new forms of trees a fair trial, and met with a certain amount of disappointment, one's mind travels back to earlier experiences. We can see in our minds eye an old-fashioned fruit garden of thirty years ago. The thick and high country hedge that surrounded it effectually screened it from cold winds and cruel frosts; its fruit-laden espalier trees surrounding every quarter are still visible, and the luxuriant Strawberry beds in the middle. Well does one remember the large crops of King of the Pippins and other Apples that one used to gather from these trees; yet the arrangement of this garden was of the most commonplace kind. The trees had not at any time very good management, yet they bore every year excellent crops of fruit, Apples chiefly, but likewise Plums, such as the Blue Imperatrice, Damson, and similar hardy sorts, the stems of which were about 3 feet out of the ground, the branches being allowed to grow pretty much in their own way. When one looks back to these old gardens and compares with them the results of the modern fruit grower, with his sprucely trimmed trees, the thought occurs that many of us may wisely unlearn some of our later teachings. Indeed, the most ordinary observer must acknowledge that we have not gained much by departure from the plans of our forefathers as regards fruit culture in the open air. Seeing, however, that there is not likely to be a general reversion to old principles, we must do the best we can with what we have. If fanciful forms of training have done nothing else, they have at least interested many, and have been the means of enlisting others in the work of fruit growing who would probably otherwise have remained indifferent about it; and, further, some of the forms are not altogether useless, especially in these times, when refined taste is supposed to rule most of our actions in the garden.

If one of these new forms is more valuable than another, and likely to meet the requirements of the



present day, it is the cordon form, on wires in double or single lines (or more if necessary), by the sides of walks or in any other position desired. The Apple can be specially recommended for extensive use in this way. Those who say that that fruit is not suitable for such a system of training can have had but little experience in the matter, for next to the espalier stands the cordon in point of utility. There is another form of training, not new, certainly, which may be described as being half bush and half tree, and for gardens of moderate extent it is a very suitable one, as it gives a greater bearing surface than that of the ordinary bush. The best example of this form is to be seen in the gardens at Ashton Court, near Bristol. There the trees are planted in the borders near the walk, the top reaching, if we remember rightly, to a height of 10 feet. The main branches, of which there are several, rise from one stem, and in the early stages of growth no doubt these branches received some amount of training to bring them out from the centre. However that may be, the trees are now striking examples of what may be done with Apples, Pears, and Plums in securing a large amount of bearing surface without occupying much of the cultivated space, and, at the same time, being kept sufficiently dwarf to be under the protection of the garden walls. The ordinary bush form is more suitable for gardens of limited extent, but in this case some care is required in the selection of varieties, for some are more suitable for that style of growth than others.

The mention of varieties brings into view a very important part of the subject, as those who adopt either of the forms recommended must be prepared to use some amount of judgment in the selection of sorts, and the smaller the trees are to be kept, the more necessary is it to select only sorts that submit to be pruned and kept somewhat dwarf. Most of the Pippins and Pearmains may be chosen for this kind of work, as may also the Codlins and such sorts as Lord Suffield, Hawthornden, Margil, and many other free-bearing kinds, but, except for large collections, such strong growers as Tower of Glamis and Alexander should not be planted.

In regard to pruning, all who wish to meet with a full measure of success must be prepared to adopt the plan of our forefathers—*i.e.*, only prune once a year, and that at the end of August or the beginning of September, when the growing powers of the trees are pretty well exhausted for the season; then there will be no useless second growth to rob the fruit or the roots of nutriment, or prevent the formation of fruit buds for another year. S.

**Venn's Seedling Grape.**—It is a curious fact that the raiser of this presumably distinct variety can still contrive to exhibit it in good condition and receive a second prize for it in a class for any black variety of Grape other than Black Hamburgh. I saw some of the first bunches which Mr. Sweeting exhibited and which attracted so much attention at one of the great Birmingham shows, but, in common with many others, I have since been reluctantly obliged to confess that it is only Muscat Hamburgh or Black Muscat of Alexandria under another name. The latter is still cultivated with success by a few growers, Mr. Horsefield, at Heytesbury, invariably having good examples of it, but as a rule it sets very irregularly, and is much given to shanking. It is to be regretted that it cannot be generally grown, as its quality is unsurpassed.—W. I.

**Apple jelly.**—Apples this year are plentiful, but most of them very small, and, owing to the drought, dropping from the trees. One of the best modes of utilising them is to convert them into jelly—a preserve not nearly so well known as it ought to be. Take Apples, large or small, and after wiping them clean, cut them into quarters and take out the core, place them in a stewpan with water enough to cover them, and boil until quite soft; then place the whole into a jelly bag and let them drain all night. When the liquor is cold, return it to the stewpan, and to every pint of clear Apple juice put one pound of loaf sugar, and boil for one hour, when it may be put into jelly-moulds or jam-pots, and when cold it is fit for use. Some like white Apples, such as Codlins or Lord

Suffield, for this purpose, but for all practical purposes any good cooking Apple that will make good sauce or tarts will make good jelly; and now that jam of all kinds is becoming an important article of food, I am sure that Apple jelly only requires to be known to be in universal request. It can, moreover, be made from Apples that are really useless for storing for winter use.—J. G. H.

**Inferior Plums.**—Worthless varieties sadly want weeding out. To be convinced of the existence of such, one has only to visit the fruit-stalls in the various provincial towns, and witness the heaps of worthless varieties of this fruit exposed for sale. Such trees, too, occupy space which might as well be devoted to trees that would, without additional trouble or expense, produce fruit of superior quality. Many of the Plum trees grown in this country are self-sown seedlings, and if they produce fruit at all, however worthless it may be, the trees are seldom, or never, discarded. We have too many varieties of most kinds of fruit, particularly Apples, Pears, and Plums, and a considerable weeding out is desirable. As regards the Gooseberry, too, we have upwards of a hundred varieties, while most growers of this fruit will readily admit that half a dozen or, say, a dozen sorts are quite enough for any establishment.—P. G.

#### SURFACE CULTURE IN FRUIT FARMING.

AN experiment is being conducted by Mr. Walter Kruse, at Yew Tree Farm, Leeds, near Maidstone, with the view of demonstrating that the most profitable way of producing fruit is by surface culture only. Mr. Kruse is of opinion that it is injurious to soft as well as hard fruit to dig in any shape or form—in other words, that root growth should not be interfered with, but, on the other hand, should be encouraged as far as possible. The nearer the roots are to the surface, the better can they take advantage of the upper and more nutritive soil; and by refraining from anything but the most superficial culture the feeders of the tree are left to multiply, to interlace, and extend as far as the capabilities of the plant will admit; while, by the undisturbed formation of fine fibrous growths, innumerable feeders to the sustenance and health of the tree are produced. Practically, the only implements used are the common garden hoe and pruning knife. The former is used unsparingly when required; the latter with moderation, as Mr. Kruse believes that to get a large crop of fruit there must be plenty of wood for it to hang upon. It is evident, if the roots are not to be broken and torn by digging, that manure must either be applied in a liquid form or in the shape of top-dressing. The latter course is adopted, and on this important head of fertiliser we may briefly recapitulate what Mr. Kruse's method is in this respect. His opinion is that fruit growers are inclined to overlook the pressing necessity of keeping up a good and sufficient amount of

#### PHOSPHATES IN THE SOIL.

The necessity of an abundant supply of nitrogen is fully recognised on all hands; but phosphates are more particularly taken up in the formation of the fruit itself, and hence the importance of their presence in force. As everybody knows, good farmyard manure supplies nearly every constituent necessary for repairing the exhaustion consequent on cropping; but the supply of this valuable agent is necessarily limited in extent. Mr. Kruse, therefore, relies very largely on bones, crushed to quarter-inch size, for giving the necessary phosphates to the soil; while nitrogen is supplied by flock dust, skin waste, soot, or Peruvian guano. The yearly expenditure for manure comes to from £10 to £13 an acre. The manure is simply placed upon the surface, and is readily absorbed. On our visit last season we were enabled to report favourably as far as the trial had gone. The process of thinning out the bush fruit trees, so as to give those remaining ample light and room, and of merely hoeing the surface, had resulted, during the two or three years of trial, in an increased yield, while the appearance of everything, including a large number of young standards, was universally healthy and promising. It was, however, not only with considerable interest, but some little misgiving, that we drove through the beautiful country which lies between the old Kentish county town and the

fruit and Hop-growing district of Leeds to see what another season had done for this experiment of locking the earth up, as it were, year after year, and relying for a harvest on Douglas Jerrold's old American formula of "tickling it with a hoe." We may say at once that the result was satisfactory all round, and that the outcome of another—and somewhat trying—season is that the enterprising pioneer is completely satisfied that he is on the right track; and considering that this is now the fourth year of the trial, the writer, speaking from his personal observation, is strongly of opinion that Mr. Kruse is justified by the facts. On our arrival we found Mr. Kruse with a corps of women and girls among the

#### STRAWBERRIES.

and picking was proceeding at the rate of half a ton a day. Perhaps we may as well, therefore, take Strawberries first. These are planted between young standard Apples, Pears, Gooseberries, &c. Last year, had they been put in continuous rows, occupying the whole of the ground, from two to two and a half acres would have been covered. In the winter, however, a large number of the plants were grubbed up from the shorter intervals between the young trees, so that the present growth of Strawberries only represents as nearly as possible two acres. In the season of 1884, a favourable one for Strawberries, Mr. Kruse raised five tons; on a less area, and with a less favourable season, the yield will be over this quantity. The grower claims that this result must be owing to the mode of cultivation, and especially in view of the fact that this is the third year of the plants, Strawberries bearing best in their second year. It may be argued from this that under the system adopted the fertility of the land improves. It may be stated that these Strawberries are grown on what was formerly Hop land; it is exposed, and has beneath it a porous hassock; yet, although rain has been much needed at a critical time in the development of the fruit, this seems to point to the conclusion that the surface only being scratched as it were, and the soil not broken up for more than an inch or so, evaporation is comparatively slight, with the result that in dry seasons the reserve of moisture in the soil does not easily become exhausted, and there is a practical immunity from anything like a serious drought. It occurs to us to add that Yew Tree Farm, under its present mode of operations, has yet to pass through the test of a thoroughly wet season. Of the twenty-four varieties of Strawberries on the place, this year's growth confirms the view that for market purposes Sir Joseph Paxton is the most profitable. An examination of the fruit showed that it was of large size and brilliant colour, while the flavour was quite equal to the appearance. The Strawberries were treated this year as last, chiefly with nitrate of soda and bone dust, which is found to give results far superior to the best Peruvian guano.

#### CHERRY TREE ROOTS.

We are tempted here to call attention to a fact which illustrates what we may call the stupid side of the old rule-of-thumb culturist, who, we may hope, is gradually becoming extinct by the effluxion of time and the march of intelligence. It is an axiom in fruit growing in Kent that the roots of Cherry trees must not be interfered with. In old plantations, where the land is cultivated, or where Currants and Gooseberries are grown between the larger trees, you will sometimes see the trunk of the Cherry trees surrounded by a broad circle of green turf. This has been left for the protection of the roots, and so far, undoubtedly, so good; but the curious part of the business—the joke in fact—is that this grassy preserve never extends beyond the thickest roots, that is to say, that where the roots are as thick as a man's leg, and it would require a good deal of actual effort to injure them, they are carefully protected, while farther out, where the roots are thin and easily broken, the spud or the plough is used unmercifully. The sapient cultivator of the past seems to have been under the delusion that only those roots in the immediate vicinity of the trunk were of any importance. There are several of these old Cherry trees with a fairy ring of Grass round them on Mr. Kruse's farm, and if the Grass did not protect the roots of the particular Cherry tree under which some Strawberry pickers were taking tea, it formed a very admirable carpet on



which they could sit. Leaving the Strawberry patch, and passing in among the standard trees with the luxuriant under crop of

#### BUSH FRUIT,

We meet at every step favourable results. Take the Black Currants, for instance. This fruit is, generally speaking, a light and patchy crop this year; but Mr. Kruse's trees are well loaded (although not so heavily as last year), and are bearing better than any others on this favoured slope. The figures for the three previous years with regard to this crop will bear repeating. Under the old system, in the first year of Mr. Kruse's purchase, the crop was 150 half-sieves; in the second year (under the new system), after removing a number of trees to make room for standard Apples and Pears, the crop reached 200 half-sieves; in the third year (1884), after thinning out the bushes one-half, the yield was 203 half-sieves; this year, when the general average yield is taken into consideration, what may be really regarded as a further advance has taken place, although there will not be any increase in the yield, but rather a decrease. We found Gooseberries, too, a very fine crop, some of the bushes being quite a spectacle, and this notwithstanding the late frost, which caused such havoc in the district. Red Currants, again, were abundant, hanging in thick clusters. The young standards, too, which comprise many varieties of Apples, and particularly Pears, which are not generally cultivated, and which are on their trial, were well loaded with fruit, the remarkable prolificness in such young trees noted last year being repeated in many instances in the present season. Damsons, again, were a good show, although there is a general complaint that Damson trees, which suffered badly from the green fly last year, are bearing very shyly this season. Just a word about our old friends the Wellingtons, and we have done. We stated last year that, whether from the system of cultivation or some occult cause, some old cankered, worn-out Wellington Apple trees had seemed to take a new lease of life. The improvement is continued this year in a marked manner, the fruit being clean, fine, and fairly abundant, so that these veterans, which were so nearly being consigned to the wood pile as cumberers of the ground, have probably quite an extended future before them. Altogether, results seem to completely sustain Mr. Kruse's contention and belief, that surface culture—at any rate, under certain conditions—is true economy. It should be added, lest anyone should be misled, that the results named have been obtained only in connection with constant and intelligent supervision. It may be that the system, perfunctorily carried out, would result in measurable failure, if not in a complete *fiasco*.—*Field*.

**Ford's Seedling Peach.**—I have recently seen some very fine fruit of this variety, and I am informed it is cultivated in several gardens near Bristol, but I am unable to find any mention of it in any catalogue or fruit list. It very much resembles *Grosse Mignonne*, and possibly it is only another addition to the long list of synonyms by which that good old sort is known. Can any of the readers of THE GARDEN give us the history of Ford's Seedling? The fruit just mentioned was grown by Mr. Rye, Sneyd Park, Bristol, and if only a little more colour could have been added, they would have been hard to beat at any horticultural exhibition.—W. I.

**Fruit on the Welsh coast.**—Last week while staying at Townyn I had the pleasure of visiting the gardens of Mr. John Corbett, M.P., at Ynysmaengwyn, and there I saw the grandest crop of Pears I have ever witnessed. They hang upon the branches in the greatest profusion—not one sort only, but every sort grown in this fine old fruit garden, whether against a wall or grown on pyramids. Except for the searching east winds, which sweep down the valley from Cader Idris, the climate is exceptionally mild, and nearly all kinds of fruit succeed admirably. The Plum crop, a heavy one, had been nearly all gathered, including a plentiful supply of Green Gages. Many improvements are being carried out here or contemplated, and among the latter a range of new vineries is planned for the growth of early Grapes.

Probably the largest Evergreen Oak in the country is to be seen in this garden.—LLOYD EVANS, *Warwick*.

**Standard v. trained Peach trees.**—I notice what has recently been said in THE GARDEN respecting standard Peach trees, and I feel sure that if those who advocate them had been with me to-day packing Peaches grown both upon standards and trained trees, they would not have hesitated a moment to vote in favour of the latter, for although the fruits from the standards were quite as large as those from the trained trees, they were so deficient in colour, that none but a practised eye could have told that in both cases they were the same sort of Peach, and as brightly coloured fruits are of more value than such as want colour, the form of tree that produces the best-coloured is, I contend, best.—J. C. C.

**East winds v. fruit.**—The month of May gets the credit of having done all the mischief that has happened to our fruit crops, and in this (east mid-land) part of Scotland, at any rate, that month was remarkable for its cold, cutting east winds. On an examination of either fruit bushes or trees in any way exposed, I have observed that at least two-thirds of the fruit are upon the west side, a circumstance which I have never previously remarked. It may, perhaps, in unprotected places, to some extent at least, hold good every year, but I do not think it was ever so observable as this season. Being recently in a friend's garden, which has a somewhat steep incline to the west, with the house standing north and south at the upper end of it, thus being entirely shielded from the east, the fruit appeared to be about equally distributed over the trees. An eastern exposure would thus appear to be the most dangerous as regards a fruit garden.—R. E. R.

**Pyramidal trained fruit trees.**—"P. G." last week hints that I take "a very narrow one-sided view" of what is ugly and unnatural in artificially trained pyramidal trees, but I am under the impression that my view is the broad one. I condemn artificial shapes in Pear and Apple trees on the same ground that all modern landscape gardeners condemn artificially pruned and trained trees and shrubs. I say if such things cannot be upheld in the one case, they cannot be upheld in the other. If a Holly or a Laurel trimmed into the shape of a pyramid or an umbrella be ugly from a truly artistic point of view, how can a Pear or Apple tree of these shapes be considered a beautiful object? Moreover, when it can be shown that this artificial training does not add to the usefulness of the tree for cropping purposes, such training is more objectionable still. True art aims at combining utility with ornament. Says "P. G.," "not a few kinds of trees naturally assume the pyramidal form of growth," &c., which is true. The Spruce, for example, assumes the cone or pyramidal shape naturally, but to make the cases parallel we must put the Spruce tree in the hands of the cultivator, who would invert the order of things by cutting the bottom branches off the tree, denuding it of its top, and turning it into a mop-headed standard. This, according to "P. G.'s" reasoning, would be a handsome specimen of a trained Fir, for when he advocates training Pear trees in the shape of a pyramid he advocates that which is quite as bad as treating a Fir tree in the way described. I deny that any Pear or Apple tree grows naturally in the pyramid shape, and no one can show me such a specimen ten or twenty years of age and left to itself that has grown in that shape.—J. S. W.

#### QUESTIONS.

5386.—**Preserving French Beans.**—Will some reader of THE GARDEN kindly tell me how to preserve French Beans for winter use?—M.

5387.—**Bottle Brush.**—I shall be obliged if any reader of THE GARDEN will kindly tell me how to destroy that worst of all weeds, viz., Bottle Brush.—W. S.

5388.—**Tennis-court.**—We are about to make a tennis-court to play on in winter, and would feel obliged if any reader of THE GARDEN will give us information concerning the composition of the material to be used.—W. P.

5389.—**Packing Grapes.**—Will any of your readers kindly tell us the best way of packing Grapes for travelling? We have two good-sized vineries of late Grapes (*Lady Downes* and *Alicante*), but I can never pack them so as to arrive in good condition, though most anxious that they should be so.—W. S.

## ROSE GARDEN.

### SELECTING ROSES.

"J. D." (p. 77) is right when he says that Rose shows are not the places in which to choose varieties for garden decoration; but this many do, and also from descriptions given in catalogues, and the result is they fail to realise the satisfaction which they expect. Like "J. D.," I have not a word to say against exhibiting Roses, but I know that, however beautiful the flowers may be, not more than half of them would be suitable for the general purposes of garden decoration. It cannot be too well known that those who exhibit twenty-four and thirty-six distinct varieties have a large number of plants from which to select, or their chance of getting a prize would be very remote. To exhibit Roses successfully one must not only grow a large number of varieties, but they must be grown well; the position must be open, the soil of the best description, and the attention incessant. If it was not that exhibition Roses demand and, in successful cases, get good culture, many varieties would be altogether worthless for that purpose. Take, for instance, such sorts as *Marie Baumann*, *Reynolds Hole*, *Marquise de Castellane*, and *Marguerite de St. Amand*; plant them in ordinary soil and only give them common-place management, and they will be quite worthless, as far as exhibition flowers are concerned, the third season after planting. Yet, when well grown flowers of these kinds are exhibited, they strike everyone with admiration. It would be a great gain to lovers of Roses who are not practically acquainted with their cultivation if they could be made to understand how great a difference there is between ordinary garden treatment and that given them by nurserymen and others who are large exhibitors. The trade grower has even greater advantages than the most painstaking amateur, as his stock is not only young, and therefore in the best possible condition as regards the production of exhibition flowers, but he has a very large number to choose from; the amateur exhibitor, too, necessarily devotes much time and attention to his Roses—far more indeed than the average grower of Roses for garden decoration can bestow on them. Therefore, no one should be surprised at the difference in the quality of the flowers produced by these two cultivators and flowers produced by those who can only give them ordinary management. To prevent disappointment, the best thing for those to do who cannot rely on their own judgment to select varieties for the garden is to visit a garden in which a good collection of Roses is grown and where they are fairly well cared for, and if these should have been planted four years or more, they will offer a fair criterion of the capacity of the sorts to thrive in another garden, as, of course, only those which have made suitable growth would be selected. J. C. C.

### OLD-FASHIONED ROSES.

Was the Cluster White Rose "J. C. C." mentions not the old White Belguie? I know the Rose he means well; it is still in existence in many places, especially in Scotland. There is also a Cluster Blush of similar character; *Madame Plantier* is a hybrid China and one of the best and hardiest garden Roses. I found a good way with it was to bend the tall suckers down all round, and tie them to stakes about 18 inches high a little way back from the tips of the shoots, so that the tips of the shoots were about 9 inches from the ground. Other shoots were attached to taller stakes, and one or two in the centre left upright. The effect was an irregular mound of Roses, the quantity of bloom on a plant two years from the nursery amounting to several hundreds. I have seen this Rose grow under circumstances under which other Roses could scarcely live.

The Scotch Roses are good shrubs for any position; they may do in light soils, but do best in the same soil as the Hybrid Perpetuals, and should have the same cultivation. I have seen them do best in a rich loam; a shoot I picked 9 inches long had forty-two leaves on it, and a number of bushes were equally well furnished with leaves. The illustration in THE GARDEN the other day is correct for sprays from old



wood, but the growth of the young suckers is upright and the flowers much more double, and formed more like a good button-hole bud of *Maréchal Niel* or *Perle de Lyon*. The semi-double blooms shown in the illustration are produced on old wood. When properly cultivated the Scotch Roses make bushes nearly as round and formal as a Box tree, and are furnished with leaves and flowers to the ground. Besides the pink and the pure white there are straw yellow, lavender-blush, and sulphur-blush; by blush, I mean shaded from white to colour in the centre.

The illustration in question greatly resembles Harrison's yellow Rose, except that it should have more than double the number of flowers. This Rose makes an odd-looking standard, as the wood has to be cut clean out every alternate year and the shoots have to be bent down; it is short-lived as a standard. Mr. Fish recommends it to be grown on its own roots. "J. C. C." is in error about the White Bath; it is a weakly paper-white sport of the Moss Rose, which occurred in the garden of two old ladies either at Bath or Exeter, and is a very different thing from the comparatively vigorous White Provence. The White Bath is still to be had from nurseries, but it is so weakly as to be only worth growing as a curiosity, especially now that we have several good white Mosses.

Has "J. C. C." ever seen Mrs. Bosanquet grown in a low-roofed house, intended merely to keep the frost out, and from which the roof was removed in summer? Grown in that way, the blooms are large and perfect and the growth vigorous. It is a very good Rose for small gardens, however, and should be more grown. Why has *Rosa semperflorens* come to be called the common China? *Rosa bengalensis* is not grown now, neither is it worth growing, as its profusion of flowers tumble all to pieces the moment they open; but that is no reason why the ever-flowering China Rose should usurp the old familiar name of its much more vigorous relation. J. D.

**Rosa lucida Lady Leighton.**—This charming little, soft, double, red Rose has long been missing from trade lists, and until a few days ago I believe no plants of it could be had for money. Now, however, this bright-foliaged variety, which produces great quantities of buds both early and late, often in the depth of mild winters, is to be had. Lady Leighton, after whom it is named, has not only cared for it in her garden at Loton Park, Shrewsbury, where it has flourished since the time of the American war, but she has now generously allowed it to be distributed. Its rich perfume should be tested, for this is, perhaps, its finest quality. It has the habit of our Sweet Brier as a bush, but the buds are produced in clusters instead of singly. The glistening foliage is a pleasing feature, too, and its tints in the autumn are in keeping with those of many other North American shrubs.—J. W., *Kirkstall*.

## BOOKS.

### A NEW BOOK ON ROSES.\*

MR. MAX SINGER, rose grower, of Tournai, Belgium, has compiled a dictionary of Roses, which appears to be a useful addition to the literature of the queen of flowers. As the title implies, the book is arranged alphabetically, and the name of the flower being in bold black type makes rapid reference easy. The purpose of the book is purely popular and practical. As noted in the preface, it gives, in the case of modern kinds, the name of the grower, the date of distribution, the species to which the variety belongs or is related, the habit, the nature of the foliage, the colouring and peculiarities of inflorescence, with occasional notes as to culture, hardiness, suitability for forcing, and other points of use or interest.

The first section is devoted to the natural races, with their wild and cultivated varieties. Many of these, now lost or perhaps never introduced into English gardens, may be of considerable garden value. Under the heading of "Sweet Brier" alone

no less than eight natural and seventeen garden sub-varieties are enumerated.

Throughout the book the Roses are clearly described, and the author has carefully noted individual peculiarities; for instance, in describing Climbing *Devoniensis*, his words translate as follows:—

"Growth vigorous, shoots very rambling, of a deep green colour, with few prickles; leaves glossy, regularly toothed; flower large and full double; in the centre the petals are curled and arranged with much art, giving the flower a look of having a smaller Rose within a larger; colouring white, yellow towards the middle, flesh colour in the centre."

Nearly six thousand Roses are described. There are a number of woodcuts showing flowers life size, but they are too coarse in execution to be satisfactory, and are somewhat confusing from being executed in different manners and by various processes; two, better than the rest, at the beginning of each volume, have a certain bold vigour that is not without merit, but are of a kind unsuitable for rendering the texture of a delicate flower. In some points the book seems scarcely up to date, no mention being made of the single white Himalayan *Rosa Brunoniana*, of proved decorative value; and the *Ramanas* Rose of Japan (*R. rugosa*), now so well known in English gardens, though accurately described (vol. i., p. 5), the author believes has never left its native country. It is worthy of note that in the case of Rose species the French popular names are in all cases used in preference to the Latin botanical form, which either occurs as an accessory or is omitted altogether; thus *Rosa lucida*, for which we have as yet no commonly used popular name, is simply "Rose luisante."

## FLOWER GARDEN.

### TUBEROUS BEGONIAS OUTDOORS.

THE success that has attended the cultivation of these Begonias in the open ground, whether in beds by themselves or associated with other things, has long since been proved to the satisfaction of those who have so tried them. Yet it would appear that they are far from being so generally used in this way as their merits entitle them to be. There are, however, few plants that possess so many properties that commend them for outdoor cultivation as tuberous Begonias. In the driest parts of the kingdom during the present, as in the preceding, unprecedentedly dry summer, in several places where I have met with them, they have shown their ability to bear extreme dryness equally well as they had before shown their indifference to the opposite of too much wet, the only difference being that, as might have been expected, they have made shorter growth. But, as might easily have been foreseen, there is a great difference in the behaviour of different kinds, just as with other plants that are used in the same way; of zonal *Pelargoniums*, for instance, there are some varieties that are so much superior to others for outdoor cultivation as to put the latter out of court. As a rule, it may be taken for granted that the very large-flowered Begonias should be avoided for planting out of doors, for two reasons—first, because they do not produce a sufficient quantity of flowers, and, secondly, because the latter are liable to get knocked off in rough weather. The small-leaved, small-flowered varieties, with pointed narrow petals, give the most even sheet of bloom; but there are numbers of kinds with rounded petals and smallish flowers, such as may be selected from the produce of a good strain of seed, that are highly effective, especially when a mixture of various colours is associated together, comprising, as they do, various shades, from deep rosy crimson, scarlet, pink, and blush, to white and yellow. There is little doubt that tuberous Begonias will ultimately be much more used than hitherto for planting out by those who hold on to flower gardens filled with summer bedders, and also in herbaceous beds and borders. In the latter, much may be effected with them to keep up a sufficient display after the principal portion of the herbaceous occupants are out of bloom. In such seasons as the present, when many of the herbaceous plants have been half roasted to death, they will be especially useful. One thing that com-

mends them to those who have little accommodation for ordinary bedding plants is, that there is no difficulty in wintering them. All that the tubers require is storing out of the reach of frost, like Potatoes, and as soon as they show signs of starting into growth in spring, to put them in little pots and stand them in a cold frame with a mat or two over them on frosty nights, planting them out when danger from frost is over. Their continuity of flowering all through the summer and autumn until frost comes is not the least of their merits. T. B.

### NAMING CARNATIONS AND PICOTEES.

WHILE Carnation culture was in the hands of a few florists, who divided the varieties and named them as they thought fit, and restricted and selected the forms by rigid rules of their own making, it was, perhaps, not a difficult matter to distinguish between Carnations, Picotees, and Cloves; but now, when varieties are likely to become so numerous in every garden as to be indistinguishable, I would suggest that such arbitrary distinctions be abolished altogether, and that we call all the varieties Carnations, dividing them, perhaps, into single and double, or large and small sorts as might be necessary. Imagine the confusion that would arise if other hardy flowers were divided in the same fanciful manner as Carnations, Cloves, and Picotees. To show the frivolous nature of florists' distinctions, I need only quote the words of Mr. Douglas at page 181. Explaining to a correspondent the difference between "Carnations, Picotees, and Cloves," he says, "Cloves are usually self-coloured flowers; indeed, all selfs are erroneously classed as Cloves; but if they are not Clove-scented, it is better to say of a self flower that it is a pink Carnation or a purple, according to its colour." From this it appears that the nose has to determine the section to which any Carnation flower may belong, and as hardly any two noses are equally sensitive or alike, and that numbers of people lack the sense of smell altogether, we can easily imagine in what way this test would end. The fact of the matter is all Carnations that have any scent at all are Clove-scented, or, as I would prefer to put it, have the same scent, only some are more fragrant than others. This, therefore, destroys Mr. Douglas's distinction at once. The simplest plan would be to call all varieties Carnations, and distinguish varieties by descriptive terms such as selfs, striped, edged, or blotched, &c. As it is, many Carnation growers practically acknowledge no other rule than this. J. S. W.

### DOUBLE V. SINGLE DAHLIAS.

THERE were good and numerous prizes offered for both single and double Dahlias at the show held at Shrewsbury on August 19, but while there was only one lot—and that a very poor one—shown in the single class, the double classes were remarkably well filled. A year or two ago it appeared as if the single sorts were going to oust the double ones. They were raised wholesale from seed, and ran up and flowered profusely the first year, but there were so many really indifferent ones amongst them and the flowers so thin and flimsy, that I suppose many got tired of them. They grow too rank in many instances, and render the spot they occupy more unsightly than ornamental. Messrs. James Dickson & Sons, Chester, recently exhibited some very good bunches of them at Shrewsbury in the form of flat-faced bouquets, each bloom standing clear of its neighbour. Apart from this there was nothing to attract attention amongst single Dahlias, but the doubles were good, and must, I should think, have induced many who have given them up to take to them again. They are useful, old-fashioned flowers, which all must admire. Mr. Shaw, of Kidderminster, exhibited them largely, and so did Messrs. Heath, of Cheltenham, whose blooms, as regards size, form, and variety, would have been difficult to beat. They were fresh and in every way charming, and I do not remember having seen the qualities of single and double Dahlias brought out so conspicuously by direct contrast before. The varieties especially attractive in Messrs. Heath's stand were *Cloister*, *John Bennett*, *Mrs. Gladstone*, *Joseph Ashby*, *Condor*, *George Rawlings*, *Gaiety*, *General Gordon*, *Henry*

\* "Dictionnaire des Roses." Max Singer, Tournai. 1885.



Bond, James Service, George Dickson, and Prince of Denmark. J. MUIR.

### MILLA BIFLORA.

IN reply to Mr. Poë's inquiry (p. 201) respecting the behaviour of this delightful bulbous plant, I am glad to be able to say that my previous experience of it is quite confirmed this season, and I might add considerably strengthened, for the imported bulbs were not so large as those which I planted this year after one season's growth in our own garden; consequently the flower-spikes this year are not only stronger, but more numerous than hitherto. We have several bulbs throwing up three stems with three flowers on each, but, unlike Mr. Poë's, we have only one flower open at a time on each spike. The more one sees of this plant and understands what little trouble it gives in order to grow it successfully the better one likes it. I feel fully persuaded that as the bulbs get stronger it will be still more valued. I believe it will go on flowering for fully six weeks or two months at a time, and this with only the trouble of planting it in April in a warm bed, where the soil is fairly light and rich, and taking it up again in November and storing it in a dry place during the winter. If, therefore, we can get a white fragrant flower but little inferior to a *Eucharis* with so little trouble, I think we must admit that our gardens have substantially gained by the introduction of this plant. I doubtless made a mistake last season in allowing our bulbs to ripen seed, as that must tend to weaken them, but I did so (and I am doing the same this year), for the purpose of increasing our stock. The result of last year's seeding is that I have now a pan of thriving young bulbs, the flowering of which I shall naturally look forward to with much interest. At planting time this year I fancied that our home grown stock was more shrivelled than it ought to be; some were kept during the winter in sawdust and some in dry sand; others were put in paper bags and hung up in the fruit room; but next winter I think I can prevent the shrivelling, for I hope to keep them in fairly dry earth.

Since writing the above I have examined my stock again, and I find there is one plant with four flower-stems, and three flowers or buds on each. These are on a bulb grown here last season, so that we can only conjecture what numbers of flower-stems this plant is capable of producing. J. C. C.

### PROPAGATING CENTAUREAS.

AMONGST bedding plants the *Centaureas* are about as tiresome plants to propagate as any we have to deal with. I do not mean to say they are difficult to increase, but they certainly require a lot of patience. If there is any secret about propagating them, it consists in beginning the work early and waiting with patience while they make roots. The month of August ought not to be allowed to run out before the cuttings are taken. The best cuttings are the young side shoots, and the proper way to take them is to slip them off from the old plants, which will ensure there being a bit of firm growth to each, and which will be found to make roots much sooner than softer and younger growths. Prepare some 3-inch pots to receive the cuttings, give them one crock each, and then fill them lightly with some fine sandy soil; then dibble in one cutting in each pot, pressing the soil firmly, and be sure to leave a sufficient space for water, as, the soil being sandy, will dry quickly in fine weather. To support the leaves and to keep them from tumbling over the pots, it is necessary to put a neat little stick to each and to tie a piece of matting to it, and then gather up the leaves lightly round the stick. A cold frame, kept rather close and well shaded, is the best place for them, and this treatment must continue for a month; after that they may have more air and be only shaded when the sun is very bright. When they begin to make fresh leaves it may be concluded that they have also made some roots, and it is only a question of time for them all to do so, for it is not often when cuttings of sufficient strength are put in that many of them die when treated as here advised. To obtain strong plants for bedding out they ought to be shifted into 4½-inch pots early in February. From that time until the end of April a cool Peach house or an ordinary greenhouse is the best place for them. During the dark winter months

these plants suffer more from damp than cold, although it is desirable to keep them out of the reach of severe frost. They want no pinching, but it is advisable to keep all dead leaves picked off them during the winter. J. C. C.

### HOW TO GROW RANUNCULUS LYALLI.\*

WE have now had five years' experience with this somewhat tough floral customer, and we think we understand its treatment at last. The first thing for an English gardener to consider is, what altitude does it come from, as this is the key to all treatment. Well, it is never found below 2000 feet above sea level, and it ranges up to 4000 feet, so that it is completely covered with snow in winter. It is not a bog plant: it loves the mountain-side where drainage is free, and where it can send its succulent roots deep between masses of rock. But, like many *Ranunculi*, it loves water—water moving, not stagnant—and during summer it gets this trickling down amongst its roots from the perpetual snows above its habitat. In bringing this mountain plant from its home in the high ranges, and acclimatising it on the plains, we have greater difficulty to contend with than we should have in the cooler climate of England. When the plants are brought down from the mountains, we prepare a place for them on the south (north with you) side of a turf wall; the soil is peat, sharp sand, and broken rock the size of ordinary road metal. The plants are thickly planted in this compost, leaving the bud barely visible. As they are obtained in May, at the commencement of our winter, no water is given, there being plenty of moisture for them at this season. They begin to make roots at once, and continue to do so all through the winter. In August, when the buds are showing signs of bursting, we pot in 5-inch or 8-inch pots, to suit the plants, using the same soil, but less broken stone. We plunge the pots on the south side of a building, so that no sun can reach them, and they bloom well. When in flower we water freely, but withhold it afterwards. The plants do best when the rhizome is placed close to the side of the pot; we have them now two and three years in pots, and some of the plants bloom twice in the season. A batch left in the bed for two seasons was magnificent, with huge peltate leaves, 8 in. to 10 in. across. We advise planting out on a north border in England until the plants have well recovered from the voyage. We do not recommend pot culture until you know more about the behaviour of the plant in England. To shut them up in frames means death; they want cool air, plenty of it, and very little sun. We have some thousands of seedlings one year old, which we expect will be very tractable under pot culture.

The seed is sown in well-drained pans or boxes filled with peat and coarse grit in equal parts. Put them down in a damp place on the north side of a wall, water well, and cover with a sheet of glass. Avoid cool frames for New Zealand alpine generally, the conditions of air and moisture being too uncertain. Let them have the open border and free exposure. These cultural remarks apply to alpine plants only; lowland plants require warmth; any temperature ranging from 45° to 60° will suit them. As regards Ferns, the same treatment will grow all the varieties except *Polystichum cystostegium*, *Cystopteris fragilis*, and *Hymenophyllum villosum*, which require a north border.

The rarer species, *Ranunculus Godleyanus*, has at length been obtained from the snow line 5000 feet above sea level. We are adopting similar treatment with it, and do not anticipate anything like the trouble we have had with *R. Lyalli*, because it has not the thick, fleshy rhizome of that species.

Terrestrial Orchids, of which there are fifty New Zealand varieties, should be grown in peat and Sphagnum in a warm house. We have grown tubers of *Pterostylis Banksii*, the Sensitive Orchid, as large as Walnuts. Epiphytal Orchids, such as *Earina* and *Dendrobium*, do best in pots filled with sandstone and peat with sphagnum, in a cool Orchid house with

plenty of air. *Droseras* are grown in peat and Sphagnum. Stand the pots in pans of water and plenty of sunshine. Seeds are easily raised in pans filled with chopped fibrous roots of Tree Fern covered with a bell-glass.

**Hydrangea quercifolia.**—Regarded only from a floral point of view, this *Hydrangea* would not take very high rank, its panicles of flowers being but sparingly produced, and, moreover, they are even when expanded inferior in point of beauty to those of most of the others. The blossoms are arranged in a dense head, and consist principally of small fertile blooms, with a few sterile ones scattered round the outside. These sterile flowers are creamy white, but too few in number to make much of a display. The leaves, however, constitute a distinctive feature, for instead of the ordinary *Hydrangea* foliage in this kind they are deeply lobed, as much so indeed as in an Oak leaf, whence the name is derived. These leaves are large, being, when fully developed, nearly a foot long and correspondingly broad. It is a native of Florida, and though introduced into this country during the early years of the present century, is still very little known, probably owing to the fact that it is among the tenderest of the *Hydrangeas*.—T.

**Dahlia Fire King.**—This *Dahlia*, known also as *Glare* of the Garden, is a distinct and valuable variety, its blossoms being small, rich bright scarlet, and, though double, not nearly so much so as in the ordinary show or pompon varieties. It is especially adapted for cutting, the blossoms being totally devoid of lumpiness, while for yielding a display in the outdoor garden it is unsurpassed. Its flowers are borne well above the foliage, while the height of the whole plant is only from 3 feet to 4 feet. Where cut flowers are in demand this is one of the best of all *Dahlias* to grow; indeed, we have been cutting from it for a long time—in the first place, from a few old roots grown on before planting, and more recently from young plants put out in spring. Though in a dry spot and so situated that artificial watering can be but little resorted to, this *Dahlia* has bloomed most profusely.—H. P.

**Silene pendula compacta.**—In reference to the double form of this pretty annual, "A. D." (p. 120) says: "This pretty spring flower has the grave demerit of being inconstant, a fact due probably to its comparative incapacity to seed. The bulk of this is obtained from single-flowered forms, which come rather too plentifully; indeed, but for these the double form would probably soon die out." We have grown this form of *Silene* for several years, and, by perseverance in sowing seed from double flowers only, have gradually obtained constancy, and we can now with certainty get a satisfactory percentage of double flowers. If seed were sown from single flowers only, "the double form would probably"—nay, certainly—"soon die out." In the double flowers the stamens are petaloid; consequently there is a deficiency of pollen for reproduction, and the blossom being crammed with petals, the pistils with the incipient seed vessel are smothered, and thus easily destroyed, especially if there should be a lack of sunshine at the time when the essential functions for reproduction should be performed. The colour of this double variety is brighter than in the single kind, its blossoms are larger and more numerous, and it continues much longer in blossom. The last-named characteristic is owing to its "comparative incapacity to seed;" indeed, so long as it can find plenty of nourishment, there appears no end to its blooming period, but it never loses its compact habit.—JAS. CARTER, *High Holborn*.

**Pentstemon seed.**—I see that a Scotch firm advertising *Pentstemon* seed says, "Sow in the open ground now." If this will produce seedlings, how is it that they do not come up as plentifully as *Columbines*? I have a good many roots, but never saw any seedlings.—SENEX.

**Double white zonal Pelargonium.**—"H. P." (p. 193) says that a good double white zonal *Pelargonium* is still to be desired. If he will procure a plant of a variety recently sent out under, I think, the name of *Cygnat*, he will, I feel sure, admit that this desideratum has been accomplished, as the variety in question appears to fulfil all the conditions that can possibly be desired as regards a double white flower.—P. G.

\* From Messrs. Adams & Son, Canterbury, New Zealand. Communicated by Dr. Wallace, New Plant and Bulb Company, Colchester.



**Gaillardias in the flower garden.**—These, as "J. C. C." says (p. 198), are both useful and beautiful. Our plants of them which are flowering prettily now, and have done so for many weeks past, were raised from seed sown in February under glass in a gentle heat. They were large and healthy by the end of April, when they were planted in the flower garden and there they have given much satisfaction. They are amongst the best of all flowers which can be raised from seed quickly for the decoration of flower gardens. They are mostly double and very attractive in colour. Amongst single ones, *G. grandiflora* is exceedingly pretty. Of this variety Mr. Vertegans recently exhibited a beautiful stand of blooms at Shrewsbury. They were shown on a stand like Dahlias and were greatly admired. As a class, Gaillardias well merit attention.—J. MUIR.

**Montbretia crocosmiæflora.**—This plant is flowering exceedingly well with us this season. The specimen to which I allude was kept in a 6-inch pot in a cool Peach house all winter and was turned out in a warm bed in the open early in April where the soil is fairly light and rich. I cannot say that I find it much superior to the older variety, *M. Pottsi*, although the flowers are larger. Those who find any difficulty in flowering these Montbretias should divide their old plants in October and place about four strong pieces in 6-inch pots and keep them away from frost all winter. With a little root moisture they will keep growing slowly during the dull months, and if planted out in April should flower well during the summer. I am quite sure that they do not require so much root moisture as the *Gladiolus*, which in character they so much resemble. This is why they may occasionally be found thriving in the most satisfactory manner on the lower parts of rockeries.—J. C. C.

**Tree Carnations seeding.**—If Mr. Knight has been able to get his perpetual or Tree Carnations to produce seeds out-of-doors freely, he has succeeded better than I have done, or, I may add, than several others with whom I am acquainted, some of which are amongst the largest and most successful growers of this section of Carnations in the country. If he had read correctly what I wrote on the subject, he would have seen that I did not say these Carnations would absolutely not seed in this country, but that it was not an easy matter to secure seed of a really good strain, as it was not produced here in the way in which the growers in the south of France manage to get it. I have frequently secured seed in small quantities myself, and most others who have attempted to save it, I should suppose, have had the same success. But I have never seen these Carnations produce more than a very small percentage of well-matured seed outdoors here as compared with what they generally do in the south of France, and I rather think that this is about the measure of success with which most people have had to be content. Mr. Knight's failures with the Carnation seed which he has had from Continental houses show that he has not been to the right source.—T. B.

**Hardy flowers at Shrewsbury.**—I have never seen hardy flowers more attractively displayed than they were at the Shrewsbury exhibition the other day. The class in which they were shown consisted of "Twelve bunches, trusses or blooms of cut flowers, stove or greenhouse in variety," and to my mind and that of many others the herbaceous flowers were more showy and handsome than the exotics. The latter were by no means bad, but the hardy flowers were extra good. Mr. Vertegans had a magnificent stand, which won the first prize easily; such meritorious exhibits must soon make hardy flowers popular. They consisted of fine spikes and heads of common border flowers. Mr. Vertegans' specimens were set up in boxes with as much care and taste as the choicest exotics.—J. MUIR, *Margam*.

**Tuberous Begonias as bedders.**—If anyone still doubts the merits and adaptability of these plants for bedding purposes, they should endeavour to obtain a look at two match beds now flowering in the beautiful gardens of Mr. G. A. Partridge, Bury St. Edmunds. These beds are well worthy of going a long way to see. They are each some 20 feet long

by 7 feet wide, and are densely filled with the best single-flowered varieties of this beautiful plant. They are all flowering freely, and the beds present a singularly rich and beautiful appearance, distinct from everything else in the way of bedded-out plants. The gardener, Mr. Ager, has been remarkably successful in originating many fine and distinct varieties of this plant, many of them with double as well as single flowers. Of one of the former now in bloom he thinks very highly, and it is certainly a very fine variety, being dwarf and bushy in habit. It also flowers very freely, and the male blossoms are densely double, of fine form, and of a bright yellow colour. It is a remarkable fact as regards double-flowered tuberous Begonias that duplicity is represented by the male blooms only, the female blooms being generally single.—P. G.

**Precocious seedlings of Montbretia crocosmiæflora hybrida.**—Towards the end of 1883 I received from M. Lemoine, of Nancy, a bulb of each of his new hybrids of the above named plants, named respectively *M. c. elegans* and *M. c. sulphurea*. Both of them flowered nicely with me in the garden border during August and September, 1884, and during the following month the first named ripened some twenty-four seeds, which were sown as soon as fully ripe early in November. Nearly every seed sown germinated before the end of the year, and the young plants having been pricked out in spring into a sunny border have developed so quickly, that at least half of them are now flowering, much to my surprise, as I certainly did not expect the seedlings to bloom within nine months of being sown. The two bulbs in the border have split up into about fifteen offsets, each forming quite a clump. *Elegans* is now in full bloom, but *sulphurea* will not bloom at all, though growing side by side under precisely similar conditions. The seedlings that are showing flower seem as if they would differ considerably both in colour of foliage and flower from each other and from their parent. It is to be hoped that there may be some distinct forms among them.—W. E. GUMBLETON, *Belgrove, Queenstown*.

**The yellow Flaxes.**—Some confusion has arisen in consequence of *Linum flavum* having been circulated under the name of *L. campanulatum*. The first is a well-known plant in gardens, having also been freely distributed under the name of *L. luteum*. It differs essentially from *L. arboreum* in being herbaceous, while *arboreum* takes the form of a shrub. *L. flavum* grows from 1 foot to 2 feet in height, has stout stems, lower leaves obovate, those on the stem lanceolate, blunt pointed, and about a quarter of an inch or more broad. The flowers are produced on long petioles from the base of the uppermost leaves, and have thus the appearance of being branched. Of *L. campanulatum* the strongest plant which I ever saw was only 6 inches high, and altogether more fragile than *L. flavum*. The lower leaves are much smaller than those of *flavum*, obovate and crowded; those on the stems are obovate-lanceolate, much narrower than those of *flavum*, and set closer together. The stem is surmounted by three flowers, without or with very short petioles; the flowers are as large as those of *flavum*, but lighter coloured and of a thinner texture; the sepals are much longer, narrower, and more acute. It is a difficult plant to grow, and I fear not in cultivation at the present time. It is inferior to *L. flavum* as a garden plant, owing to its delicate character, while *flavum* is quite hardy.—K.

**Hybrid Lobelias.**—Tall herbaceous Lobelias are just now amongst the most showy of perennials, and, with the number of new varieties put into commerce lately, they should ere long be more extensively cultivated than they have been, the brightly coloured splendens, ignea, or Queen Victoria being almost the only sorts grown. Numbers of new varieties have been sent out, most of which indicate syphilitica parentage, and very pretty they are, but even from these a selection should be made. From amongst them I have marked the following as good and distinct, viz.: Amethyst, purplish blue; Challenger, rosy purple; Nizza, beautiful crimson-purple; Queen of Whites, white; Sunrise, cerise-scarlet; and Stromboli, purplish magenta. When to these are added a

couple of the older kinds, with rich glowing scarlet or crimson blossoms, a sufficient number of varieties for ordinary purposes will have been reached. When growing, these Lobelias seem to delight in copious supplies of water, but they are apt to die off during winter unless well drained. Liberal treatment is necessary in order to ensure good spikes of bloom; the plants are greatly benefited, too, by being taken up when they have formed such a mass as to exhaust the surrounding soil, and when divided, they should be planted in some fresh compost. Not being quite hardy, a little protection from frost will be an advantage. The best material, perhaps, to place over the crowns is dry ashes, as they never remain saturated long, even during heavy rains, while in spring they do not harbour insects to prey on the young foliage.—H. P.

**Transplanting white Lilies.**—It is more than probable that some share of the ill success often met with in transplanting these Lilies is due to moving them too late in the season—in fact, after the roots are in active operation. So quickly does this Lily recommence growth after flowering, that the best time to move it is directly the flower-stems show signs of decay, and not to wait till winter, or at all events autumn, as is too often done. I have just (August 28) examined some shifted a month ago, and find that already the young roots are in active growth. The crown of leaves, too, pushed up and retained during the winter, is in some cases becoming visible. If the removal had been longer delayed, a certain number of roots would have been injured however carefully the operation had been performed, and the plants would, of course, have been weakened thereby. These remarks, though in a lesser degree, apply to most Lilies; in the majority of cases they are planted too late. I was, indeed, assured by a large dealer in bulbs that more Lilies are sold during the second and third months of the year than before that time, though, of course, a serious check is inflicted on the bulbs that are moved as late as February and March. As very large numbers of Lily bulbs are imported every year from Holland during autumn, there is no reason why we should delay obtaining them till spring, as if potted or planted at the proper time they will be established before late purchased ones are finally committed to the earth. With regard to *L. auratum*, the supply is mostly kept up by importations from Japan, which, of course, are later in reaching this country than Dutch-grown bulbs, but nevertheless the first of them arrive by the beginning of December, so that a supply of Japanese-grown roots can, at all events, be obtained by Christmas. If Lilies were potted or planted earlier than is usually done, we should doubtless hear less of the ill success that attends their culture.—H. P.

**Lilium auratum in the north.**—Several paragraphs on this Lily in recent numbers of THE GARDEN have induced me to send you the following observations regarding it: About the time when it was first introduced I procured two bulbs from Mr. B. S. Williams. They were small, and I do not think they had ever flowered—at least in this country. I tried them in pots for a year or two, but with indifferent success. I then planted them out at the foot of a south wall in good deep sandy soil, and there they have remained for the last dozen years. One of the plants has never been disturbed, and has this year three stems about 6 feet high, with twenty-three, twenty-one, and eighteen bloom buds respectively—sixty-two in all—not yet fully expanded. It has gone on gradually increasing in strength; last year there were about sixty blooms. This variety is somewhat darker both in stem and marking of the blooms than the other. The latter had increased to five strong stems two years ago, and, wishing to share it with two friends, I lifted the bulbs and gave them one large bulb each. I then renewed the ground a little, and replanted the other three bulbs within a few inches of each other. These before being moved had been flowering fully as strong as the other. Well, last year the three bulbs threw up a stem each, but not half the usual strength or height, and none of them had above four blooms. This year they are a little stronger, and have a bloom or two more on them. The conclusion I have come to is that this Lily, if planted in a suitable place outside, ought not to be



disturbed. I may mention that one severe winter I neglected to put any protection over the bulbs, but it seemed to make no difference; and the only protection they have ever had is a little garden rubbish thrown over them; and this in Forfarshire, not a hundred miles from the foot of the Grampians.—R. G. R.

### NOTES OF THE WEEK.

**Verbena montana.**—Flowers of this pretty plant have been sent to us by Mr. Tillett, from Sprowston, Norwich. He says that with him it is perfectly hardy in his borders, having been out for many years. It is prettier than *V. venosa*, the flowers being larger and brighter in colour. The plant does not appear to be much known, otherwise we should more frequently see it.

**Carnation Orangeman.**—Mr. T. Smith, of Newry, sends flowers of an exceedingly pretty seedling Carnation named Orangeman. The flowers are of a peculiar soft nankeen-yellow, distinct from any others we have seen—just the colour that many would like, while the perfume is of the most agreeable kind. Another called Butterfly is also sent, which, though pretty, does not please us nearly so much as Orangeman.

**The Anigosanthuses**, though not to be recommended as garden plants for beauty, are curious and interesting. *A. rufa*, with dull purplish, mossy-like flowers, and *A. flavida*, with dull yellowish flowers, and one named *A. pulcherrima* are the best species. They are natives of Australia with Grass-like foliage. They may be seen in the temperate house at Kew.

**Dracæna australis.**—I send you a photograph of this *Dracæna* that has just flowered here for the first time. It has been planted five years, and has had no protection in winter. It was about 18 inches high when put out, and now it is nearly 10 feet in height, and has a stem 2 feet in circumference. The flower-spike is about 3 feet high and as much through, and the flowers are very strongly scented.—T. TYLER, *Creech Grange, Wareham.*

**Crocus vallicola.**—A week or two ago *C. Scharojani* was in flower; now we have a successor to it in *C. vallicola*, a species with much larger flowers and a thicker and stronger tube, and consequently better adapted to stand boisterous weather. The fault of *C. Scharojani* lies in its weak tube, which bends with the first gale, rendering the flower almost useless. The flowers of *C. vallicola* are pale cream coloured, lined with purple in the inside and having two orange spots near the base. The throat is bearded. It is a native of the Alps of Trebizond and Lazistan, where it is found at altitudes of from 6000 feet to 7000 feet.

**Aganisia cœrulea.**—We omitted to mention last week that the flowering plant of this Orchid, shown at South Kensington by Mr. Buchan, Wilton House, Southampton, received a botanical certificate. It is a pretty and interesting species from Brazil. It has a slender climbing stem, bearing small pseudo-bulbs. The flowers are about a couple of inches across and of a bluish purple, an unusual tint among Orchids. Now that it has been imported in quantity, it will probably be less rare than it has been since its first introduction some ten years ago.

**Lily of the Valley Tree.**—Of this beautiful tree (*Andromeda arborea*), Mr. A. Waterer sends us some excellent flowering sprays to show how well it is flowering at Knap-hill in the open air. There are some fine specimens of it in the nursery there with huge and dense rounded heads, and these, covered with strings of wax-white blossoms, must indeed be a pretty sight. So seldom is this tree, or rather shrub, grown in the open air, that the hardness of the Knap-hill specimen is the more remarkable. The Japanese *A. japonica* is also grown and flowered in the open air in the same nursery.

**From Cornwall.**—Has a plate of *Crinum* Powell ever appeared in THE GARDEN? It is by far the finest of all hardy bulbs, and thrives here wonderfully. *Trichinum Manglesi* is in robust health here

in the Tomato house at the sunny end, and has so many flower-heads on it, that it looks like a pink and white ball. Potted in peat, with plenty of drainage and summer warmth, it will thrive easily. Nerine Fothergilli major is again blooming very freely after having been put in heat to finish its growth before resting; so treated, each bulb has flowers, some having two spikes, as has happened before.—E. H. W.

**The Apple crop.**—Since my fruit report was written Apples have grown considerably, so that we are now able to gauge pretty accurately the condition of the crop. In the district from which I write the crop is a heavy one. There has not been so heavy a set for some years past; the fruits are so thick on the trees, that they must be smaller in size than is desirable, and although the gale of wind on the 10th ult. thinned them a good deal, more could be spared and those left on the trees would be benefited. The trees also require a soaking rain, for we have now been seven weeks with only a passing shower or two, that dried up as quickly as it fell.—J. C. C., *Taunton.*

**Crinum Powellii.**—I send you a flower-spike of this *Crinum*, a very handsome hardy bulbous plant. I call it hardy, as it has been in my border for several years. It has not, however, at present stood the test of a severe winter, but I believe that with a protective mulching it would be safe. You will see from the specimen sent that the spike here, including buds at present unopened, had fourteen flowers on it. It is said to be a hybrid between *C. Mooreanum* and *C. capense*. Approaching as it does somewhat closely the beauty of the above species, it is very striking in the open border.—W. H. TILLET, *Sprowston, Norwich.*

**Gladioli.**—Messrs. Kelway, of Langport, have sent us a few glorious spikes of Gladioli, select sorts, every one the perfection of what a Gladiolus should be. Their spikes are massive and large, and the blooms individually beautifully formed, and rich and varied in colour. The sorts sent include the following: *Maréchal Bazaine*, vivid scarlet, white centre and white margin; *Marcianus*, brilliant orange-red, purple lower lip flushed with yellow; *Calliphon*, very large, rosy carmine streaked with a paler tint; *James Douglas*, rosy lilac dashed with crimson and white; *Duke of Teck*, large white, admirable in form, flushed with purple outside, and with purple lower lip; and *Mrs. Wilfred Marshall*, salmon-red veined with carmine, lower petals tinged with purple and violet.

**Heckfield Gardens.**—We learn that these charming gardens will, by the kindness of Viscount Eversley, be thrown open to the public during the whole of the coming week, Sunday, of course, excepted. Visitors will find some grand trees, both in the park and gardens; in spite, too, of the drought the turf is fairly green, and the gardens generally in excellent condition. The broad walk through the kitchen garden, with its Dahlia-planted background, is especially attractive, the utilisation of these flowers in the peculiar way in which Mr. Wildsmith has placed them proving singularly successful. Those who have not yet seen Heckfield and its beautiful surroundings should take advantage of the present opportunity to do so.

**Cœlogyne corrugata.**—This has bloomed this year far better than I have ever had it before. The plant, which I received as an imported piece some years ago, fills a 10-inch pot, and has this season produced ten spikes, several of which bear four blossoms, the total on the plant being thirty-two. It flowers with the young growth in July and August, the flower-spike coming up in the middle, similar to *Pleione*, only that in the latter the flower appears before any growth is visible, while in *C. corrugata* they are concurrently. It is grown comparatively cool, the temperature often falling to 45° in winter, and, though not so large and striking as *C. cristata*, has a quiet beauty that is very attractive. It has bright green persistent foliage and curiously wrinkled bulbs, whence it gets its name.—GREENWOOD PIM, *Monks-town, Dublin.*

**Catalpa speciosa.**—We have received from Mr. A. Waterer's nursery at Knap-hill, Woking, some leaves of this new kind of *Catalpa* about which

so much has been written in American papers. The leaves astonish one by their size; one measures 15 inches in length by 10½ inches in width. They are heart-shaped, tapering to a point, of a light green tint and soft to the touch. Those sent were gathered from trees which have been growing at Knap-hill for three years. They are, therefore, presumably only small specimens, and if so, we think that this *Catalpa* will make an invaluable plant for producing a sub-tropical effect on account of its noble leafage. It is said to be much hardier than the common *C. syriaca*, and if so, it will be doubly valuable in this country.

**Rubus phœnicolasius.**—Of this Japanese Bramble, Mr. Hartland, of Cork, sends us some branches bearing dense clusters of bright red fruits enveloped in tufts of reddish mossy bristles. Its leaves are silvery beneath, and altogether it is a most distinct looking plant. It is a climber, and in the temperate house at Kew it may be seen twined round a tall pole, its pendulous fruiting branches hanging gracefully on all sides. Mr. Hartland says that it has never fruited so well before with him, and he attributes its doing so to the dry warm summer which we have had. It grows apparently well out-of-doors at Cork, though it cannot be called absolutely hardy; the fruits possess a pleasantly acid flavour—between that of a Raspberry and Blackberry. We should think that some of our hybridisers might find this a suitable plant to operate upon, being so free in growth and such a prolific fruit-bearer.

**Gentian disease.**—To the list of scourges to which cultivated plants are liable must be added one which has attacked our Gentians. It is called *Uredo* or *Puccinia* *Gentianæ*, and until now has never been known in this country, although fairly plentiful on the Continent on *Gentiana ciliata*. It has been found on *G. acaulis*, and will, no doubt, attack others if growing near that species. The first symptoms are a pale unhealthy green in the leaves which finally become yellowish. Then dark spots or blotches containing the *Puccinia* may be detected by the naked eye under the cuticle in small bags or sacs on both sides of the leaves. Until they burst they are quite beyond the influence of any remedy that may be applied. We, however, much doubt if anything short of burning the affected plants will be of any avail, lime, sulphur, and other things having been tried without effect. As soon as ripe the spores get scattered and blown about by the wind, to the risk of all the other species of *Gentian* near them.

**Carnations.**—Judging by the quantities of Carnations and Picotees that have reached us this season, we conclude that they are becoming more and more popular. Seedlings chiefly are sent, and no finer gathering have we received than that which Mr. Evans has sent from Lythe-hill, Haslemere. Among these we imagine there was every variation of colour that it is possible for Carnations to assume, bright tints and dull tints, and often a strange mixture of several colours in the same flower. The blooms were, moreover, all good as regards size and fullness. All were unnamed seedlings except one, and this was called *Lady Agnes*, an extremely pretty variety of a clear salmon-pink and with the petals prettily fringed. A mass of this variety must indeed be a beautiful sight. It is very encouraging to raise such high-class varieties as these, apart from the interest that arises from the flowering of good sorts. Another very fine lot of seedling flowers came from Mr. Vertegans, of the Chad Valley Nurseries, Birmingham. These are all selected sorts from seedlings of this and two previous years, and though the majority of the flowers are from side shoots, and consequently smaller than the first blooms, they are of fair size—quite large enough, in fact. Mr. Vertegans selects those sorts which do not have a tendency to burst their pods, an important point as regards seedling selection. Among other gatherings of Carnations that have reached us is one from Mr. Crook, of Farnborough Grange. He sends a seedling, red with a clove scent, a rich clear yellow, and a peculiar soft buff, different from most others we have seen. Among other gatherings of seedling Carnations and Picotees is a very fine one from the Hon. F. G. Molyneux's garden at Earl's Court, Tunbridge Wells. These were raised by Mr. Payn, the gardener there, and the variety that



exists among them is astonishing. We remember having received from the same garden a previous gathering, on which those now sent are a great improvement.

#### Apple and Pear Congress in Edinburgh.

—At a meeting of the council of the Royal Caledonian Horticultural Society, held on August 14, it was resolved to hold a special exhibition and conference on Apples and Pears, in connection with the society's winter show, in the Waverley Market, on November 25 and 26 next. While collections of Apples and Pears are solicited from all parts, for comparison and instruction, the chief object of the conference is to utilise the favourable opportunity presented by the fine crop this year for the purpose of gaining information about the Apples and Pears grown in Scotland, comparing their merits, and correcting their nomenclature. All fruit growers, especially in Scotland, are therefore invited to send as complete collections as possible of the Apples and Pears grown in their district; and as the object is solely educational, there will be no competition and no prizes. It is not necessary that the fruit should be grown by the sender. No limit will be put upon the number of kinds which any contributor may desire to send, but the number of each variety should be from two to four, according to circumstances. The council are anxious to procure as complete representations as possible of the Apples and Pears grown in each district, and each variety should be distinctly labelled, with the name or names under which it is grown in the locality. It is also most desirable that each collection be accompanied by all the information possible about the climate, altitude, exposure, soil, stocks, method of cultivation, and other particulars, which will be of much value to the committee in drawing up their report. For this purpose forms will be supplied on application to the secretary. The specimens being strictly for examination and instruction, must necessarily be at the disposal of the council where required. Intending exhibitors must give notice to the secretary or assistant secretary, in writing, not later than Monday, November 16, stating the number of varieties to be exhibited and the amount of space that will be required. Collections of fruit may be consigned to Mr. William Young, Assistant Secretary, 18, Waverley Market, Edinburgh, and delivered there on or before Friday, November 20. The council will pay the carriage of fruit and take all possible care of it, and will also see that it is properly staged for the inspection of the committee; but they will not be held responsible for any error, damage, or loss of any fruit consigned to them. Exhibitors staging their own fruit can do so on Tuesday, November 24; and all must be staged and the hall cleared for the committee by ten o'clock on the morning of Wednesday, November 25.

**The square Bamboo.**—An interesting addition has recently been made to garden Bamboos by the introduction from Japan of a species with distinctly four-angled stems. The genus *Bambusa* is supposed to comprise about thirty species, all natives of warm countries and distributed over both the Old and the New Worlds. They are largely cultivated for the sake of their useful stems, which are applied in endless ways in some countries, particularly in China, where almost every article of furniture is made of Bamboo. Amongst kinds cultivated for their stems by the Chinese is this square-stemmed one, said to be a great favourite as a garden plant, and also on account of its singularly formed stems, which are used for walking-sticks and for opium and tobacco pipes. It was first brought into prominent notice in Europe through a woodcut which appeared in the *Revue Horticole* in 1876. In 1880 Mr. Maries sent to his employers, Messrs. J. Veitch & Sons, some specimens of the stems of this Bamboo, portions of which were presented to Kew, and the others placed in the museum (a rich one) formed by the Messrs. Veitch in their Chelsea nursery. Living plants have lately been received at Kew, where they may now be seen growing vigorously, so that the possession of this interesting plant for English gardens seems to be now assured. The following is a description of this Bamboo: Unlike other Chinese Bamboos, the shoots of this are developed in China in the autumn, not in the spring. It sprouts in September or October, and the stems

grow until they are arrested by December cold, by which time they attain a height of from 2 feet to 4 feet or 5 feet. In the spring following their growth recommences, when the grass attains its full height—10 feet to 14 feet. The lower portion of the culm bristles with short spines; in the second or third year their squareness is far less striking than when matured by several years' growth. The largest stems are about 1½ inches through and square, as if cut into shape with a knife. In their early stage the stems are quite cylindrical, as is shown by the Kew plants. The leaves are long and graceful, as in small plants of *Bambusa vulgaris*, and the stems produce clusters of small branches like what is seen in that species. It is probable that the square Bamboo will thrive out of doors in the most southern parts of England, and, as a graceful ornamental plant for conservatories, it is likely to take a prominent position among cultivated Bamboos.

**Flowers at funerals.**—The Bishop of Nottingham writes: "I desire to protest against the costly abuse of flowers at funerals, which has of late become a custom. A few flowers, on the part of rich or poor, may well be brought by mourners, but the presentation of professionally manufactured wreaths, costing much and composed by strange hands simply for money, I deprecate, and venture to suggest that the cost of these had far better be directed into a monetary collection for the benefit of the families of the deceased, when such assistance is often very helpful. As to the outward signs of personal mourning, I would say that simple dress is more natural and touching than any amount of crape."

#### NOTES ON RECENT NUMBERS.

**Early leaf-shedding** (p. 217).—I suppose the most untidy tree one can possibly have on a lawn is the common Lime, and yet how many lawns of any extent are there which do not have Limes growing on them. They seem to have been planted on purpose to make work for the garden men, for from the time when the flower-stalks begin to drop in the middle of summer till the last leaf is off in autumn it is one incessant litter, litter, and sweep, sweep. Nor is this all the mischief, for even the Grass at their feet declines to make an effort to grow in such a position, and Moss is even less willing to replace it than under Beech trees. The sweet scent of the flowers and bright green of the young foliage no doubt are desirable, but let it be in a wood, shrubbery, or park—anywhere, in fact, but on a lawn. In the streets of a town the common Lime is apt to be very untidy, and the drooping sort, with the silvery underside to the leaf, flowering later in the summer, and retaining well its leaves till the proper time comes to shed them, is not half so much planted as it deserves to be; it is true that the branches do not form the beautiful Gothic arches sometimes seen when those of the ordinary variety meet together, but the flower is more pleasantly sweet, especially in the distance, and the foliage is by no means to be despised. It is worth remembering that the common Aucuba is very useful to fill up the bare places on lawns caused by the drip from overhead in any positions where other shrubs might otherwise have been planted, and the ground may be enlivened during the winter and spring with Snowdrops and Aconites by adding chalk or old mortar to the soil if required. Still, for all that, the common Lime is not a good lawn tree.

**Cone of the Deodar** (p. 223).—The time is now arriving when some of the foreign Pines, &c., have attained a sufficient size to cone freely in this country, and in some cases quite a new and beautiful feature is added to the tree. One of the most curious things I have seen for some time is the seed of the *Araucaria imbricata*. For some years past a specimen on the lawn here has borne the male or pollen cones, but not till this year has it had any of the seed-bearing ones. These, which grow nearly to the size of a man's head, look something like big green hedgehogs sitting on the branches, but they are now falling to pieces, and scattering the seed on the ground. The seed itself is like a Filbert, sharply pointed, to the blunt end of which is attached a long green spine, the colour of the outside skin somewhat resembling that of an Acorn—a soft, brownish yellow

tinted with red. The inside kernel tastes too strongly of turpentine to be good eating like that of the Stone Pine. *Picea Pinsapo* is also bearing cones for the first time with us.

**Perfume in flowers** (p. 229).—It is certainly surprising why this—one of the greatest charms in flowers—should in some cases be treated as quite of secondary importance, for what is more disappointing than to find that a beautiful Rose or Carnation is entirely devoid of any particle of the delicious perfume one would expect from them? It is true that too strong a scent may sometimes prove so overpowering as practically to prohibit the use of certain plants in the house or room, in which case attention might be directed to eliminating some of it. In many cases people's noses require strong training to make them appreciative of delicate scents, just as much as their eyes require training for colours. The sense of smell appeals directly to the brain, and it is curious how quickly associations are brought to the mind when aroused by some special scent or odour.

Sussex.

C. R. S. D.

## TREES AND SHRUBS.

### CEDARS AT PAINS HILL.

WHEN we saw the long-famed Cedars at Pains Hill, Surrey, we were struck with their dignity and beauty; but more so by the rather uncommon form of one or two of the trees. We all know how grandly diversified in habit the Cedar of Lebanon is, but its tendency generally is to spread. This makes the tree all the more valuable, because almost every other Pine rushes straight to the sky, and is symmetrical in habit. One or two of the trees at Pains Hill, however, are like the big Californian Pines in the height and straightness of their enormous trunks, while not losing that picturesqueness of outline which is so marked a feature of this noble Cedar. The Pains Hill Cedars appear to have been among the earliest planted in this country, as they have attained maturity. The ponderous limbs of the majority of the trees and the way in which they sweep the lawn indicate that the soil and locality are just those in which the Lebanon Cedar delights. The position is not particularly well sheltered, but the soil is such as enables the roots to penetrate to a great depth. A long account could be made of the many noble specimens of exotic trees to be found in this famous Surrey garden, where in the early days of its history hardy trees and shrubs of all kinds were liberally planted, but for the present we confine our remarks to the Cedars.

**Quercus Daimyo**, a magnificent Japanese Oak, often possesses enormous leaves, measuring upwards of 14 inches in length by 8 inches in breadth. In outline they are rather deeply lobed; the colour is a bright amber, inclined to red, and the whole blade of the leaf is traversed by deep red veins. This Oak seems to be scarcely known yet, though it is such a handsome one, and even in a small state forms a very fine object.—N.

**Nyssa multiflora**.—The brilliant scarlet assumed by the decaying leaves of this North American tree in autumn renders it a very desirable one for parks or pleasure grounds. It does best when planted in a damp spot or near water; it, however, by no means refuses to accommodate itself to quite dry places, only under such conditions, as might be expected, its growth is considerably slower. No less than four species of *Nyssa* are mentioned by Loudon as being in cultivation in his time; at present, in spite of the decided merits of the trees from an ornamental standpoint, few are found except in botanic gardens. *Nyssa multiflora*, the Tupelo, Sour Gum, or Pepperidge—for under all three names it is equally well known in the United States—is a small or medium-sized tree, found wild in swamps and on low ground. Its wood is very unwedgable, and is employed for



hubs of wheels, &c. Tree lovers are especially recommended to plant a few specimens of this species, or indeed any other of the genus, on account of the splendid effects afforded by their autumn tints.

**Measuring the age of trees.**—The counting of the rings added by exogenous trees every year to their circumference can only, says a contemporary, be applied to trees cut down in their prime, and hence is useless for the older trees which are hollow and decayed. Trees, moreover, often develop themselves so unequally from the centre, that, as in the case of a specimen in the museum at Kew, there may be about 250 rings on one side to 50 on the other. Perhaps the largest number of rings that has ever been counted was in the case of an Oak felled

this conjectural quantity to the limits of probability; for, given the ascertained growth of the first century, how shall we estimate the diminished growth of later centuries? The best way would seem to be to take the ascertained growth of the first century, and then to make, say, the third of it the actual growth of every century. Thus, if we were to take 12 feet as the ascertained growth of an Oak in its first century, 4 feet would be its constant average rate, and we might conjecture that an Oak of 40 feet was about 1000 years old. But clearly it might be much less; for the reason for taking the third is not so much that it is a more probable average than the half, as that it is obviously less likely to err on the side of excess of rapidity.

its foliage is at its best, but the flowers are gone. It is somewhat of a loose-growing tree and not well adapted for exposed situations, as it would be liable to become torn by the winds. It is a suitable tree to fill up a blank in the shrubbery. Rooting laterally, it sends up an abundance of suckers, from which it is readily propagated.—D. J. Y.

**Famous Limes.**—The celebrated Sycamore Maple, which stands near the entrance of the village of Trons, in the Grisons—the cradle of liberty among the Rhoetian Alps—was once called a Lime or Linden, and under its spreading branches the Gray League was solemnised in 1424. Its age is estimated at 600 years. The true Linden is a favourite with the Swiss, and is intimately associated with important



Lebanon Cedars at Pains Hill, Surrey.

in 1812, where they amounted to 710; but De Candolle, who mentions this, adds that 300 years were added to this number as probably covering the remaining rings which it was no longer possible to count. This instance may be taken to illustrate how unsatisfactory this mode of reckoning really is for all but trees of comparatively youthful age. The external girth measurement is for these reasons the best we can have, being especially applicable where the date of a tree's introduction into a country or of its planting is definitely fixed, since it enables us to argue, from the individual specimen or from a number of specimens, not with certainty, but within certain limits of variability, to the rate of growth of that tree as a species. In these measurements of trees of a century or more in age, such as are given abundantly in Loudon's "Arboretum," lies our best guide, though even then the growth in subsequent ages must remain a matter of conjecture. The difficulty is to reduce

**Furze as a flowering shrub.**—"W. T." (p. 205) very properly calls attention to the utility of the Furze as an attractive flowering shrub, and it is pretty well known that in most districts in England it can be seen growing and flowering vigorously. But to my taste I have nowhere else seen it so effective as on the hillsides of Somersetshire, where it is grown for game cover and allowed to extend in its own way, creating the most picturesque and irregular masses, that for several months during spring and early summer are sheets of the most intense golden yellow, lighting up the landscape in a most pleasing manner.—J. C. C.

**The Stag's-horn Sumach.**—This is a very old and well known tree, but I do not think it is planted very widely. It is, we know, useless so far as its wood is concerned, but its foliage is very graceful and gives variety. It is so unlike the commoner of our trees, that it always proves attractive. Just now

events in the history of that people. The Linden at Freiburg, planted in 1476 to commemorate the battle of Morat, is still standing, and, though beginning to decay, has already proved a durable monument. Another tree, standing at the village of Villars-en-Moing, near Morat, was a noted tree four centuries ago, and at 4 feet from the ground it has a circumference of 38 feet. Its full age is computed at 900 years. The still more celebrated Linden of Neustadt, on the Kocher, in Wurtemberg, is equally old, and was a remarkable tree at the opening of the thirteenth century; for the village of Helmbundt, which was destroyed in 1226, was subsequently rebuilt in the vicinity of this tree, and thence took the name of "Neustadt an der grossen" Linden. From an old poem, written in 1404, it appears that even then the tree was of such a size, and the spread of its branches was so enormous, that their weight was sustained by sixty-seven columns of stone. At 6 feet from the



ground the circumference of the tree is 36 English feet, and the age is computed at 900 years.

**The American Crab Apple.**—This is the name adopted by Dr. Asa Gray in his "Manual of the Botany of the Northern United States" for *Pyrus coronaria*, and is perhaps preferable to the one chosen by Loudon, viz., the "Garland-flowering Apple Tree." The beauty of the large rose-coloured, fragrant blossoms, which exhale a distinct odour of violets, ought to make this tree a much more common one than it is. The small green, or greenish yellow fruits, although exceedingly austere, are also fragrant. Under favourable conditions *P. coronaria* sometimes attains a height of 30 feet. It is found in a wild state in forest glades from Western New York to Wisconsin and southwards. It is thoroughly in its place as a single specimen, but it will do well in a hedgerow, or indeed in any spot where our common native Crab will thrive.—G. N.

### THE JUNE BERRY.

(*AMELANCHIER CANADENSIS*.)

THIS is one of the finest of early flowering trees, and is not nearly so well known as it deserves to be. Loudon concisely sums up the merits of the June Berry as follows: "A very ornamental tree, from its profusion of blossoms early in April, and from its rich autumnal colour; and even the fruit is not altogether to be despised, either eaten by itself or in tarts, pies, and puddings. The wood is white, and it exhibits no difference between the heart and the sap; it is longitudinally traversed by small bright red vessels, which intersect each other and run together—a physiological peculiarity which, Michaux observes, occurs also in the Red Birch." In a wild state it occurs from Hudson's Bay, south to Florida, and west to Nebraska and the Indian Territory. The wood is exceedingly hard, heavy, and strong. As might be expected from a tree spread over so wide a geographical area, the June Berry varies considerably in size and habit. Under favourable conditions it attains a height of 40 feet. Some notes respecting a fine specimen at Dane Lodge, Epping, are now before me; this tree is 32 feet in height with a head about 18 feet in diameter, the trunk being 7 feet high and 4 feet in circumference. The effect of such a tree in spring, with its mantle of snowy white blossoms and in autumn with the rich golden yellow of the decaying leaves, can easily be imagined. The fruits, which are of a purple colour, are collected in immense quantities on the Upper Peace River, and form quite an article of food and trade. An American writer says that when he was at Dunvegan, the Indian half-breeds were camped out collecting the berries, then in their prime (August 6). They are pressed by the Indian women into square cakes, and used, dried, by the Hudson Bay Company in pemmican. It is almost needless to say that the June Berry is perfectly hardy in this country. It is easily propagated, either from seeds or by grafting on the Apple stock. At its northern limits the ground is frozen for the greater part of the year.

Besides the name of June Berry, *Amelanchier canadensis* is also known in the United States and Canada as "Shad bush," "Service tree," "Indian Pear," "Sugar Plum," in addition to its Indian appellation, "Suskatum." G. N.

**Transplanting Hollies.**—"J. C.'s" want of success in this matter is very sad. "His experience," he says, "is this, that unless they are regularly transplanted biennially, Hollies become tap-rooted and would certainly die if shifted even in the best months." This is enough to frighten anybody. I will say nothing about the thousands we have transplanted in a young state in the nursery that had not been moved for years, but I may tell "J. C." that a few years back I moved about fifty trees, very few of them under twenty years of age, and some over thirty years, for a long distance and with but poor balls, and all of them are growing now luxuriantly, and have been doing so since cut down and clipped into a hedge over 6 feet high and 4 feet through. Not one of these trees had been previously transplanted, as they were brought from the woods wherever they could be found. Many of them, indeed, I expect were self-sown seedlings.

All were lifted in May, June, August, and September, the best months in the whole year for the work, but I have transplanted good sized trees successfully every month in the year. The farther south you go, the sooner you can transplant in spring and autumn, because, in the first case, growth begins earlier, and in the second the wood is ripe and firm by August. Our trees came off good loam on various sorts of subsoils. After transplanting we water once or twice well and thickly mulch all big specimens.—J. S. W.

**Araucaria imbricata.**—We have a tree of this about 30 feet high growing here on the lawn. Last year it bore four cones; this year it has sixty-four about as large as Cocoa-nuts—some single, others in pairs. Is it an unusual thing for this *Araucaria* to bear cones in this country? The tree is in good health, and has made good growth this year.—J. JUPP, *Brantridge Park*.

\* \* It is not at all uncommon for *Araucaria imbricata* to produce cones and even ripen seeds in this country.—ED.

**Retinospora obtusa aurea.**—This is a free-growing tree with a drooping, graceful habit; the colour of its foliage is deep golden. It is hardly possible to conceive a more beautiful object than a well-grown specimen of this growing on a grassy bank or lawn. I have never known it to suffer in any way from the extremes of severe frost or burning sun.—B.

**Cratægus sanguinea.**—Of all the Thorns in cultivation in this country *C. sanguinea* is one of the hardiest. It is, moreover, a thoroughly distinct and ornamental species. In Russia, about St. Petersburg and elsewhere, it is used for hedges as the common May or White Thorn is in this country, the latter species refusing to thrive in countries where it is exposed to such intense cold as that experienced in St. Petersburg. Perhaps it might be worth while to try the plant at high elevations in this country as a hedge or shelter bush.

**Ulmus Berardi.**—This is a very remarkable and distinct variety of the common Elm (*U. campestris*), raised in 1865 by MM. Simon-Louis, of Metz. It forms a very bushy shrub with very slender branchlets, and in its foliage exactly resembles *Comptonia asplenifolia*. The leaves are of a very dark green, almost black, very small, and irregularly crenated like those of *Planera crenata*, and usually stand erect on the branches, which they almost entirely hide from view. This variety is at present not much known, but it cannot be too highly recommended as a singular, effective, and ornamental shrub.—G.

**Platanus liriiodendrifolia.**—This Plane originated in the nursery of M. Angelo Longone, at Milan. It is stated to have foliage so closely resembling that of the Tulip tree, as to make it easy for the plant to be mistaken for that tree. It is stated to be of rapid growth and well suited for avenues. No doubt so distinct a variety will not be long in finding its way to this country. Another form which also originated in the establishment just mentioned is called *P. quinquelobata*. This is said to be a fine thing, but whether it differs materially from some of the numerous forms already in cultivation in English nurseries it is impossible to decide with certainty at present.

**The golden-leaved Laburnum** is a vigorous variety of one of the most deservedly popular and beautiful of our flowering trees. What a wealth of colour the different Laburnums afford! Very slightly varying shades of yellow, it is true, is the extent of their range in this respect, but they differ considerably in habit, in the size of the individual flowers, the length of the pendent racemes, and also in foliage characters. Of course, the strange vagaries of *L. Adami*, with the reddish purple, the smaller flowered purple, and the ordinary golden racemes, all produced by one and the same individual, are not taken into account at this moment. The form with golden leaves is a decided acquisition among ornamental trees. An interesting fact in connection with this variety, and one well illustrating the influence of the scion on the stock, came under my notice some years ago. A considerable number of the common Scotch Laburnum had been budded with the golden-leaved form, and from some cause or other many of the buds

did not take. In the course of the season, however, these "failures" produced golden-leaved shoots at some distance on the stems below where the bud had been inserted. As it was desirable and important to work up a stock of the golden form, this unexpected source was largely drawn upon for a supply of buds, and the fear that plants so obtained would revert to the common green-leaved form proved without foundation; they were in every respect quite as good as those procured in what we may call the legitimate way. By the way, can any reader give the history and origin of the golden-leaved Laburnum?—G. N.

**Populus canadensis nova.**—While admitting the usefulness of the Black Italian Poplar for street planting, I consider the new Canadian much better for the purpose, as in rapidity of growth and appearance of foliage it far surpasses the Black Italian.—J. C.

**Two fine Oaks.**—Two of the most ornamental Oaks are *Quercus nobilis* and *Q. Daimyo*. They have very large leathery leaves, covered with a brownish down when they first unfold, which gives them a distinct character among Oaks. Both seem to be very hardy, and grow vigorously as far north as Scotland.—F.

**Abies polita.**—Among Conifers introduced from Japan, this is one of the handsomest. Its leaves, when full grown, are long, curved, and four-sided, broad at the base, gradually narrowing to a stiff point, and of a pale green colour, with which the large, globose, reddish brown buds form a striking contrast. It is quite hardy in this country.—E.

**Salix alba** is particularly fine as a landscape tree, and more so at this time when the foliage assumes a more silvery hue than it has hitherto had. The soft cloudy-like outline of its majestic top gives the landscape a very pleasing effect, particularly when seen reflected by water. Very few trees can equal it for the sides of lakes and streams, and the silvery grey foliage is charming associated with dark green trees.—S. R.

**Big trees.**—It is on record, says a contemporary, that in the year 1771 two Oak trees in Sheffield Park, East Sussex, containing more than twenty-three loads of timber, were sold for the use of the Royal Navy at Chatham. Each tree was drawn by twenty-four horses, but even these strong teams could only drag on their burthen at 4½ miles a day, to Landport, near Lewes. Thence they were floated down the Ouse to Newhaven, where they were embarked with great difficulty for Chatham. Near to Sheffield Place at the present time stands an Oak tree whose branches spread over a quarter of an acre of ground; the circumference of the trunk is about 21 feet, and the height of the tree about 75 feet.

**Pinus Strobus pumila.**—Amongst a number of "novelties of Italian origin" this variety of the Weymouth Pine is described in a recent number of the *Revue Horticole*. It is said to have originated as a seedling in the establishment of M. Antoine Zanoletti, of Milan. It is a very dwarf and tufted plant, much branched from its base, and forming a very compact spherical mass; the leaves are not so long as those of the type, being of a deep green above and silvery beneath. The original plant, ten years old, measures three-quarters of a yard in height by nine-tenths of a yard in diameter. Probably this form does not differ, at any rate materially, from the *Pinus Strobus nana* of Knight and Perry's "Synopsis," and of Messrs. Veitch's "Manual." A number of varying forms, some of them perfect pigmies, are to be seen growing in the pinetum at Kew.—G.

**Tsuga canadensis globularis erecta.**—The Hemlock Spruce, more widely known under its more familiar, but incorrect, name of *Abies canadensis*, does not appear so apt to sport as so many other Conifers do. The only distinct form we are able to call to mind at present is one which several years ago we met with under the name of "microphylla." This was a remarkable variety, with pointed leaves not more than half the size of those of the type. Probably the form we now have in mind is identical with that described in Veitch's "Manual" as *Abies canadensis parvifolia*. Another name, perhaps representing a distinct form, is given in Lavallée's "Arbo-



retum Segrezianum," viz., "nana," which is said to be the same as "dumosa." The name given as the heading of this note is that of a form which originated in the Milan nursery of M. Antoine Zanoletti. The parent plant, now fourteen years old, is many-stemmed and only a yard in height, by a yard and a quarter through; in shape it is a slightly conical mass or almost spherical. The leaves are a light green colour, narrower and more closely adpressed than in the common Hemlock Spruce.—G. N.

**Autumn & spring planting.**—Notwithstanding that it is now the custom to recommend autumn planting of deciduous trees and denounce spring planting, it is found in practice that in transplanting deciduous trees before the leaves are fallen the shoots are not ripened, and die back often to a considerable distance, in the same manner as if the leaves had been destroyed by early frost. The young fibres also will protrude spongioses more quickly in the spring from the fibre that has been well ripened than from that lifted before ripened. It can only be when the distance of removal is very short and the plants very small, and lifted with the earth adhering to the roots, that the transplanting of deciduous plants in autumn before ripening can be attended with any advantage. In the nurseries we have great experience in lifting and shouging immense quantities of deciduous plants, and experience must say on this head that any process of growth which may be going on in the interior of the plant during winter has very little if any outward appearance. Unless the winter is more than ordinarily mild, the spongioses are never seen to protrude, nor the buds to swell, till the spring begins to advance. Such as Thorns, Birch, Larch, &c., may begin in February or March; Beech, Oaks, &c., are later, and seldom begin to show much before April or May. Even the Mezereon, which often flowers in February, is seldom found to protrude new roots before that period. Of course the period will vary as to localities; some soils and situations are more than a month earlier than other, within very short distances. Autumn planting is preferable where the soil is dry, as it washes the soil closer to the root; where the soil is clayey and the weather soft at planting time, it gets into a state of puddle and rots the roots in winter; and unless the weather is dry at planting time in autumn, such soils had better be deferred till spring. Quarters of young trees planted in autumn will stand all winter without appearance of failure, and yet, when the spring drought sets in, will fail nearly as much as spring-planted ones, showing that very little has been done by the plant towards establishing itself in the ground during winter.

**The tree flora of the foot hills in Eastern Colorado** is said to be much more abundant than that of Southern Wyoming. *Pinus ponderosa*, known as the Yellow Pine, is very plentiful, and attains there an height of 80 feet to 100 feet, and is a very valuable timber tree. *Pinus edulis*, the "Piñon" of the Mexicans, is a small tree extending as far north as Colorado Springs; *Juniperus virginiana* is occasionally found; *Abies Douglasi* is quite plentiful at middle elevations, attaining a height of 75 feet, and known as Swamp Pine; the narrow-leaved Cottonwood (*Populus balsamifera* var. *angustifolia*) and also *P. angulata* are frequent along the streams; *Salix nigra* var. *amygdaloides* and *Negundo aceroides* occur along the Platte River. The most abundant shrubs were *Quercus alba* var. *Gunnisoni*, the only Oak of the foot hills, except *Q. Emoryi*, which is scarce and seldom rises higher than 10 feet; *Cercocarpus parvifolius*, *Spiræa dumosa*, *Prunus americana*, *Vitis riparia*, and *Acer glabrum*, the Mountain Maple, are also plentiful.

**Grafting Libocedrus decurrens.**—I had several times put in cuttings of *Libocedrus decurrens*, but failed to strike them, though in many cases they formed a callus as large as the top of one's thumb, when, having a number of suitable stocks of *Thuja Lobbi*, I grafted a number of the *Libocedrus* thereon, with the result that a union took place in most cases, and the plants seemed in a thriving condition until about a year after, when they began to die off without any apparent cause, and at the end of the next twelve months they were all dead. The stock perished as well as the scion, though the other *Thuja Lobbi*,

which were not grafted and were planted out in the same manner as the *Libocedrus*, did well. Having obtained a supply of seeds, no more grafting was necessary, though I have since been told that the *Libocedrus* will effect a lasting union with *Biota orientalis* if grafted when young.—W. T.

## GARDEN DESTROYERS.

### THE MARGUERITE DAISY FLY.

(*PHYTOMYZA AFFINIS*.)

THERE are several insects whose grubs, or caterpillars, live on the parenchyma or inner substances of the leaves, which they obtain by mining between the skins of the leaves. In this series of articles I have already described and figured two moths (the Lilac moth and the Laburnum moth), whose caterpillars injure the leaves of Lilacs and Laburnums in the manner alluded to, and three flies (the Celery, the Holly, and the Mangold or Beet fly), whose grubs are



Fig. 1, Marguerite Daisy fly (*Phytomyza affinis*); 2, grub of ditto; 3, chrysalis of ditto (all magnified); 4, leaf mined by grub.

destructive in a similar way. The plants in our greenhouses do not escape injury from insects of the same habits; those belonging to the natural order Compositæ, more particularly various kinds of Marguerite Daisies, Chrysanthemums, and Cinerarias, are attacked by the Marguerite Daisy fly, a pest which appears to be rapidly increasing in this country. Plants when badly attacked by the grubs of this insect are not only rendered unsightly, but must suffer severe injury from so many of their leaves being rendered to a great extent useless, and from the sap which flows to them being wasted. The attack of this insect may easily be recognised by portions of the leaves being discoloured and blistered. The leaves having been partially deprived of the layers of cells between their upper and lower skins, naturally in those parts lose colour and begin to wither, as shown in fig. 4, where the darker portions show where the leaf has not yet been attacked. The oval blisters show the present position of the grubs, and the little black dots the droppings of the grubs, which are very numerous.

The most certain, and in many respects the easiest, method of destroying the grubs is to go carefully over the plants and pick off all the leaves which have been rendered useless and burn them; the grubs may be killed in the others by pinching them at the part where the grubs are. This may easily be known by the leaf looking rather fuller at that part, or by placing the plant so that you can look through the leaves towards the light when the position of the grubs can be easily seen. When first the grub is hatched it is very small, and for a short time its presence is only shown by a small greenish transparent-looking spot about a tenth of an inch in diameter. If the insects are detected and killed at this stage, the attack may be rendered harmless. Various washes have been recommended, but it is very questionable if they are of any practical use, for if used of sufficient strength to reach the grubs they will very likely prove injurious to the plant. I give the recipe for one which has proved very useful in cases of attack by the Mangold fly. To 1½ pints of water add a quarter of a pint of soft soap, and boil for a few minutes until the soap is well dissolved; while boiling add half a pint of any mineral oil, and boil for a minute or two longer, when the whole will be thoroughly amalgamated; then add 4 gallons of water. I have never made this mixture, and therefore cannot speak positively, but I imagine care should be taken when boiling after the oil has been added not to allow any open flame or light to be near, so as to prevent any chance of an explosion of the vapour which rises from mineral oils when heated; it would be safer, therefore, to remove the vessel of boiling soap and water a little distance from the fire or stove, and then pour in the oil and stir well till thoroughly mixed; it may then be boiled without fear. The fly might be caught in a small butterfly net, but as it is a small, inconspicuous insect, this would hardly be worth trying unless they were in very unusual abundance. When plants are cut down after flowering, as is often done, the cut-off portions should be burnt, and not thrown into the rubbish heap, for if any of the grubs are full grown, they will undergo their transformations just as well there as they would if the leaves were attached to the plants.

The fly usually makes its appearance early in the spring, and lays its eggs singly, either on the underside of the leaves, or just beneath the skin. The grubs when hatched begin to feed on the interior cells of the leaves. They have no eyes or jaws; indeed, neither of these organs would be of any use to them in their position within the leaves, for they are in the midst of their food, which is very soft. Their heads are furnished with a kind of double hook, with which they scrape the juicy cells into their mouths with great rapidity. It is astonishing to see how quickly a grub, if removed from the inside of a leaf, will work its way into the interior again. When the grub is full grown, a matter which probably takes a fortnight or three weeks to accomplish, it works its head through the skin of the leaf and becomes a chrysalis, from which the fly emerges in due course. If the grub did not make provision in this way for the escape of the fly into the open air immediately it leaves the chrysalis, the fly would die, as it would not be able to make its own way through the skin of the leaf. As there are several broods of this insect during the year, it is a great mistake to think, as many persons do, when they find the injuries to the leaves do not increase, that the attack is over, and therefore there is no need to take any further trouble, the grubs have, no doubt, ceased to feed and become



chrysalides, but the next brood of this if allowed to come into existence will most assuredly lay their eggs in the leaves and the mischief will begin again. The Marguerite Daisy fly (fig. 1) is a small insect about one-tenth of inch in length, and measuring not quite a quarter of an inch across the open wings. The general colour of the insect is blackish brown. The head between the eyes, which are red, is pale. The edge of each joint of the body and the knees are also paler than the remainder of the insect. The head, thorax, and body are sparingly covered with stiff black hairs. The grubs (fig. 2) are of a pale transparent green colour, and are about one-tenth of an inch in length; they are legless and have no eyes; their mouths, as before mentioned, are provided with a black double hook, with which the insects obtain their food. The chrysalis (fig. 3) is about the same length as the grub, but is somewhat stouter with well-defined segments. G. S. S.

#### NEW ZEALAND PLANTS IN ENGLAND.

HAVING just read an article in THE GARDEN of January 31 with reference to Australian trees in Arran, I feel prompted to make a few remarks thereon. It appears to me that erroneous ideas prevail with reference to the vegetation of these islands. The various plants spoken of by the Rev. D. Landsborough are to be found in all parts of these islands (New Zealand), and if your readers take a geographical view of these islands, they will see that there must be a great difference in the temperature of the north islands compared with that of the south. The situation of these islands is found to be between the parallels 34° 15' and 47° 30' S. lat., and between the meridians 166° and 179° E. long. From this geographical position it must be obvious to all that the vegetation growing in the south islands must be far harder than that growing in the north. As a matter of course, your readers will remember that the north is our warmest point, and the more southern we get the colder the temperature. Now, from what I have been able to learn with reference to plants that have been sent home from this colony, they have invariably been sent from the north islands—either from Wellington or Auckland. The reason assigned for this is as follows: These islands have never been thoroughly explored, but simply "run over," and when plants have been required at home (England) the application has been sent to the Government botanist, who, residing in the north island and surrounded with the plants required, would naturally send those nearest at hand. Therefore plants that would be perfectly hardy in England have never yet reached home. In Otago, south island, as much as 30° Fahr. of frost was registered last winter, this being the usual and not an exceptional winter. But in the north island (Auckland) frosts are never seen, and Bananas, Grapes, Oranges, Lemons, Citrons, &c., are grown there in the open air. This fact clearly proves the diversity of temperature. The chief points that I should like to make a few observations on are with reference to Tree Ferns. I am inclined to think that their hardiness is not yet fully realised, and gardeners are still in the wrong groove with their culture, under-estimating their capabilities of standing the winter in England.

Now, from my own observation, I saw last winter in the south island *Cyathea dealbata*, *C. Smithii*, *Dicksonia squarrosa*, and *D. fibrosa* completely covered with snow, and having icicles from 4 feet to 6 feet long hanging from their fronds, the fronds being borne to the ground by the weight of snow and ice, the undergrowth of Ferns being *Aspleniums*, *Lomarias*, &c., in many varieties. Now, to take a view of the surroundings, one might easily imagine that he was in the snowy Alps of Switzerland. This being the usual winter that these plants have to bear, surely there are many places in Great Britain where these beautiful Ferns might be planted without the slightest fear of the winter killing them, thus forming a new feature in the much-needed reformation of gardening in Great Britain.

I had the pleasure a short time ago of making the acquaintance of a botanist—Mr. Christopher Mudd—

who is now out in this colony and making a study of the flora of these islands, and I drew his attention to this article; he informed me that he was sending home, by every steamer, large consignments of plants, including Tree Fern stems, and further stated that he would instruct his agent to forward consignments to various parts of Scotland. I was pleased to hear that some one was sending home some of these grand specimens, varying in height from 20 feet up to 40 feet.

When the hardiness of these Ferns is more known, I feel assured that they will be extensively grown in England, forming avenues in the London parks, and many specimens will be planted in the gardens and backyards in and about London, where I feel convinced they will thrive amazingly, and by so doing they will fill a want that has for many years been wanted, and form sights long to be remembered. W. A. C.

Christchurch, New Zealand.

#### ORNAMENTAL GOURDS AT KEW.

AN addition has been made this year to the attractions of the Water Lily house at Kew by growing and training against the roof of the house a collection of ornamental fruited Cucurbits, and these are now many of them bearing a crop of fruit such as is seldom seen in English gardens, but which are either exceedingly beautiful or so curious in form as to be deserving of note. That the many kinds of *Nymphæas* now in cultivation at Kew are, when in flower, sufficient in themselves to make this house a favourite with visitors during the summer months need hardly be said, and as the plants are this year as healthy and floriferous as ever, they are worth going a long way to see. These Water Lilies, with their large, sweet-scented, beautifully formed flowers—red, pink, blue, violet, white, and rose-tinted—have a fascination for everyone, and now, hanging from the roof above them and adding to their charms, are the fruits of the Cucurbits, or perhaps we may call them as they are called by the visitors at Kew, ornamental Cucumbers.

First there are the Bottle or Trumpet Gourds (*Lagenarias*), with large heart-shaped, rather fleshy leaves and enormous green fruit, shaped like a stone-mason's mallet or a wide-bottomed bottle, very striking when seen hanging on their long stalks, which seem incapable of bearing such a weight as these fruits grow to be. They are said to be poisonous, though sometimes used as a purgative, dangerous though they must be. A better use than this for these bottle-shaped, tough-skinned fruits is found by the Indians, who clear the pulp out of them, wash them carefully, and then dry them thoroughly; after which they are excellent substitutes for bottles.

*Momordica* or Balsam Apple is here seen in perfection, the long, egg-shaped fruit, thickly covered with wart-like tubercles in two sizes, the larger in straight rows and all of a rich uniform orange-scarlet colour, hang down like so many brilliant-coloured flowers; indeed, when they are split open with the skin curling back and exposing the seeds set in dark red pulp, they are not unlike misshapen flowers, many taking them for such. Under the names *M. balsamina*, *M. charantia*, and *M. muricata*, the same plant is cultivated in Italian gardens, the last name being the one now recognised by the botanists. Of the

Snake Gourds there are several species now bearing richly-marked fruits, or rapidly approaching that condition. The most interesting of these is, of course, the true Snake Gourd, called *Trichosanthes anguina*, the first name signifying hairy flowers, in allusion to the finely fringed blossoms, and the second having reference to the body of a snake, which the fruit resembles in the most astonishing manner. These fruits sometimes attain the length of 8 feet, and are just like a long snake when seen hanging by its head from a tree, even the contortions or writhings being imitated. As they ripen the fruits are first streaked with broad lines of white on a green ground, to be succeeded by streaks and blotches of a brilliant orange colour. These hang on the plants in perfection for several weeks, and the effect produced in a plant house by half a dozen of such fruits hanging from the roof is a most novel and attractive one. The Kew plant bears

six of these fruits, which are now rapidly approaching perfection. *T. colubrina* is a synonym of this, as also is *T. palmata*. *T. cucumerina* bears fruits about a foot long, rather thick for their length, and with long, tail-like points, the whole being when ripe a brilliant scarlet. In Ceylon the fruit of this species is much valued as a remedy for fevers. *T. coccinea* is very similar to the last, at least so far as regards the form and colour of its fruits. The genus *Cucurbita* is represented by various forms of the Melon species; one we noted particularly, a free kind with Orange-like fruits, which when ripe are a tawny red, covered with a thick reticulation of whitish veins, very pretty and deliciously fragrant, and most likely palatable. It is known in some places as Queen Ann's Melon.

The large brown fruits of the Sikkim variety of the garden Cucumber (*C. sativa* var. *sikkimensis*) were conspicuous and even handsome as they hung in profusion on the plant, as also were the curiously formed fruits of *C. flexuosa*, which are no thicker than one's finger for half their length, the other half suddenly widening to the thickness of a man's wrist; they are bright yellow when ripe, and have a powerful sweet odour when allowed to remain on the plants after ripening. Enormous Gourds, some spherical, some egg-shaped, are represented among this collection, whilst of smaller and less conspicuous kinds we noted many either in flower or in fruit. The Luffas were bearing plentiful crops of fruit, which when dried and reduced to its fibrous part, serves as a sponge in the Antilles, and is known in England as Egyptian Bath Sponge. W.

#### GARDEN FLORA.

##### PLATE 508.

##### PRIMULA MINIMA.\*

*P. MINIMA*, if we exclude the hybrids to which it has given rise, is the only *Primula* belonging to the section *Kablikia* of modern authors. It is not very far removed from the rare and seldom flowered *P. glutinosa*, with which it crosses freely, as it also does with the larger and coarser *P. hirsuta*. Kerner, Gusmus, Obrist, and Stein have all devoted a large amount of



*Primula glutinosa*.

attention to *Primulas*, not only in a wild state, but also under cultivation, and in a way that have confirmed previous conclusions by artificial hybridisation. *P. minima*, as will be seen by the accompanying plate, is one of the very dwarfest of European *Primroses*. It is fairly common in gardens, and where doing well, with proper attention to watering, &c., forms one of the prettiest features of an alpine rockery all through May and June. It inhabits the calcareous Alps of Switzerland and the Tyrol at elevations of from 5000 feet to 8000 feet above sea level; and if we desire to be successful with it in our gardens, we must keep it well supplied with limestone. A large plant of it on our tufa rock could hardly be healthier than it is. The soil in which it is growing is extremely shallow, not more than an inch or so being placed just between the junction of two

\* Drawn in the York Nurseries by the late Mr. Noel Humphreys.











large tufa stones, into the soft pores of which the tiny roots make their way in a surprising manner. It has a western exposure, and during the growing season receives plenty of water, which it seems to like, provided, as in the present instance, the drainage is free. Apart from hybrids, it varies extremely little in a wild state, and very little, if any, as yet under cultivation. It is sometimes, however, though rarely, found on the Alps, with white flowers, and sometimes, but still rarer, with two flowers on a stem; indeed, only two forms are known, viz., *P. serratifolia* of Gusmus, with more dentate leaves than those of the type, and *P. Sauteri*, the rosy-coloured flowers of which are often nearly an inch in diameter, and almost cover the pretty rosettes of deeply-notched or toothed leaves. Indeed, the more exposed the position, the better the plant seems to grow. It may be increased by division, nipping off the shoots, which will always be found rooted at the base, and readily establish themselves in pots or in other positions.

**P. FLOERKIANA** is a hybrid between *glutinosa* and *minima*, the former predominating; otherwise it has much the habit of *P. minima*, but requires different treatment, as it belongs to the granitic regions. It likes plenty of leaf soil mixed with powdered granite, and requires a sunny position, with a south or south-east exposure. It may easily be recognised owing to its leaves being the exact counterpart of those of *P. minima*, but its flowers resemble those of *P. glutinosa*, and it flowers about the same time (syn., *P. hybrida*—Gusmus).

**P. BIFLORA** is another hybrid got in two ways. (*P. Floerkiana* × *P. minima*) (*P. salisburgensis* × *P. minima*). It is an extremely interesting plant, and one which has large, beautiful, rosy flowers, two on each stalk.

**P. SALISBURGENSIS** (*P. subglutinosa* × *P. minima*).—In this *glutinosa* predominates; it, however, succeeds under the treatment usually given to *P. minima*.

**P. HUTERI** (*P. Floerkiana* × *glutinosa* and *P. salisburgensis* × *glutinosa*) is another interesting hybrid extremely rare in cultivation.

**P. STEINI** (*P. subminima* × *P. hirsuta*).—This is, perhaps, the easiest of the whole section to grow. It was figured in Regel's "Gartenflora" in 1878, where it is said to bear a profusion of flowers generally twice a year. A class of Primulas that should by all means be encouraged, and, with more crosses, a greater variety of colour might also be obtained in the early autumn.

**P. PUMILA** (*P. minima* × *P. cœnensis*).—This is very slightly removed from the typical *P. minima*. It has been suggested to use the name *daonensis* instead of *cœnensis*, which, although two years younger, is much more appropriate, as it is found in a locality to which that name is given.

**P. FORSTERI** (*P. superminima* × *P. hirsuta*).—With the exception of having the hairs of *hirsuta*, this seems to be only a magnified *P. minima*. It is found in Padaster, in the Ischnitz valley, Central Tyrol. In a wild state the leaves are medium sized, but under cultivation they grow to an enormous size—sometimes as much as six or eight times larger than those of the wild plants. It requires much the same cultivation as *P. minima*.

### THE EPILOBIUMS.

AMONGST Willow Herbs (*Epilobiums*) are some really handsome flowering plants, but most of them grow too tall to be included amongst the alpine or dwarf forms. The latter kinds grow, as a rule, best in damp or swampy places, and may be freely planted near the margins of lakes or running streams. *E. angustifolium* and its beautiful white variety are often used with great success in this way, as may also be *E. palustre*, *E. tetragona*, *roseum*, *montanum*, and many

others. *E. angustifolium* is also frequently employed for backing mixed borders, and also in shrubberies, and, with a little attention to cultivation, it is very effective. *E. obcordatum*, of which a coloured illustration is here given, is undoubtedly the best of the dwarf *Epilobiums*. About the beginning of July no plant on the rockery attracts half so much attention as this little Willow Herb. The sunniest spot that can be chosen is none too hot for it when fully established, and if planted on a slight incline all the better, as the chances of damp lodging near its neck in winter are thereby lessened. The soil which it likes is light sandy loam, with leaf-mould and rotten manure added in equal quantities. A foot in depth of this and good



*Epilobium angustifolium.*

drainage will ensure success. A sheet of glass placed over the plant and supported on four stones forms a little protection for it in winter. It is said by some to be difficult to propagate but according to my experience it may be increased easily either by division or by means of cuttings taken off in May and June; those near the base of the old stems, taken off with a heel and placed in a cool frame under a handlight, root readily, when they may be potted on and kept in reserve until the following spring. Division is best done in winter when the plant is at rest; many of the prostrate shoots will be found to have rooted into the soil; these should be cut off and carefully lifted, and potted, make strong plants early in spring. This Willow Herb has decumbent, profusely-branched stems 6 inches to 8 inches long, clothed with opposite oval leaves, which are yellowish green. The flowers range from two to five on each stem. A plant a foot in diameter—no very rare occurrence—

makes, when in blossom, a grand show. It is a native of the Sierra Nevada, from Tulare northwards, at elevations of from 8000 feet to 11,000 feet.

**E. ALPINUM.**—The Alpine Willow Herb and the little New Zealand *E. glabellum* are the smallest of all the *Epilobiums*. *Alpinum* is, however, the most useful for rockeries, where, like the pretty *Arenaria balearica*, it flourishes in absolute shade, covering the Moss-grown stones with its small creeping stems, and when in flower making a brave show. The trouble caused by its seeding among other plants is comparatively small, as the seeds rarely germinate under ordinary circumstances; the flower-stalks are short, and, unless in exposed positions, the seed, though feathery, rarely gets blown about. We find it extremely useful for perpendicular positions near waterfalls, where the stems lengthen and form graceful trusses seldom seen in the case of any other plant. The leaves on the stem are almost sessile, egg-shaped, and have blunt points. The flowers are few, bright red, and very pretty looked at against dark green Moss. It is a native of alpine rivulets, Europe generally, and North America, &c., and it flowers in June and July.

**E. GLABELLUM.**—This handsome little species has pretty marbled leaves; it is abundant in upland districts in New Zealand. In company with *E. alpinum*, it will be found most useful near small artificial streams or waterfalls. As it is perfectly hardy and forms dense masses, it will probably be useful as an edging plant. The stems, which are prostrate at the base, give off numerous branches half way up the stem; the leaves are in scattered pairs, set on short stalks, oval, and slightly lance-shaped, with wavy toothed margins. The flowers are borne in the axils of the upper leaves; they are light pink or whitish, and about half an inch in diameter. It flowers in July and August, and is readily increased by division or by means of seed, which it ripens freely.

**E. NUMMULARIFOLIUM.**—This is another of the small prostrate-habited Willow Herbs, but as it seeds very freely, not at all a welcome guest in small gardens. In low damp places, however, it does very well, and proves to be useful for bare spaces beneath trees, &c. The variety called *longipes*, generally found in gardens, is much prettier than the type; it grows well in swampy places, in which it makes pretty tufts of greenish yellow leaves. Both are natives of New Zealand, and flower in July and August.

**E. ROSMARINIFOLIUM** (the Rosemary-leaved Willow Herb) is an extremely useful plant for rockeries, its largish flowers and bright green leaves being always conspicuous among other plants. It likes a semi-shaded position where it can get plenty of water. It does well in ordinary garden soil. It grows from 1 foot to 2 feet high, much branched towards the middle, and well clothed with shining green linear leaves; the flowers, which are crowded at the tops of the branches, are about an inch in diameter and of a bright red or rosy colour. The variety *Fleischeri* is a great acquisition, being much dwarfer than the type and having larger flowers. The variety *sericeum* differs from the type in having whitish or silvery leaves, which in sunshine look very handsome. They are natives of European woods and river-banks, and flower in July and August.

D. K.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.



## GARDEN IN THE HOUSE.

## DINNER-TABLE DECORATION.

It is somewhat surprising to find in this journal, to which we look for sound teaching in decorative matters connected with the use of flowers, an article of some length (p. 196) for the most part praising the old "March" stands as on the whole the most suitable receptacles for the arrangement of flowers on dinner-tables. The writer of the article in question does not recommend the old invention in its entirety (how well we remember the difficulty of adjustment of the tier-over-tier of shallow glass trays supported by thin glass rods), but he advocates the use of the lower tray with a central trumpet vase, and describes an arrangement of mixed flowers such as in good hands may have a certain prettiness, but can never have so true a decorative value as a more free use of fewer kinds of flowers in more suitable vessels. Such an arrangement in these very stands as that described was commonly to be seen some fifteen or more years ago, when the custom of dressing dinner-tables with plants and flowers was in its infancy, but the writer of the present note ventures to affirm that they are not now seen in the best houses, and would have thought that their use was not only old-fashioned, but obsolete. They still linger on the tables at the yearly evening *fête* of the Royal Botanic Society, where prizes are offered for table decoration, and as they are mainly prepared by florists, it is to be supposed that they represent a class of decoration for which there is still a demand, but as regards houses of the best class their use is now unheard of. Since their introduction, people have come to think more carefully and widely on matters of house appointment and ornamentation, and, apart from a mass of strange and ignorant notions on so-called art, justly abhorred and repudiated by true artists, persons of refined and cultivated taste have of late years adopted a mode of using flowers in room and table decoration that is as great an advance in the practice of the "March" era as the now wide-spread liking for hardy flowers in gardens is in the days of fettered frivolity when gardening meant the employment of bedding plants only.

What we do now see in the great houses and in all, great and small, where one expects evidences of refinement and cultivation, is a free use of flowers in simple and sufficient masses. No crowding or cramming on the one hand, and no niggling or frivolity on the other; no arrangements that require or even suggest elaborate artifice or painful difficulty, or *tours de force* of any kind. Enough and not too much; neither a jungle nor a desert. Nothing high enough to intercept a view of all that is on the table and of all who sit round it. What is more distressing in the case of a small dinner where conversation is general than the dodging of an opposite neighbour on either side of an intervening Croton or other obstacle? What, on the other hand, is more beautiful and delightful on a dinner-table than ample bowls of glass, china, or silver full of Roses, or any good and sweet (but not too strongly smelling) flowers that may be available and in season? For the sake of dignity and harmony there should not be many sorts of flowers used; indeed, some of the noblest decorations may be made with one alone. Among the recollections of well-appointed tables during the past season in London are the following: Three silver bowls holding small well-flowered red Camellias, about a foot high; another table with white and yellow single Tulips in cream-coloured Wedgwood ware; another with Daffodils in the same

ware; a whole table decorated with *Choisya ternata* in silver bowls and cups, and a table with pink and white Chinese *Pæonies* in large glass bowls. Later, in the country, a decoration of pink, scarlet, and dark red Clove Carnations, and another of bowls of *Nasturtiums*, all shades of yellow, orange, and mahogany-red, with red foliage of Virginia Creeper, a most glowing and magnificent table ornament. I do not think it possible that anyone who has once practised these more simple ways of using flowers on tables will ever be inclined to return to the more restricted fashion of former days. We have not all got big silver flower-vases, family punch-bowls and race-cups, but there are now plenty of cheap glasses of good shapes and suitable for all except the most ceremonious state occasions, when a display of plate is a part of the pageant. G. J.

## GLASGOW BOTANIC GARDENS.

ALTHOUGH labouring under the most adverse circumstances not only as regards soil and situation, but, what is even worse still, impurity of the surrounding air, these gardens are at all times worthy of a visit, and amply repay by their good representative collection of plants the visitor who has a couple of hours to spare in this busy western city. The soil throughout the greater part of the grounds is principally stiff clay—such as would be almost suitable for brick-making—and this, combined with the noxious fumes from the dozens of surrounding chemical works, has a disastrous effect on vegetation generally; even many of our strongest-growing woodland trees succumb to the dire influence of bad air and soil. Notwithstanding all this, in well-chosen spots Mr. Bullen, the curator, has, through dint of perseverance, succeeded in forming a collection of plants which would do credit to a garden of much greater pretensions. On entering the grounds the first objects to attract attention are numerous fine specimens of *Crategus*, a tree well adapted for town planting. Of these, perhaps the most distinct and valuable as a late-flowering kind is the Tansy-leaved *Crategus Oxyacantha tanacetifolia*; this is sure to attract attention owing to its peculiarly cut leaves and abundance of creamy white flowers. The silvery variegated form *C. Oxyacantha foliis-variegatis*, another very distinct and desirable tree, is here well represented by a goodly specimen some 15 feet or 16 feet in height, and rather more than half that in width. *Sambucus nigra aurea*, the golden variegated Elder, is a plant that I also noticed in thriving condition—indeed, more luxuriant than one could have anticipated. Various species of Holly, *Philadelphus*, *Cytisus*, *Weigela*, &c., though doing fairly well, yet show by their dull foliage and somewhat stunted appearance that they are hardly at home. As to the Scotch Pine and Oak, several of the largest are dying off branch by branch from the effects of the noxious fumes with which they daily come in contact. Even the Holly cannot be said to have wholly escaped, as the half-starved appearance of several only too plainly told.

THE HERBACEOUS BORDERS contain a well assorted collection of choice perennials, and on the rockwork I noticed such plants as *Azalea procumbens*, a healthy tuft; *Vaccinium macrocarpum*, *Saxifragas*, and *Sedums*, some of the rarer *Campanulas*, and hosts of similar plants. With the natural arrangement of British plants I was much pleased, for here the student can see at a glance a representative collection of species of the various orders in the British flora arranged according to Bentham and Hooker's "Genera Plantarum."

THE FERNERY, a cool, shady house, contains a good collection of the rarer British and exotic Ferns. Amongst the *Filices* I noticed some magnificent specimens of *Todea pellucida*; also *T. superba*, *Trichomanes radicans* and its various varieties, *Hymenophyllum demissum*, as well as our two native representatives of this family, *H. Wilsoni* and *H. Tunbridgensis*. The two latter looked remarkably well; better, indeed, than I have before seen them under cultivation; and from the way in which they were grown they afforded an excellent opportunity for

detecting the minute differences between these somewhat perplexing, though distinct species. Fowler's form of *Polypodium vulgare cornubiense* is a desirable plant, but after the fuss made about it in the horticultural press I own I was somewhat disappointed with it. *Athyrium Filix-femina acrocladon* and *A. F.-f. plumosum* are two worthy representatives of our native Ferns, a plant of each of which should be included in every collection. The latter, from its finely divided pinnae, requires perpetual shade. Of Hart's-tongue there were many neat and pretty specimens. *Scolopendrium vulgare sagittato-projectum* is a large and magnificent variety, with deeply cut edges, while *S. vulgare alato-cristatum*, a new introduction, is a striking and unusual form. *Asplenium monanthemum*, from Africa, looks remarkably like our native *A. Trichomanes*, and is pretty and distinct. Perhaps the most interesting feature belonging to the glass structures is the unrivalled collection of Mosses, principally British, to which a house is specially devoted. Here the various species of Feather Moss (*Hypnum*) may be seen to advantage; also *Pterogoniums*, *Dicraniums*, and the rare *Myurium Libridarium*, a species peculiar to Skye. The wonderful structure and delicacy of texture belonging to these Mosses (there must in all be nearly 200 kinds) is remarkable, and can only well be seen on close scrutiny.

THE PALM HOUSE, succulent house, economic house, stove fernery, and several other structures are well worthy of a visit, being full of interesting plants. What is known as the Kibble conservatory is unquestionably one of the finest glass-covered promenades for plant culture that I have ever had the good fortune to see. On entering there is a spacious pentagonal corridor with a span-roofed house at either side. A path 14 feet wide leads around the Kibble properly so called, which, it should have been said, is circular, and, judging from appearance, about 120 feet in diameter. Here are many fine specimens of *Cibotium princeps*, *Acacias*, Norfolk Island Pine, and Bidwill's *Araucaria*, Palms of the *Kentia* race, and a host of other large growing subjects that in this capacious structure find ample room for the perfect development both of leaf and branch. Orchids, Pitcher plants, aquatic, and Agaves may also be seen here in abundance. A. D. WEBSTER.

## INDOOR GARDEN.

## LILIES FOR THE CONSERVATORY.

SOME Lilies when grown in pots are very valuable for conservatory decoration, a use to which they are not often put. They are generally at their best when other summer-blooming plants are on the wane. *L. auratum* is now making a fine display, as are also the different varieties of *L. speciosum* and *L. tigrinum splendens*. The latter, recently the subject of a coloured illustration in THE GARDEN, is immeasurably superior to the common Tiger Lily, its blooms being larger and better coloured, while more flowers are borne on a single stem than in the case of the common kind; besides which there is another and for pot culture a very important point, and that is the foliage of *splendens* is retained much better than that of the ordinary *tigrinum*—that is, where both are grown under equal conditions. The names of numbers of varieties of *L. speciosum* are to be met with in catalogues, but the flowers which they produce are too much alike. One thing specially noticeable in the different forms of this Lily is the fact that the rubrums and roseums of twenty and thirty years ago seem to have given way to inferior flowers, such as we were accustomed to see in old-fashioned gardens, being now designated *purpureum*, *speciosum superbum*, &c., instead of *rubrum* or *roseum* of old. A selection of the best kinds should include *Kretzeri*, a kind with beautifully shaped flowers, pure white, except a greenish stripe down the centre of each petal. In this the stems are bright green, while in the variety *album* both stems and backs of the petals are tinged with red. Where *Kretzeri* is grown, *album* is not needed. Among the different forms of *roseum*—that is to say, those with green stems—the best is *Schrymakersi*, a kind bearing large, well formed flowers of a pleasing shade of colour. In the *rubrum* section one of the best coloured is *purpura-*



tum, a deep tinted flower. Under the name of *cruentum* is often sold one that differs little, if any, from this. *L. speciosum punctatum* is both a pretty and distinct variety, rather less robust than the others. There is likewise a couple with fasciated stems that bear their flowers in large Cockscomb-like heads. These are known as *rubrum monstrosum* and *album monstrosum*, but at best they have an ungraceful appearance, and, moreover, but few of the blossoms expand properly. It will thus be seen that, except for collectors of Lilies, the long array of names in this section may be reduced to about four, namely, a good type of roseum, say *Schrymackersi*; one of the rubrum class, say *purpuratum*; and *punctatum* and *Krætzleri*. T.

#### Propagating Fuchsias from the old wood.

—I am not aware that this method of propagating Fuchsias is practised, and I did not know until lately how readily cuttings of the quite hard wood strike. At the beginning of last winter a friend brought me some terminal shoots of various choice kinds, which I inserted in sandy soil and put under a handlight in a cool house. I paid them but little attention, for I did not think that they would make roots in a constantly low temperature at that time of year. I was, therefore, surprised to find that with the return of bright days they all started into growth and made good plants. It is well to know that Fuchsias can be struck in this way, as when young stock is required the winter prunings of old specimens, instead of being cast away, can be utilised. As regards freedom of growth, I see no difference; they grow away as quickly as when the succulent shoots are chosen for propagating from.—J. C. B.

**Flowerless Stephanotis.**—I am acquainted with a *Stephanotis* in a small nursery planted out in a stove near a tank underneath the stage, and trained near the glass. This plant, which is never shaded, produces very short growth and small leaves, and has flowered freely every year, but this year it has come to a standstill; it neither grows nor flowers; therefore another plant will be put in its place. In a private garden four *Stephanotises* have been planted out in the centre bed of a span-roofed house running east and west. This bed had formerly been filled with fermenting material for growing stove plants in and had never been cleared. Upon a manure bed a small heap of soil was put and the *Stephanotises* carefully planted out on it, but they did not grow until after the lapse of three years. Somebody advised fresh drainage and replanting. This was done, and the plants on the south side grew like Willows; they produced shoots from 20 inches to 25 inches in length, and bore about 1000 trusses of flowers. But these same plants have flowered but little during the last two years; their growth is now very weak, and close examination has proved my apprehension, viz., that in search of food the roots have left the soil and entered the old manure bed, in which they do not find what they really want. Other plants placed in brick boxes will soon take their places. The plants that were trained on the north side of this span-roofed house have grown luxuriantly, but have produced very few flowers—a poor reward for the pains bestowed upon them. I once had to deal with a shy flowering variety of *Stephanotis* (the red-veined one). I could not get it to flower either planted out or in a pot, and I also had it outdoors for some months. Such plants should be thrown away and free-flowering ones substituted.—E. HINDERLICH.

#### KENTIAS AS TABLE PLANTS.

FOR the decoration of dinner-tables, rooms, staircases, &c., we have no plants which lend themselves with better effect than Palms, but beautiful as these plants are, there are only a

few of them which may be used frequently for purposes of this kind without being much injured by gas and exposure. The *Livistonas*, *Areca lutescens*, *Corypha australis*, and *Chamærops* are amongst the best known and most frequently employed for general decoration, whilst in the several Palms that are known in gardens as species of *Kentia* we have plants which are in every way suitable for this purpose. One of the principal London plant furnishers grows thousands of these *Kentias*, large specimens as well as quite small ones being found of excellent service for his work. They stand better than any of the other tropical Palms, and as they are exceptionally graceful in habit and always a bright shining green, very few plants are more ornamental on the table or in small corner groups. They grow into graceful little specimens in about eighteen months after sowing,



*Kentia Fosteriana.*

assuming pinnate characters in their leaves very soon after germination. Their leaf-stalks are gracefully curved, smooth, and shining, and there is no untidy fibre about the base of the plant, such as is often a drawback in the case of some other Palms used for decorative work. A few years ago a *Kentia* a yard high and in good health was valued at a high price, but recently large quantities of the seeds of these plants have been imported from Australia, so that now there is an abundance of young *Kentias* in nurseries, and fresh seeds are advertised by seedsmen.

To obtain young plants from seeds, the latter should be sown in pans in a warm frame, a temperature of 85° being not too high for them till they germinate. In a few weeks after germination the young plants may be placed in 2½-inch pots and plunged in a little bottom-heat in a tropical house and be kept well supplied with water. Under this treatment they will be ready for repotting in about three months, when they may be shifted into 4-inch pots, keeping them in a stove temperature till they are a foot or so high, when they may be hardened off for immediate use, or they may be again shifted into larger pots to be grown on into larger specimens. A tropical temperature induces very rapid growth

in these plants, and is therefore advisable so long as they are in preparation, although a low temperature, even that of a greenhouse, will not harm them after they are large enough for the purpose for which they are intended. Turning for a moment to the names of these plants, we find ourselves confronted with a difficulty which arises from the confused state of the nomenclature of Palms generally, and particularly is this so in the present case. According to botanists, there are no fewer than eight distinct genera among the Palms known in gardens as *Kentias*; these are *Howea* (*K. Fosteriana*, *K. Belmoreana*, *K. australis*), *Hedyscepe* (*K. Canterburyana*), *Kentiopsis* (*K. gracilis*, *K. Lindeni*), *Hydriastele* (*K. Wendlandi*), *Loxococcus* (*K. rupicola*), *Cyphosperma* (*K. robusta*), *Ptychosperma* (*K. MacArthurii*), and the true *Kentias*, of which none are known outside botanical collections. It is unnecessary to go deeply into this really dreadful muddle of names, but it will be seen that the plants to which attention is specially drawn here are what are called *Howeas* by botanists, and known in gardens as *K. Fosteriana*, *K. Belmoreana*, and *K. australis*.

It is not easy to find any difference between the plants to which these several names are given, certainly not in a young stage, however distinct they may be when old. Gardeners separate the first from the second by the latter having a brownish leaf-stalk, but we have seen seedlings from the same batch of seeds, some of which were brown-stalked, others green. However, be the names what they may, the beauty and usefulness of these Palms for decorative purposes are unquestionable; and under any one of the three names may be procured plants such as are described here, and which are represented in the adjoining woodcut. The Palm known in gardens as *Kentia* or *Veitchia Canterburyana* is another useful table plant, stouter in habit and shorter in frond, but one of the hardest for decorative purposes. B. W.

#### BULBS FOR EARLY FORCING.

THE season is close at hand for potting and planting bulbs intended for early forcing, or for culture under glass between now and next May, and the subject that first engages the attention of cultivators is the selection of sorts and how to procure them. For early forcing—that is, to have flowers from November till March—certain species and varieties only are suitable. Great mistakes are often made by injudicious selection. Among *Hyacinths*, only the single varieties are fit for early forcing. Double sorts never develop their flowers or spikes half so well as the single kinds do, and it is waste of time and material to try them. Besides, single *Hyacinths* are just as attractive as the double, and in the matter of size of flower and spike they are superior. For the first batch, then, we recommend single kinds, and to ensure an early start they should be had and potted early in September. This is of far more importance and far better than pushing the plants forward in a high temperature afterwards. Bulbs to force must first have roots, to have roots they must be potted in time, and to be potted in time they must be ordered early. After potting, the bulbs should be covered over with sifted ashes or dry soil, outdoors, behind a wall or in some sheltered corner, and left there till the leaves push up about 2 inches, by which time roots will also have grown; and they should then be transferred to a perfectly cold frame, gradually exposed to the light, and after that gently forced as required in a temperature of from 55° to 60° till they come into flower. The compost for



Hyacinths should consist of loam as the staple, leaf-mould, and sand. Any ordinary light soil will answer. In forcing, it may just be mentioned that many Hyacinths are spoiled by too much heat, which causes the leaves to grow too long, at the expense of the flower-spike, which requires more time, and hence, under such circumstances, never pushes out of the socket. Whenever the leaves are noticed to be growing too fast, the temperature should be moderated. In a properly developed Hyacinth the leaves stand up stiffly, and do not reach above the middle of the flower-spike, which should always project well above the foliage.

**TULIPS.**—As in the case of Hyacinths, the single varieties of these force earlier and better than the double ones. Tulips require the same soil and treatment as Hyacinths, only that several roots should be potted together in one small pot, in order to form a good group. Roman Hyacinths are valuable on account of their earliness, as they can, if potted in September or August, be easily had in flower in November. They are useful for decorative purposes if potted or planted pretty thickly, but being scentless and otherwise much inferior to the common Hyacinth, they are seldom grown after the latter comes in. Both Snowdrops and Crocuses force early and freely, and should be potted thickly in pots or pans in about 4 inches of soil, and forced very gently as soon as rooted, under the same treatment as Hyacinths before potting. They make an effective display in a cool house between Christmas and April, during which period they may be had in flower by introducing batches from the cool frame every ten days or so.

**POLYANTHUS NARCISSI** or different sorts have always been favourites for forcing, but of late the Daffodil class has become popular for this purpose, and very handsome pot plants they make; and the beautiful *N. Bulbocodium* or small Hoop-petticoat Daffodil is one of the best. It does better in pots than outdoors, as a rule, and stands a good while in perfection. There is no neater subject for pot culture, and those who grow it once will grow it always. The small bulbs should be potted early in the autumn—say, August or September—kept cool till rooted, and then forced into flower in a gentle heat. The whole of the Daffodils force in this way. *N. Horsfieldi* is one of the best large-flowered sorts for the purpose, as it flowers very freely, does not grow tall, and is one of the very best of its class. The large-flowered single *N. maximus* is also good, so is the common double Daffodil; and the little *N. nanus* makes almost as neat a specimen as *N. Bulbocodium*. The larger kinds must have pots of from 6 inches to 8 inches in size, and the small varieties will succeed well in 4-inch to 5-inch ones, and in any common soil that is light and sandy. All are extremely easy to force, and the bulbs are comparatively cheap.

**GLADIOLUS.**—The Bride, though a recent introduction, is already a popular favourite. It is a beautiful plant; its pure, white flowers, not too large, set off by the dark green, spear-shaped foliage, make it a handsome pot specimen. The bulbs should be potted eight or ten in an 8-inch pot, kept cool, and started into growth gently about March, to have flowers in April and May, which is as soon as they can be had, of good substance and in perfection otherwise, when forced.

### THE COTTON PLANT.

IN this country we are concerned more with the produce of this plant than with its cultivation, but in the United States, in India, and other Asiatic countries it forms one of the principal industries. In the first-mentioned country the total area of the cotton acreage was, in 1879, no less than thirteen and a half million acres, the Cotton region being confined to the Gulf States—South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Louisiana, Arkansas, and Texas.

It is worthy of note that of the entire crop produced in these States no less than 45 per cent. is imported into Great Britain. In

from the pods, are operations requiring much care and skill, more particularly the picking, as it is essential to withdraw every particle of cotton from the pod at one pull without getting any leaf or scraps of any kind mixed with it. This is followed by the process known as ginning, or the separation of the fibres from the seed, the former to be manufactured into textile fabrics of all kinds, and the latter to be crushed for the sake of the valuable oil they contain, a ton of Cotton seed yielding 35 gallons of crude oil and 750 lbs. of cake. This oil when clarified is now largely used as an adulterant or substitute for Olive oil, from which it is said to be impossible to detect good Cotton seed oil by taste, smell, or any other process. Cotton oil is also used in making glycerine, soaps, &c. Not many years ago the Cotton seed was of no known value, and was therefore destroyed by the planters after the fibre had been pulled from it, whilst at the present time the annual yield of the Cotton seed is in America alone estimated at £1,600,000.

The commonest species of *Gossypium* is in America *G. herbaceum*, which is remarkable on account of its being perennial in tropical countries, but out of the Tropics of only annual duration. It bears yellow flowers with red centres, and yellow or white cotton according to the variety. The yellow cotton is supposed to be the natural product of the true plant, the white-cottoned forms having been the result of cultivation. *G. herbaceum* is supposed to have been introduced into America by the Spaniards soon after the discovery of that country. It varies considerably, many forms of it being cultivated in different localities, where they are known under distinctive names. One of them, the Bengal Cotton, furnishes the long staple cotton of which the famous Dacca muslins were made. *G. arboreum* attains under favourable



Gathering Cotton in Florida.

India nearly thirteen millions of acres are devoted to Cotton cultivation, about half the total produce coming to this country. In Europe Italy alone is supposed to possess the conditions favourable to the cultivation of this useful plant.

A light sandy soil is said to be most suitable for Cotton growing, a heavy wet soil being considered fatal to the plants, whilst a very rich soil is apt to make them run to stalk and leaf. The most favourable land yields about 400 lbs. of raw Cotton per acre, though in some parts of India not more than 50 lbs. per acre are obtained. Some of the varieties are much more prolific than others; thus the Upland Cotton will, under favourable circumstances, yield between 300 and 400 pods per tree. The sowing, thinning, weeding, and management of the crop, and afterwards the picking of the Cotton

conditions the height of a small tree. It bears large purple flowers with yellowish centres, and large pods filled with pure white cotton. *G. barbadense* is supposed to be a native of America. It forms a large, much-branched bush, and flowers freely for a series of years, and is a prolific fibre producer, some of its varieties commanding the highest price in Europe. It is largely cultivated both in America and India. We know no reason why the Cotton plant should not be cultivated as an ornamental and interesting plant for the conservatory. The plants grow rapidly and form compact Hibiscus-like specimens, and bear large beautiful flowers like the Abutilons, followed by the green ball-like pods, which burst when ripe and reveal a tightly packed mass of cotton wool. Seeds may be obtained for a few pence from any respectable seedsman.

B. W.



## KITCHEN GARDEN.

### HARVESTING POTATOES.

POTATOES are rather peculiar this season. In some English counties they are said to be "uncommonly good," in others "quite a failure," but the latter I hope are exceptions. In Wales we have capital crops; we had a good deal of rain in May and June which set them up so well, that subsequent drought did them little or no harm. I never remember a year in which disease has been less prevalent, and the Potato harvest now fast approaching is likely to be a very satisfactory one. I hope, therefore, none will spoil their good crops through managing this badly. Some may think harvesting an easy matter, and so it is, but, nevertheless, mistakes can be made in it. One of the first and most important matters is the fact that they should only be dug up when the soil is dry. If the weather is unsuitable, let the harvesting of them stand over until it is so. The different sorts should be lifted as they ripen. For instance, at the present time the haulm of mid-season varieties has mostly died down, and the tubers might be dug up at once; if left until the late ones are ripe to get them "all up together," they may not be harvested so well. Not a week passes from the beginning of July until the middle of October in which some kind is not taken up. This ultimately lightens the work, and is an advantage should a wet autumn set in.

Where many Potatoes are required the garden may not be capable of supplying them all, and a few acres may have to be planted in a field. To save labour, these may be dug up by means of a plough, but in the garden no patent digger or any other means will get them up better than by the old-fashioned way of using a good fork. There are flat-pronged ones made for the purpose, which are better than the ordinary sharp steel fork. New hands at digging up Potatoes generally put the fork into the soil too near the tubers, thus often injuring the very best of them; but a little practice will soon make anyone understand the proper way in which to insert the fork. As a rule, it should be put in a little at the side of the hillock and rather deep, so as to lift the whole of the tubers up at once. Mere surface digging or careless work will result in many of the tubers, especially the small ones, being left in the soil, and these will prove a great pest the following season. The ground may not be planted again with the same sort, and those left behind from the previous year will grow up, and thus the stock will become mixed. Clean digging is the only way to avoid this. When both soil and weather are dry at digging time, little or no earth sticks to the tubers, and it can easily be seen which are sound and which not. It is a mistake to leave one diseased tuber along with the sound ones.

It is a good plan to sort Potatoes before storing them. All the large ones should be put away for use, and the small ones should be retained for seed and for other purposes. In the case of new sorts I would advise that a few of the tubers be boiled and the quality tested before saving them for seed. None not of good quality should be recognised. Seed Potatoes are not injured through being greened by exposure to light, but those for eating must be kept in the dark always to prevent this happening; therefore as soon as they are dry they should be stored away in a place from which light is excluded. Where this can only be partially done, they must be covered with straw or hay. In our own case, our fruit room is on a second storey with a dark shed on the ground floor, and this we find an admirable place for the storage of all kinds of roots. In wet seasons, when the crops must be taken up, we spread the tubers out in an open shed for a few days to dry and then store them. The secret of good preservation is, in short, dryness.

CAMBRIAN.

### TOMATOES IN THE OPEN AIR.

I HAVE to-day seen a very prolific crop of Tomatoes grown in the open air. They were in the garden of Mr. Thomas Haynes, at the Free Library, Warwick, who is well known as an old Derbyshire florist, and especially as a successful Tulip raiser. In all,

there are seventeen plants, including about seven varieties; they were planted out the third week in May, a yard apart, against a south wall, and trained on the extension system on a wooden trellis. Only the strong branches are allowed to grow; the sub-laterals are all thinned out, not an inch of wood being retained that does not serve some useful purpose. They are now 3 feet 6 inches high, and covered with very fine fruit from the ground upwards. On the first plant, Laxton's Open Air, I counted fifty-four well-developed Tomatoes, to say nothing of small ones; and many of the other plants were even more heavily laden, as many as seventy hanging on some of them, besides those which have been gathered ripe during the past three weeks. Some of the fruits were 10 inches to 11 inches in circumference, and, generally, there were from six to nine in a bunch. On the seventeen plants there could not have been less than 2 cwt. of fruit. The most prolific sorts are the variety just named, the old large Red, Hathaway's Excelsior, and Trentham Filbasket. The largest fruit was on Cranston's Giant and the old large Red; but, taken altogether, Mr. Haynes considers Laxton's the best for open-air culture, as it comes earlier than the other varieties and is the heaviest cropper. The plants were grown without any manure, except soot water and weak liquid applied once a week, but they were mulched with short Grass from the lawn. About half of the plants are grown in pots plunged in the ground. Mr. Christie, Warwick Castle Gardens, pronounced it to be the finest crop of Tomatoes he had ever seen grown in the open air.

Warwick.

LLOYD EVANS.

### WORK DONE IN WEEK ENDING SEPT. 1.

AUGUST 25 TO 29.

STILL no rain, and during the last three days the N.-E. wind has blown so cold as if it were April rather than August. Gardening under difficulties we have often experienced, but this summer bears the palm for the imposition of greater difficulties than ever we have had to contend with before. The bulk of our time is still occupied with watering. Fruit trees, vegetables, shrubs, and flowers have all their turn, and whatever it is possible to mulch is done to render it less needful to water so frequently. Digging up Potatoes, planted out Strawberries, keeping the flower beds in neat order by picking off bad flowers, pinching dwarf groundwork plants to keep them thick at bottom, and tying up tall plants, such as Gladioli, Dahlias, Fuchsias, and Abutilons; also tied up and picked over hardy herbaceous plants and hoed borders. Cleared off exhausted plants of dwarf French Beans, and the borders are now being dug for planting out Lettuce, Endive, and Cauliflower plants that are to be planted in handlights to stand the winter. Gathered Williams' Bon Chrétien and Beurré de l'Assomption Pears and several early varieties of Apples; many of the latter are ripening prematurely, the reason being that they have had no water. Pears having had abundant supplies are not ripening earlier than usual, though many of them, owing to the crop being heavy, will be small. Birds and wasps having begun their mischievous work, all that can conveniently be netted over are being done. Plums and Apricots we look over daily to gather all that are ripe; wasp netting, very fine mesh, has been put over Morello Cherries. House work has been keeping lateral growths on Vines closely pinched back, the wood of Peach trees thinned out, and the inside borders well watered. Late Grapes that are colouring have abundance of artificial heat, the ventilators being open night and day—of course less or more open, according as the weather is cold or warm. Chrysanthemums now require daily attention as to tying and disbudding; top-dressed them with well-decayed manure, a little loam being mixed with it to keep it open.

AUGUST 31 AND SEPTEMBER 1.

Dull, dry, and very cold, though the wind is less bitter. Watering as before. Plenty of sweeping, as the trees—Limes particularly—are shedding their leaves much the same as if it was October. No new work is possible under such weather conditions; consequently our work has been little else than a repeti-

tion of that done for some weeks past. We have managed to get the early vinery border top-dressed and mulched ready for another year's work. The old mulching and soil were cleared off till the roots were found in such quantity, that to disturb them much would injure the Vines; then new soil was added, some 6 inches in thickness, and over this was put a foot of long stable litter. I ought to add that a trench a couple of feet wide was dug out at the extreme limits of the border, the points of the Vine roots cut clean back, and afterwards the trench filled in with entirely new soil. The foliage of the Vines is now dying off naturally, but as red spider has been troublesome, we still continue to syringe once a day. Other work about the houses has been tying up Tree Carnations and Tomatoes in pots; thinning out the growths of Cucumbers; sponging Dracenas, Crotons, Palms, &c.; picking runners and side crowns off Strawberry plants in pots. They require more than usual care this season to keep the foliage clean, as owing to the drought the plants were over-run with red spider before they were layered; hence we do not spare the syringe, but apply it with force, and always twice a day. Potatoes are being housed as fast as circumstances admit, but, contrary to expectation, the crops are excellent, and there is scarcely any disease. Onions, too, we have pulled up, and for the present left on the ground to dry, and soon as housed the ground will be cleaned and replanted with Cabbage for spring use. Gathered more Apples and the first lot of Filberts; the latter are barely ripe enough, but squirrels having found them out we must gather them now or never.

HANTS.

### FRUITS UNDER GLASS.

STONE FRUITS.

ONCE more we are drawing to the end of the driest and, on the whole, the finest season we have had for many years. Fruit of all kinds has been good, colour and flavour excellent, the only drawback being the rush with which crops of Peaches and Nectarines have passed away. Our latest house, to which we rarely apply fire heat until after the fruit is gathered, when we prune and fire to ripen up the wood, runs from north to south, and is occupied with Aloes and Bays through the winter. In this structure we have nine trees, viz., Royal George, Alexandra Noblesse, Violette Hâtive, Gregory's Late, Prince of Wales, and Sea Eagle Peaches; Lord Napier, Stanwick Elruge, and Albert Victor Nectarines; Jefferson's, Kirke's, and Transparent Gage Plums. From the first three Peaches and Napier Nectarine we are now—August 24—gathering remarkably fine fruit quite a fortnight earlier than last year, but this earliness is not entirely due to the season. All the border trees were root-lifted last October while the leaves were fresh, and disturbance of the roots, no matter how well they are mulched, invariably hastens the ripening of the fruit. The late kinds are still backward, hardly showing colour, and will, as a natural consequence, come in after many of the best midseason varieties on south walls are over, when fine large house-grown fruit will be valuable and pay better than ordinary crops of Grapes, which must have fire-heat to start, if not to finish, them. Some of the trees on the east side of the house are in square boxes, containing about 8 cubic feet of compost, and although they have occupied them for many years, they still produce the finest Nectarines we grow. I mention this result to show to would-be fruit growers, who have not the convenience for making large expensive borders, how easy it is to overcome a difficulty, and at the same time to convey my growing conviction that restricted root space in elevated pits or borders exposed to the warm air circulating in the house is infinitely superior to the cold, deep, unlimited areas too often met with in unfavourable fruit-growing districts. Fully determined to reduce my theory to practice, and under the impression that brick walls or tubs were not absolutely necessary, three years ago I built up two half cubes of pure calcareous loam, 3 feet square and 18 inches above the floor line of an ordinary Peach house. A maiden Elruge Nectarine was planted in the centre of each mound; the retaining turf walls were neatly thatched round with straw, and the surface was mulched with



manure. The trees, untouched by the knife, made fine fruit-bearing wood, and produced eight dozen Nectarines last year. The crop this year amounted to fourteen dozen; the mounds are one mass of brown foxy-looking roots and fibres. One of them is now about to be moved bodily to a fresh site; the other will fill up the space now occupied by the two. So much for restricted root-space in sound resisting calcareous loam, which can be treated to warm diluted liquid *ad lib.* when the fruit is swelling, and partially dried when the roots as well as the wood require ripening. From the latest we now turn to the earliest house, in which some of the trees require our immediate attention. All of them were pruned as soon as they were clear of fruit. They have been well holed to keep them clean. The house has been freely ventilated by day and nearly closed at night. The flower buds are well up, and the foliage is broad, deep green, and healthy. By some their condition might be considered perfect, and would be well left alone; but the compost in which they were originally planted is rather too light and rich, and nothing short of over-cropping will prevent the next year's growth from becoming gross, and in the year following unfruitful. To prevent this, all the mulching is now about to be removed down to the solid staple; the extremities of the mounds will be forked down, fibres carefully preserved, and strong roots shortened back. The roots will then be relaid in rather dry compost now ready, consisting of strong virgin loam and old lime rubble in the proportion of five of the former to one of the latter. This will be firmly rammed until the level of the border is attained. The surface roots will then be covered to the depth of 2 inches, and a thorough watering will complete the operation.

#### CHERRIES.

The long-continued heat and drought will now necessitate great care in the management of these easily excited trees where the cultivator unfortunately has them trained under fixed roofs. Pot trees can easily be moved to a cool, partially shaded aspect, where, deeply plunged, they can be kept dormant until the weather becomes cooler, but permanently planted trees cannot be so managed. Other means must therefore be adopted, as buds once excited into swelling cannot possibly be arrested until future prospects are injured or destroyed. The best means to the attainment of this end are the removal of some of the squares of glass along the centre of the roof, to admit of sharp counter currents of air, slight shading during the hottest part of the day, heavy mulching to keep the roots cool, and a dry atmosphere. The building of houses with fixed roofs has been considerably on the increase during the last few years, and much as it is to be commended for general purposes, it is not the best style of building for early Peach and Cherry forcing, as these easily excited trees must have rest, and this can best be secured when the roof-lights are movable—the more so as trees from which ripe fruit is gathered in May and June require resting through August and September. Modern houses are now generally built with lantern ventilators, which allow the heated air to pass away freely; old ones cannot easily be converted to the lantern, but there are very few, be they span or lean-to, which cannot be greatly improved by having a broad longitudinal light hinged to the top plate or ridge tree, and made to open upwards by means of ventilating machinery. The saving of one crop of fruit would pay for the trifling outlay, and as this is the most opportune season for carrying out alterations, owners of such houses should lose no time in having fixed roofs converted.

#### PLUMS.

With the exception of Coe's Golden Drop, the choicest Plums in ordinary houses will now be ripe and fit for use, but as many of them will have to be kept as long as it is possible to keep Plums in good condition, all direct syringing, for some time abated, must be entirely suspended. Root-watering will also require more care, as fruit on pot trees will not keep for any length of time if they are over-watered, neither will they do entirely without it. Thus hedged in by two extremes, the best course is careful plunging or surrounding the pots with some light non-conducting material that will keep out drought and prevent the escape of moisture. If any

of the trees require shifting into larger pots, the operation should be performed as soon as they are clear of fruit, when they may be transferred to another structure where they can be freely syringed, but not over-watered, during the time they are taking to the new compost. Ripe Plums, like Cherries, are greedily devoured by blackbirds and wasps. The first can be circumvented by the use of fishing-nets drawn over the doors and ventilators, but wasps can only be kept out by Haythorn's hexagon netting, or, better still, a composing draught of gas tar poured into their nests and tightly plugged in with a sod of turf during the hours of darkness. Plums of late years having been so uncertain and unsatisfactory, it is matter for surprise that the choicest varieties are not more frequently met with under orchard-house treatment. Any glass structure of the rudest construction through which the air can pass freely will suffice for the protection of the blossoms. They can be grown into the most fruitful pyramids and bushes in the open air by the means of annual root-pruning before they are taken up for potting, and the houses they occupy in summer can be cleared for Chrysanthemums and other subjects during the early part of the winter. None but the best should be grown, and as nearly every good fruit-tree nurseryman can supply them well furnished with flower buds at a very cheap rate, the next two months should be devoted to their selection for potting purposes.

#### PINES.

The beginning of September reminds us that the time is approaching for selecting and placing together a batch of the most forward Queens that were potted in April and have been kept steadily growing throughout the summer. As these plants are expected to produce fruit for the early London season, they should be plunged by themselves in a separate compartment, where they can have plenty of light and sufficient air to admit of six weeks or two months' rest before they are again excited into growth. When a sufficient number has been pricked out for the early start there will remain probably two-thirds of the whole stock, which it will not be wise to subject to a decided check, as they will form the main stay later on; neither will it be safe to force a winter growth, unless the pits are very light and the points of the leaves can be kept quite close to the glass. Great care and judgment will therefore be needed, not only in the division, but also in the winter management of these two sets of plants; and, as nothing can be gained by over-excitement of the roots, the thorough renovation of the pits should be deferred until after the turn of the year, when a flush of heat will do no harm. Meantime, having taken out all the plants, level the surfaces of the two beds, fill the smallest with the best plants, give them plenty of sun and air and a little guano-water or diluted liquid occasionally to keep the roots fresh and ready for action, but discontinue overhead syringing, and allow the bottom heat to decline to 75° by the end of the month. If the bottom heat in the larger bed will not range above 80°, add a little well-worked tan or leaves to the surface, to be incorporated as the work of plunging proceeds; fill up with the remainder of the plants, and let the daily routine favour steady progress until the end of October. From that time forward the treatment must be regulated by the nature of the structure, the condition of the plants, and the state of the weather.

*Plants in fruit.*—Having disposed of the two batches, which may now be termed "fruiters," a third set will claim attention. This will include late Queens, Cayennes, Rothschilds, and a few Jamaicas where this finest of all winter Pines is appreciated. Some will be newly started, others will be hastening to maturity. The first will require a sharp bottom-heat, but the second will most likely finish off, if kept without water, in a dry well-ventilated Muscat house; if so, the pit intended for the newly-started and half-finished fruiters should be cleared out to the very bottom, thoroughly scalded and slapsdashed with lime-wash, to destroy worms and insect enemies preparatory to refilling with fresh plunging material. The latter, in order to avoid the risk of burning, should be frequently turned while in a fermenting state, and firmly trodden into the pit when fit for use, otherwise the violent heat will revive and cause much trouble if nothing worse follows. Many Pine growers dread the

renovation of the beds, but Pine houses and pits, above all others, require a thorough turn out at least once a year, and, where practicable the autumn is the best time to put them in order. Although light plunging at first is recommended, it must be borne in mind that a brisk top and bottom heat, with full exposure to light, will be necessary, while occasional syringing at closing time and frequent damping of the paths and surface of the bed will favour the swelling of the fruit. As days decrease in length the roots will take water less frequently, but whenever it is applied the dribbling system should be avoided, particularly where the bottom-heat pipes run within a few inches of the bottoms of the pots.

*Succession pits.*—The general stock of young plants and suckers will now require greater attention to watering, syringing, and airing, otherwise the growth at this season will become soft and attenuated; and it is a well-known fact that an autumn "drawn" plant can never be restored to first quality. If conditions favourable to a stout robust growth cannot be secured and maintained without it, then a little fire heat must be applied to dry up superfluous moisture and to secure a brisk temperature that will admit of liberal ventilation. Where manure pots and frames have been devoted to the summer culture of young stock, the plants should now be transferred to more suitable quarters for the winter. If in very small pots, and the genial bottom heat from fermenting leaves has favoured the rapid development of roots, a small shift into clean pots a size larger will be preferable to allowing them to become pot-bound and remain so through the winter. W. COLEMAN.

Eastnor Castle, Ledbury.

#### LATE NOTES.

*Book.*—Oliver's "Elementary Botany," published by Macmillan, will, we think, suit you.

*Cucumbers (W. K.).*—The cold nights we have had have doubtless injured your ridge Cucumbers. We see nothing else to account for their withering up suddenly.

*Auriculas and Carnations (R. K. W.).*—By consulting the index of Vol. XXVII. of THE GARDEN, you will find many references to both Auriculas and Carnations. For the former see p. 514, and for the latter pp. 566 and 587.

*A Yucca bed* in the Cambridge Botanic Gardens has for some time past been very attractive. It is 30 feet in diameter and the other day we counted upwards of seventy fine branch, ing spikes of flowers on it, some of the tallest towering above our heads.—H. C.

*Chamaeopendiacantha* (Variegated Fishbone Thistle).—I shall be glad to give seeds of this pretty hardy plant to anyone sending a stamped addressed envelope, and shall be pleased to receive other interesting seeds in exchange. The plants should be treated as annuals, and never allowed to throw up a flower-spoke.—GREENWOOD PIM, Monkstown, Dublin.

*Planting Water Lilies (S. S.).*—If you have in your ditch a minimum depth of 12 inches of water during such a dry season as this, you may safely plant the common white Water Lily (*Nymphaea alba*). You can either place the plants in good sized wicker baskets filled with garden mould and sink them, or you can make mounds of soil and plant on the tops, but the crowns of the plants must be about 2 inches or 3 inches under the water. If you mound the soil, you must pack stones around it, so as to prevent it from being washed away.—W. G.

*Naming plants.*—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

*Names of plants and shrubs.*—C. A. N.—*Gentiana asclepiadea*.—W. C. Leach.—*Esculus* (Pavia) *macrostachya*, not rare.—H. P. Blackmore.—Next week.—Mrs. H.—*Rudbeckia diversifolia*, *Dracopcephalum stramineum*, *Grindelia robusta* var.—A. J. B.—*Bartsia Odontites*.—Mrs. Alfrey.—*Callirhoe involucrata*.—A. Jenkins.—Cannot name, specimen insufficient.—Miss White.—*Prospect Waterford*.—Native Ferns are *Aspidium aculeatum* var., *Polypodium Dryopteris*, and P. Robertianum; exotic are *Aspidium falcatum*, *Adiantum gracillimum*, *A. ethiopicum*, *A. formosum*, *A. pedatum* (two forms), *A. Capillus-Veneris* var., *Asplenium Goringianum*, *A. flabellatum*. Please observe that our rule is to name but four specimens at one time.—W. C. S.—Double-flowered *Saponaria officinalis*.—H. Gaff.—*Gladiolus dracopcephalus*.—*Subscirper*.—Names of *Selaginellas* next week.—H. N. W.—Apparently *Sedum spurium*.—*Salmoniceps*.—*Mitraria coccinea*.—*Anon.*—*Sedum reflexum* (yellow), *S. Telephium* (broad-leaved), *S. spurium* (dwarf rosy pink), double white is *Achillea Ptarmica* fl. pl.—R. F. W.—*Andromeda arborea*.

*Naming fruit.*—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.



## WOODS & FORESTS.

### VALUING PLANTATIONS.

SOME foresters advocate the preparation and keeping of an elaborate set of tables, showing presumably a fraction the annual growth of each plantation on an estate. Now, I consider this practically impossible and the result misleading. That a fair estimate of the contents and money-worth of plantations on an estate taken at reasonable intervals are of value, it would be hard to deny, but that after a valuation the annual increment to the trees can be estimated from theory I do not believe. For a few years they may be somewhere near the mark, as they could not very well show much difference if the original estimate was correct, but after this, without an entirely new valuation, they must be worse than useless. This brings us to the method of making the valuation. Different men, no doubt, employ different means, but where the plantation is at all uniform, taken altogether, I prefer the system of taking a few poles of land, counting the trees thereon, and estimating the number per acre from these figures. To guard against error it will, of course, be necessary to take several of these patches of known measurement and compare the result. When carefully done, a very fair estimate may be formed of the number of trees in a given area. Another matter is striking the average of measurement. To the eye accustomed to such work there is no great difficulty, but with those to whom the work is strange it is not so readily accomplished. The *modus operandi* will be by means of a light ladder, or failing one of sufficient length the additional aid of a rod, to fix the height of a tree so far as it is fit for timber, *i.e.*, at the point where the timber terminates in mere lopwood, and then by the girth strap take the quarter girth at exactly half of the timber height, making the allowance of 10 to 15 per cent. for bark according to size and the kind of wood. This, as was the case in taking the number, should be tested in various places and on various trees. By taking the mean, working out the contents, and multiplying by the number, the operator will get about as correct a result as is possible with standing wood. It is here assumed that the plantation is of one kind of trees exclusively; where this is not so, of course the process will become more complicated. If the area to be valued consists mainly of one kind of wood, and only a few trees of other kinds, the better plan will be to find the result as before and make the deductions from estimates subsequently formed. It must be clearly understood that such a plan as this would be impracticable for field or hedge-row trees, as growing irregularly as they invariably do, each tree, or at any rate most trees, must be the subject of a separate calculation.

In valuing wood of this kind it is well, in addition to determining the measurements, to affix the prices as the work proceeds. If this is neglected where qualities vary, the result will be vitiated. In marking for felling, it is the practice of some to mark trees either with the ordinary timber scribe or with paint. Both these plans are open to objection. With the scribe as well as the paint there is a risk of more trees being felled than was originally marked. Both these things can be manipulated by any unauthorised person, and this may cause annoyance and damage, as it cannot be expected that the woodmen will be acquainted with the whereabouts of each individual tree. To obviate this there is nothing better than the marking hammer. This is made after the

fashion of the ordinary plasterer's lathing hammer, with a hammer head and a small hatchet at the back. The hatchet will, of course, be used to chop off the outside bark, and the hammer, on which is cut the initial or initials of the owner, used to stamp these letters on the inner bark. By this means, so long as the hammer is taken care of, it is impossible for other trees to get marked either by accident or design. Any respectable ironmonger would get this done. It is not absolutely necessary to have a hammer made on purpose, as the ordinary plasterer's hammer with the face cut to the letter or letters will for all ordinary purposes answer just as well.

### NOTES ON FORESTRY.

**SELLING TIMBER.**—The remarks (p. 212) of Mr. J. N. Blunt on this subject are good, and I agree with him that dealing by private treaty is by far the easiest and best way, provided the seller knows the value of his lots and can get it. Still, I believe in breaking through the rule now and then. It must be obvious that if a number of large proprietors make a rule of disposing of the bulk of their timber to the same customers year after year by private treaty, they give the local merchants every chance of ruling the market as they think fit if they choose to form a ring for that purpose, and such things do happen; tacit understandings are at least common, and even sales by private tender or auction do not break them down very soon. In two cases that I know of, not so long ago, the lots were put up by auction, having been previously well advertised in the local papers thirty or forty miles round and in the *Timber Trades' Journal*, but the only buyers who came in both cases were the men who had bought the lots by private treaty previously, and one or two "dummy" bidders. The wood agent has to be wise, and do as well as he can, and it is not a bad plan to have as many customers as possible, if they are small ones, and also to sell to consumers wherever you can, but always at consumers' prices if one does not want to be boycotted by the trade. Where there is a good local trade the wood agent can always go into the open market when he has timber of a suitable description to sell, and if he can keep his hand in, there is no surer means of keeping on good terms with large trade buyers, because they do not like proprietors to sell over their heads. That combinations are sometimes formed amongst dealers, and between dealers and officials in large firms, there can be no doubt. It was stated not long since in a well-known paper devoted to the timber trade that one timber merchant bought either twenty or thirty cottage pianos from one firm in London and sent them to the officials on one railway where he had a monopoly of the trade, and the same things happen on a smaller scale oftener than is imagined. There are ways and means of getting to know the general market price of timber, however much it may vary, and the agent who knows this and can accurately value his own timber need not be victimised.

**CONTINENTAL FORESTRY.**—Mr. H. J. Elwes, last week, thinks my knowledge of this subject is of the slightest, and he is right. The little I have actually seen of it did not impress me, and writers on the subject are all like Mr. Elwes—they tell us nothing about it. Mr. Elwes contributes the mite that on the Continent forest laws are so stringent, that they would not be tolerated in this country. This corroborates the idea I had already formed, that forestry in these countries consisted in leaving the woods to Nature and prosecuting trespassers. I have, however, had a small acquaintance with some of the forest students and they did not impress me. Some young Englishmen who had been taught forestry in Germany called here to see the woods in the course of a tour they were taking before going to Indian appointments, and what impressed me most about them was the quaint cut of their pea-green livery, their profound ignorance of practical matters, and their conceit. I shall be glad if Mr. H. J. Elwes will give some particulars of the duties of German and French foresters. As to the questions before the parliamentary committee, I adhere to what I said; there is nothing to be elicited of any

consequence but the few points I indicated last time. The Larch disease is not of so much consequence to English forestry as appears to be imagined. It appears to me that more Larch is still planted than almost any other tree, and that it still reaches fair size in good time, and planting the tree by itself on good dry land seems to be the best preventive of disease. But before I answer any more questions on this point, will Mr. Elwes clearly define what he means by the "Larch disease," as I find there is a great diversity of opinion on the subject, some maintaining that it consists in an ulcerous condition of the bark or outer rind, others that it is internal decay, and some one thing and some another? What is the form of disease which your correspondent refers to? With regard to his coppice wood, I am afraid his expectations are too high. Ash and Larch thinnings from twelve to twenty years old will not find a ready sale among timber dealers or collieries, because the dimensions are too small, and unless he can dispose of such stuff for fencing purposes, Pea-roads, stakes, &c., he should convert it into charcoal. Reverting to the questions addressed by the parliamentary committee and the answers to some of them, I need only add that they appeared to me to be exceedingly trite, giving one the impression that the one side did not exactly know what they needed to learn, and that the other side was not able to help them. We Yorkshiremen know what we want in the shape of timber, and we know what to grow, how to grow it, and how to sell it; but landowners are restless and uneasy under present and prospective legislation; many cannot afford to plant as fast as they should, while the conflicting considerations of sport and the destruction of plantations by game interfere with arboricultural progress very seriously. Forestry in Britain is, however, a very simple question, and is quite unaffected by either Continental or Indian practice. If it be a question of *£. s. d.*, the whole subject resolves itself into the question, What crops will pay best?

**VALUE OF THE PINES.**—I beg to inform "Glen-dye" that the Austrian and Corsican Pines I have written of are not all growing "under congenial circumstances," but in numerous instances under the reverse conditions; and if he will promise to take advantage of my offer, and call at the address I shall furnish, and send his own previously, I will procure him opportunities of seeing these Pines growing with the Scotch Fir (young plantations), and he can report on them himself. I cannot show him plantations sixty years old, but I can show him some trees about forty years of age and young plantations of various ages.

**MINING TIMBER.**—"D. J. Y." gets further and further out of his depth on the subject of mining timber. "The real reason," he writes, "why more Larch (home-grown) is not used is that it is not to be obtained in sufficient quantities." But the truth is that, owing to foreign competition, it is not worth while sending it to the market. Plenty of home-grown Larch is to be had. The Larch trade has been long extremely dull, as anyone posted up in the market must know. A couple of weeks back the *Timber Trades' Journal* stated that "the extreme quietness that characterised some branches of trade was (in the timber trade) more conspicuous in the case of the Larch than any other timber." From 6d. to 8d. per foot is the price offered over the greater part of the north of England for Larch by the timber dealers, and many agents rightly refuse to sell any at these prices; yet prices keep low. I cannot understand "D. J. Y.'s" statements, because, in addition to English supplies, large consignments of Irish Larch are being constantly shipped to the west of England and Wales—from where he writes—thus helping to keep down prices. In Yorkshire there has of late been a distinct decline in the prices of Larch where the timber is supplied by contract.

YORKSHIREMAN.

**Larch in Wigtonshire.**—In addition to "Sal-moniceps'" remarks about the size of the Larch in the west of Scotland (p. 162), it would also be interesting to know if the trees in his locality are ever affected with ulceration, ground-rot, or pumping. The climate in his part of the country has a great resemblance to that of Ireland, and crops of different



kinds often suffer considerable damage from excess of moisture. This excess, however, appears to be favourable to the growth and healthy development of the Larch, and from personal observation the trees appear to be healthier than such as are to be found in many parts of the east of Scotland, where the climate is much drier. This is a matter of considerable importance, as the Larch is so valuable, that the forester cannot be too well acquainted with its wants and requirements as a guide to its management.—J. B. WEBSTER.

#### NOTES ON CONIFEROUS TREES.

NOTWITHSTANDING the sanguine expectations so often expressed respecting the merits for timber purposes of many coniferous trees introduced to this country within the last half century, it has turned out that few amongst them are likely to supersede the well-proved kinds possessing established reputations. There is nothing surprising in this. The simple fact that the new-comers showed ability to thrive and to bear our ordinary winters was, as those less sanguine foresaw, very insufficient ground on which to place reliance in a matter that takes a generation or two before any opinions worth trusting can be formed. Amongst the trees of which high expectations were entertained, but which are evidently not to be realised, was

THE DEODAR, about which predictions were not wanting that it would run the Larch a close race, if not beat it. Yet, so far from this turning out correct, the behaviour of the Deodar is such that in most places after growing freely for twenty-five or thirty years it takes the appearance of premature old age, getting into a stunted condition at the time when it should be in full vigour. So far as appearance goes, except in a few favoured spots, it is likely to be one of the shortest lived trees that has yet been introduced.

OF THE WELLINGTONIA it was said that in the distant future its tall tapering trunk would change the appearance of the landscape, towering above and dwarfing everything else. Yet of this most disappointing of trees little need be said further than that, so far from its ever becoming a giant in this country, there seems little chance of its equalling in size such trees as the Norway Spruce or the common Silver Fir. The thin, half-clothed condition which the tree often gets into after a score of years' free growth gives little promise of its being serviceable, even for decorative use. The other Californian tree,

SEQUIA SEMPERVIRENS, of which less was expected, has in reality turned out a better tree in this country than the Wellingtonia; but it, again, cannot get on except in the most sheltered situations, for as soon as its head gets above whatever in the shape of high ground or trees have sheltered it from the wind away goes its top, and there is an end of further upward progress. A good deal was expected from

THE DOUGLAS FIR. The gigantic height which it attains in its native country, added to the rapidity of growth with us when soil and situation are favourable, caused some to pronounce favourably of it as a timber tree. But unless where the soil is of a nature to suit it and it is well sheltered, its yellow, sickly colour is enough to dispel any illusions that have existed respecting its pretensions as a timber tree in this part of the world. In a good, deep, loamy soil, with perfect shelter, it mounts upwards at a great rate, but, like the Sequoia, from the time that its head gets high enough to be exposed to the wind, there is an end of its extension.

The introduction of a tree that has properties such as to entitle it to supplant any of the kinds hitherto grown for the value of their wood under any of the various conditions of soil and situation which the country affords, is a matter of national importance such as cannot well be over-rated. For the purpose in question the worth of a tree, like anything else required for use, can only be got at by comparing it with others of its kind previously in existence; and to prove the worth of a tree for timber takes a length of time extending over the lives of many generations of men. Appearances that for a time look favourable not unusually come abruptly to an end, just as in the case of the trees already named. Amongst the number of coniferous species and their

allies that were brought into the country during the first half of the present century, there is not more than one that occurs to me which seems likely to supplant any that we were before in possession of; that is

THE CORSICAN PINE (*Pinus Laricio*), the merits of which, as now becoming better known, are leading to its being extensively used by observant and experienced planters. The evidence afforded by the numbers of new trees that have appeared during the present century show that it is well not to entertain expectations that are doubtful of being realised. Yet it is possible that amongst the Silver Firs there may be some of value.

PICEA NORDMANNIANA seems to thrive well in most places where any of the allied kinds grow fairly. *Thuja gigantea* up to the present time looks as if it might turn out a useful timber tree in moderately sheltered positions. So far, it has shown itself a free and quick grower, but with this tree, in common with all others, for much too long a time after they are introduced they are treated solely with a view to decorative use. Even after a lapse of years, such as admits of their being cheap enough to plant in sufficient numbers in suitable positions, either in groups by themselves or intermixed with other trees, in either case planting them close enough together to prevent undue extension of the side branches. In this way time is lost that would suffice to determine the value, from a timber-yielding point of view, of the comparatively few species that continue thriving after the pampering and especial attention usually given to new trees are discontinued, and show an ability to bear the severest winters we experience from time to time. T. B.

#### MERITS OF THE SILVER FIR.

IN my remarks upon the Silver Fir (*Picea pectinata*) (p. 189) I stated that I considered it ranked in the first class as a timber tree, and on all soils and situations suitable for its requirements I have not only found it attain a large size, but also a grand tree from an ornamental point of view. It is a tree that often attains a height of upwards of 100 feet, and, in many cases, contains upwards of 400 cubic feet of timber, that will last for a period of upwards of twenty years when cut up as flooring. I think these are no mean recommendations to any tree. A tree capable of attaining such dimensions in our wind-swept island is justly entitled to rank in the first class. Notwithstanding this, "Yorkshireman" tells us (p. 213) that "prodigious quantities of both the Spruces (common Spruce and Silver) have been lying on the ground in the north of England and south of Scotland for several years that can hardly be sold for fetching away, even near several of the great railways, while everywhere in England, where timber is in most request, it hardly pays for felling." "Yorkshireman" has told us that before, but although that part of the country happens to be inundated with blown-down timber at present, and the market glutted to such an extent that timber cannot be disposed of at any price, the fact by no means detracts or lessens the merits of the Silver Fir as a timber tree.

Notwithstanding "Yorkshireman's" opinion of the Silver Fir, he will never deter proprietors from planting both it and the common Spruce, not only for ornament and shelter, but for timber. In answer to "Yorkshireman's" inquiry as to how I value timber, my answer is that I value my timber by quantity and quality; sometimes I sell rough timber by the cubic foot, and sometimes by the ton, but certainly I do not calculate or allow 52 cubic feet of timber to the ton, as it is apparently done in Yorkshire. No wonder that timber in that quarter does not pay for felling.

I noticed a very practical article on the Silver Fir in an early number of *Woods and Forests* by Mr. W. McCorquodale, where he says: "Throughout the most parts of the wooded counties of Scotland, where Silver Fir is found upwards of forty years of age, the trees generally surpass in size that of any other kind of Conifer. As regards the value of Silver Fir timber, it is not so generally well known or appreciated as it deserves. I have tested its durability in many ways, and I prize it for many purposes next to Larch. On April 17, 1877, when men were engaged lifting old

railway sleepers near Perth, and relaying with new Baltic sleepers, at the same time I was permitted to lay alongside the Baltic sleepers four well seasoned Silver Fir ones to test their durability as railway sleepers. I visit these periodically at the end of each year, and so far as I can judge they give every indication of wearing out the Baltic ones. The price of Silver Fir hitherto has been much about the same as that of Scotch Fir timber; but as soon as its worth for railway sleepers becomes known it will open up an inexhaustible market for its timber, and its price will, I have no doubt, increase accordingly." This is valuable information, more especially as it is from the pen of a practical man of matured experience.

"Yorkshireman" says: "It should be stated that foresters have, during the past fifty years or more, planted the common and Silver Firs so extensively, without regard to their value as timber trees, that they feel now bound to support their practice by praising their good qualities," &c. This statement is, I consider, far too sweeping. I travel a good deal through the country, and I fail to see where the Silver Fir has been planted on an extensive scale as a timber tree, for the simple reason, as I pointed out in a former communication, that the tree is unsuitable for hill planting; and when planted in the low country it is generally mixed with others to afford shelter, contrast, and variety. For my own part, I am sure I am speaking within the mark when I say that for every Silver Fir which I have planted, I have planted a thousand of other kinds.

"Yorkshireman" further says (p. 189): "Spruce is by far and away the poorest paying tree crop in these islands, and Mr. Webster and those who support him know it. If they dispute this, will they furnish an estimate of the value per acre of their Spruce plantations compared to those of, say, Larch," &c.? "Yorkshireman's" memory fails him, otherwise he would not ask for information that has been given so recently. If he would look at my article (p. 73), he will find an example given of a large plantation of several thousands of acres, where the trees consist of Larch, Scotch Fir, and Spruce (mixed), and where the average worth of the Scotch Fir is 15s., that of Larch 35s., and that of Spruce 5s. per tree. In the article alluded to, he says: "Mr. Webster mixes up the Larch, Scotch Fir, and Spruce so much together in his observations, that I hardly know what he means," &c. I have looked at the article referred to and find it so plain, that any person might understand it. J. B. WEBSTER.

**Thick and thin planting.**—Thick planting, so far as my observation goes, is essential in exposed places. I do not refer to any particular tree, but to the plan as a general principle. Where trees are so thinly planted as to be continually swayed to and fro by the wind, much success cannot be looked for. Where they are thickly planted, this is to a great extent obviated.—Y.

**The Oaks in Dean Forest.**—Now that Sir James Campbell has supplied the lengths and cubic contents of these experimental trees, one is able to form a much better idea of their relative sizes than has hitherto been possible from any data given. Sir James is evidently a firm believer in the merits of transplanting, and, so far as the figures go and these trees are concerned, he makes out a strong case. Unfortunately, however, the growth of trees planted under apparently the same conditions vary so greatly, that it is extremely difficult for those in search of the truth to arrive at an absolutely satisfactory conclusion. Without touching now the wider question of sowing or transplanting, into which writers in favour of the former have yet to dig deeper, I would like to point out the great variation between the transplanted trees themselves. Here we have B, a tree 27 feet high in the stem, containing only 41½ feet, whilst F is 4 feet less in height and yet contains nearly double the contents (73½ feet). The latter figures would on first sight lead me to pronounce in favour of cutting off the leading shoots, as making most timber, but the very next tree we come to disabuses us of the idea, as from its height it is plain it was never headed down, yet it contains nearly as much measurement (71 feet).



On the other hand, the seedling trees are comparatively uniform, although the given sizes are smaller. This uniformity in the latter and the wide difference between the transplanted trees lead one to think that varying soil and situation and the subsequent treatment must be great factors towards the result.—J. N. B.

### PRUNING FOREST TREES.

OF all the work relating to forestry, there is none more important and essential than the work of pruning in connection with successful tree culture, which consists in the main of one great and leading object—namely, that of exacting the largest volume of excellent timber from any piece of land without regard to time or soil, as these vary greatly owing to locality and the innate forces in operation favourable or adverse to rapid tree growth and maturity. The work of pruning should go hand-in-hand with the thinning of the trees. Not more than three or four years of the tree's life at most will have passed in the case of hard-wooded trees ere the pruning knife will have to and should be applied.

Hard-wooded trees require pruning most. However, it is likewise prudent to lop off as far as possible all dead branches of Conifers, beginning the work as soon as dead branches appear, and that will be very early in the life of the trees if they have been sufficiently close planted. It may be necessary among Firs, in the case of abnormal strong quick branches, to shorten, or even sometimes better to cut such monopolising branches clean away. A pruning of this kind among Firs is often tantamount to a thinning and serves the same end. And it is a certain remedy for getting rid of all the black knots, which at present depreciate the value of our Fir timber so much.

The pruning of hard-woods is different from that of Firs, inasmuch as it is chiefly dead-wood that has to be dealt with in the case of Firs; whilst in the case of hard-woods it is the living branches that have to be operated on. The pruning of Firs is simple—the ordinary workman can do it when he has been shown what to do and how to do it. Not so with the pruning of hard-woods; the pruner must be skilled—a man who has served a sort of an apprenticeship to the work and has a clear idea of the work he is going to do; for what object pruning is done, and how best to do it to accomplish that object so as not retard but rather promote the progress of the tree's greatest development.

Pruning should be commenced early, so early in the life of some hard-wood trees as when the trees are only three or four years old. Pursue it annually for a series of years, as the tendency of the tree to run to strong branches is very strong in what may be termed the infantile period of its life. No possible injury can happen to the tree from pruning if the operation is well performed and opportune. From one-third to one-half of the stem may be divested of branches. The branches ought to be cut clean away and level to the bole of the tree; and in case of strong branches being cut off—that is, strong in proportion to the strength of the trunk—foreshorten such only, until the tree is more able to bear the weight of the entire number. Or, if taken clean away, tar or paint should be applied to the wound, so as to prevent wet getting into the wood till the wound heals. The process of healing is rapid when trees are young, and most rapid when they are laying on the annual wood layer. Of the branches still left on the tree, there will be some to thin out, and some merely to curtail, to give balance

and symmetry to the tree. Later on, as trees become older, more and more of the stem can be cleared; still more when the trees cease to lengthen; then it is notable how few branches are indispensable to the healthy and long-continued existence of trees. Any number of instances of the truth of this is to be seen everywhere around us, both of hardwoods and Firs.

If the suggestions about pruning herein proposed are rigidly followed, the blemishes in the timber of hard-wood trees we are always hearing about, and indeed seeing, will seldom if ever occur. Defects come from cutting large branches off trees inconsiderately, which never at any former time have been pruned.

What is called snag-pruning is at best but a miserable performance, and cannot be recommended. Snag-pruning such trees as those described would leave such a blemish in the timber as this—although visibly sound to outward appearances there being nothing to indicate anything wrong further than a large bump or swelling on the stem, which seems nothing more than a freak in the growth of the trunk, there is probably inside a large hole, or, if not, a large black decaying snag, reaching far into the tree's trunk which when cut up in course of time would likely fall out, causing a flaw in the timber, that perhaps might render the tree unfit almost for any use except fire-wood, and there is always too much of that.

Close pruning such trees, especially in cutting off large branches, would leave a blemish equally as bad, though somewhat different. As the wound healed and closed up, the bark would be carried inward, which in course of years would become deeply embedded in the timber, and so mixed up with the wood of the tree, which would cause it to be of much the same value and utility as the snag-pruned tree. But the greater portion of blemishes in timber are owing neither to snag-pruning nor close-pruning, but for want of lopping off large old decayed branches, these being left to rot and drop off of their own accord. Blemishes in timber are mainly caused through the want of timely and judicious pruning.

If pruning is well done in the beginning, the work of doing it ever after will be easy and sure, and the cutting away of the branches will not be more felt by the tree when seventy years old than the amputation of branches were when the tree was only seven years old, because, should the branches be large at seventy years, the tree trunk will be proportionally strong, the whole force of growth having been diverted to the trunk and to the increasing of its healing powers; whereas otherwise this would have been different but for the timely use of knife and saw. Trees, if skilfully pruned, stand in less danger of being uprooted or of having their branches broken, mutilated, and torn forcibly from the trunk by the wind. The sure source of healthy, vigorous existence among trees is to be found in their proper treatment, and particularly in their primary treatment, as regards pruning.

Hitherto these observations have been directed towards trees for the production of the largest bulk of excellent timber. But there is one other purpose for which trees are greatly prized, namely, that of pure embellishment. All trees adorn a country less or more; no matter where they are situate, or how they are situated, that is a universal truth. But there are trees specially utilised and suited for ornamental effect. The pruning of these need not be materially different from the pruning of those already de-

scribed, only it is essential to keep the trees well furnished with branches all over, encouraging them to unfold all their natural beauty. Still a great clean, massive trunk, with a finely equiposed, dense and spreading head, is a noble picture in park scenery, and a feature of beauty in the landscape anywhere. Variety of form is required from an ornamental point of view, and this depends much on individual taste, which further depends on the kinds of trees to be acted upon.

GLENDYVE.

### HINTS ON SELLING TIMBER.

SOME remarks have from time to time appeared in THE GARDEN respecting the best methods of selling timber, but, considering the importance of the subject, it has not received the attention it deserves. This may, to some extent, be accounted for by the fact that circumstances vary so much in almost every case, that no really definite advice can be given. Notwithstanding this, however, there are certain general observations which a considerable acquaintance with both buying and selling has enabled one to make, and these observations may be of some value to such as have had but little experience in marketing timber. It is obvious that the method entailing the least trouble to the vendor is that of selling the trees to the merchant as they stand. When this is done, the owner, having found a responsible firm who will see that no unnecessary damage is done to the wood which has to remain, his trouble ceases with the completion of the bargain, and the sum realised is so much nett revenue. This is a method well adapted to the owner who keeps no staff of workmen on the estate. It is a well-known fact that when labour is only occasionally employed, and then without the supervision of a practical man, that more or less loss will follow to the employer. This is true of felling timber, and to such as contemplate marketing trees the word of warning is due, that if they have not a fair acquaintance with the nature of the work, the prices paid, and, moreover, cannot command reliable workmen who understand their work, it will be infinitely better for them to sell their timber as it stands. It is true that here the difficulty of ascertaining its real value before it is felled presents itself, but this may be more readily overcome by calling in an expert than the risk of wasting money by employing men who will probably absorb 25 per cent. of the proceeds. The writer has seen so many instances of this, that he can vouch for its accuracy, and the proportion is rather under than overstated. The merchant generally has his men at command, and, of course, from constantly dealing with it, knows the value of the work to be performed, and consequently gets it done at a considerably less cost. Most merchants will, if the owner should desire to sell at per foot rather than for a lump sum, undertake to fell the trees for the branches down to a given size, and subsequently measure the timber after it is felled. This sometimes works very well, but, on the whole, for the seller who has no men he can safely employ, the plan of selling as the timber stands, and for a lump sum, will be most satisfactory. Where a forester is employed, and a staff of men kept to attend to the woodlands, it will often pay the owner to have the wood felled at his own cost, and afterwards sold at per foot. The reason of this is apparent. The men understand their work, the felling comes in opportunely to keep them employed, and a considerable sum can sometimes be made from the lopwood when fagotted up for the local cottagers and residents. When felled, of course, the contents can be readily ascertained, and the transaction is divested of its speculative character. When sold standing, the risks of trees falling unsound, being damaged in the operation, and the more or less incorrect estimate of contents have to be provided against by the buyer. When he buys at per foot his chances of extra profit or loss are minimised. These, shortly, are the reasons for or against selling in any particular way. Which may be best adapted to his circumstances each reader must be left to decide. It is not necessary here to touch upon the different methods of effecting sales, as these have been recently referred to by a writer, but it may be well to add that when the fall of timber is small, such as a local merchant can readily handle, it



would be altogether superfluous to proceed to tender or auction unless any particular reasons exist why it would be more desirable to do so.—Y.

### SEASONABLE WORK.

As the time is fast approaching when planting operations will demand attention, all works necessary for the preparation of the ground should be pushed forward as rapidly as possible. These consist of fencing, draining, trenching, and holing. One of the first requisites to successful planting is a fence impervious to sheep and cattle; and unless rabbits and hares can also be kept out, but little can be done in rearing plantations formed of small trees. Where the land has not been trenched the advantages of early holing are great, as the excavated soil becomes ameliorated by exposure. Much of the nursery stock intended for woodlands may now be raised and afterwards carefully bedded upon a dry, warm soil until it can be placed in its permanent situation. If this operation be well performed, and a proper soil and position be chosen, the growth of the small rootlets will continue, and the plants may afterwards be removed under circumstances most favourable to their rapid development. Injured roots should be carefully pruned back at once; but the less the knife is used, either upon these or upon the head, the better. The larger plants may at once be removed, and if the ground intended for the smaller ones is not ready by the end of the month, these should be raised and laid in by the heels until required. This is more especially necessary where game is strictly preserved, and where too much disturbance of the woodlands now would interfere with future sport. The larger deciduous plants may be treated in the same way by the beginning of October, but no large tree of the latter kind, which has not been previously prepared by opening out, should be transplanted late in the season.

**LAYERING** should be finished as early as possible. Select two years' shoots, peg them firmly in the ground, cutting the layer half way through on its under side, if necessary, to bring it well to the ground; cover with from 4 inches to 6 inches of soil, and bring the head into an upright position; also cut away from the parent stool layers of two or three years' growth. Layering may be practised upon almost every kind of hard-wood, as, for instance, on the Elm, Ash, Oak, Sweet Chestnut, Alder, Poplar, Birch, Plane, Lime, Willow, Mountain Ash, and Hazel. For filling up thin and neglected coppices, it is at once the cheapest and by far the most expeditious way. The rapidity with which a thin and straggling coppice may be filled up by the system of layering from stools would astonish those who have never tried the system. The vigour imparted to the new shoots by the widely-spreading roots of the old stool causes these to grow away much faster than the transplants by which they may be surrounded. Where Elms are intended for layering it is customary to plant these out in the nursery, or some piece of prepared ground, at distances of 5 feet or 6 feet apart, and to cut them over like Osiers at the end of the third or fourth year. The shoots from these are layered as soon as they ripen in the following autumn.

**TRANSPLANTING.**—The transplanting of Evergreens should be finished as quickly as possible. Where large deciduous trees have been previously prepared by trenching round them, now is the time for their removal. Take up the roots as entire as possible, preserve the bark uninjured, and avoid cutting or pollarding the top. Secure a firm bed on which the tree may rest, but avoid treading the soil around its roots when in a wet state. By dashing on water with some force during the filling in, and heaping up sufficient soil to allow for a gradual subsidence, more good may be done than by treading, and thus encasing the delicate rootlets in an impenetrable mass of hard clay or other soil. In looking through the plantations, all trees requiring support should at once be staked and tied, and, where early transplanting has been done, watering may now be necessary. Mulching should not be neglected, as any substance

which prevents evaporation will prove beneficial to the trees.

Trim wood rides preparatory to the shooting season, and remove the trimmings. If any timber remain in the woods, it should be speedily removed before wet weather sets in. Select stock for filling up the home nursery, and also such as is required to supplement the home supply in filling up the woodlands. Finish the trimming of all hedges, and see that those adjoining pastures are kept in good repair. Wherever the pruning of forest trees has been neglected they should now be attended to without delay; but this should have been finished much earlier in the season. In the nursery the smaller Hollies and Evergreen Oaks may now be transplanted, and composts turned and prepared for use. Beds should also be prepared for Acorns, Sweet Chestnuts, and such other tree seeds as are usually put into the ground before the beginning of winter. After taking a careful survey of the plantations, and looking well into the nursery stock on hand, a calculation may be made of the quantity necessary to be purchased. Scour out all open ditches in the woodlands, repair pinnocks, and endeavour to get the general work so well in hand that during the next month every attention may be given to planting.

### SEASONING TIMBER.

**TREES**, immediately after they are felled, unless they have been previously killed, contain a great deal of moisture, and are, therefore, unfit for use until they undergo a seasoning process. This is simply the evaporation of the water, which, if allowed to remain in the tree, would ferment and decay, and if dried out too rapidly would leave the timber brittle, because the gum and other matters in the wood would evaporate with the water, instead of gradually assimilating with the fibres and tending to bind them together, as in the case where the drying is properly conducted. Now, to accomplish this is the principal thing, and there are many means of doing so. Some people say placing timber in a running stream for a time before stacking helps seasoning, and renders it less liable to decay. But it is not always convenient nor is the timber as good as if seasoned other ways, for it carries off more matter than necessary. Some say leave the timber in the bulk some time before cutting into planks. There is great danger in doing this, for if there are any cracks through the bark to allow the moisture to lodge in, decay is certain. The best way is to cut the timber into planks at once after felling, and place it in a store or shed with good ventilation, but no violent draughts of air and no moisture. The floor should be perfectly dry and the roof lofty. In stacking the timber it is well, when convenient, to stand the planks on end, the root end upwards, and well raised from the ground. In all cases, each plank or board should be separated from the next one by laths, to allow the air to circulate freely between them. After being in this position four or five months it is well to reverse them, and brush off with a hard brush any moisture or mildew that may appear. Timber seasoned in this manner proves the toughest and most durable. In seasoning, hardwoods take about one year to the inch, and soft woods much less. Where it is possible, it is well to cut all timber into scantlings, and in panels or boards to plane them some time before being used, as they are apt to shrink, no matter how long they are seasoning, for the wood which requires least seasoning is generally found to be the most durable; it then becomes an essential point that trees should be felled during the winter months, that being the season when the tree has least sap or vegetation within it.

**Shelter trees.**—A good deal is said about shelter trees—I mean as nurses for young plantations. I have not, however, seen much about the Elm. I do not say that this tree would be the most suitable in every case, or even in the majority of cases, but I have recently seen some plantations well sheltered by belts of Elm. The Elms, of course, were much older than the plantations, and probably were not grown for the purpose they now serve. They are there, however, and they answer the purpose satisfactorily.—Y.

**Tree planting in Ireland.**—It is admitted that fully one-half of the 4,000,000 acres of the waste land in Ireland are profitably reclaimable in the sense of the capitalist or the speculator, but every acre of it is profitably reclaimable in the sense of the enduring prosperity of the country. The bleakest mountain side, the worn-out bog, will produce timber, and an abundance of timber in Ireland would give it a new climate, new industries, and a higher civilisation.

**The timber scribe.**—This is apparently a very simple thing to obtain, but there is scarcely a tithe of those sold which can be considered entirely satisfactory. Altogether the best tool I have ever used is one I obtained from Hereford some time ago. It is the same class of thing the timber inspectors on the largest railways use. It cost me six shillings, but it is just what a timber scribe should be. The handle is octagonal, made from Walnut wood; into this the blade, about 3 inches long, is readily screwed and unscrewed. When not in use the blade goes easily into the vest pocket, and the handle into the coat pocket.—D. J. YEO.

**Large Oaks.**—In 1810 (says the *Antiquary*) an Oak was felled in Monmouthshire measuring 28½ feet in circumference. It was supposed to be four hundred years old, from the number of rings in the grain, and it was stated at that time that the timber sold for £670 and the bark for £200. The "Parliament Oak" in Clipstone Park is, according to tradition, one under which Edward I. held a parliament, and is supposed to be 1500 years old. At Welbeck Abbey an Oak called "The Duke's Walking-stick" is 112 feet high. The "Greendale Oak" covers a space of 700 square yards, and has a coach road cut through it. The "Two Porters" are 100 feet high; the "Seven Sisters" has seven stems 90 feet in height. There are some other extraordinary Oaks at Welbeck Abbey. The largest Oak in England is said to be at Calthorpe, in Yorkshire; it measures 78 feet in circumference where it meets the ground.

**Difficulty in selling home-grown timber.**—The difficulty Mr. Elwes has with his wood (p. 237) is probably shared by many proprietors, but it so happens that this, the first communication evoked by my remarks, comes from a district of which I have some knowledge. I do not know the exact spot from which Mr. Elwes writes, but, taking the neighbourhood as a whole, there should be a ready market in the valley a few miles to the west. It may be that the local men spoken of are not altogether unconnected with this valley. The drawback of sending wood to distant markets is its relatively small value in proportion to weight. The offer of teams, however, is not a small item, and it may be possible to find a customer who would remove only the really useful wood and dispose of the remainder locally for firewood and similar purposes. Elm and Beech, if good, should sell as well as Ash and Larch. If the sawmill is suitable, it may be possible to saw up some of the timber for market.—J. N. BLUNT.

**The Larch cone crop.**—Last year Larch cones were a very meagre crop; the seeds were poor and the offspring miserable. This year the crop is abundant, and it is to be hoped that the seed and progeny will be as good as it was bad last year. However, the quantity of cones is not excessive on healthy trees, but is very plentiful on diseased ones—a curious fact and a very obvious peculiarity of the Larch. Therefore it were well that seedsmen should warn their collectors against gathering from diseased trees. But, in truth, seedsmen are powerless—have very little control over their gatherers, and must just take what these men bring in without knowing whether it is good, bad, or indifferent. The gatherers know that, and just do as they like—have no care from what tree they get the seed so long as they get plenty of it and easily. Reform, radical reform, is wanted in this branch of forestry—some real means of detecting and checking the collection of, and after-dissemination of, spurious seed. Either our climate or the Larch itself is fast degenerating. Anyhow, that which is noteworthy is that in many soils of a kind in which it used to luxuriate it is now very short-lived—too short-lived to be worth the cost of culture.—GLENDYE.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## FRUIT GARDEN.

### RENOVATING OLD VINES.

IN some few cases it may be unwise to attempt renovating measures with Grape Vines that have ceased to be profitable, the better plan being to root them out and start afresh. I have in my time renovated several houses of Grapes in different parts of the country, and assisted in restoring exhausted Vines and Vine borders in two other cases, the result in all but one instance being highly satisfactory. The Vines I failed with were in a wretched plight, the old barkless stems and spindly unripe wood being naturally accompanied by fibreless roots, rendering renovation an almost hopeless task; but it was attempted, and might have been a success if I had only been less anxious to secure a heavy crop the first season after the principal portion of the work was done. Not only can Vines be quickly and without much expense be completely restored to a profitable state, but renovated Vines have in many cases been found much superior to comparatively young Vines, the produce frequently surpassing anything shown against it. Some of the best Grapes I have seen this season, including such sorts as Hamburgs, Muscat of Alexandria, Mrs. Pince, Gros Colman, Madresfield Court, and Black Alicante, were cut from renovated old Vines, some being cut the first season, and some the second season after the process was commenced. Some good growers prefer to thoroughly clear out a house of worn-out Vines, and re-make the border for the reception of a lot of young Vines, but in this case there is almost certain to be a loss of one or more crops, unless, indeed, a number of expensive fruiting canes are bought, or are grown in anticipation of a clearance, and besides there are not many nowadays who approve of much turf being cut or bought, and without plenty of good loam, fibrous or otherwise, it is useless to attempt to make a lasting Vine border.

**VINES REQUIRING TO BE RENOVATED.**—When the Grapes shank badly or refuse to colour well in spite of moderately light cropping, or the berries are small, and perhaps stoneless or thin-skinned, or the foliage thin and much given to flagging during bright sunshine, or the wood refuses to ripen properly, bleeding badly when pruned, these are all sure indications that the root action is faulty, and in many cases nothing short of lifting the roots and renewing the border will restore them to a satisfactory condition. Even when the Vines are in fairly good order, much good may be done by partially lifting the roots and replacing them in a fresh compost. It is by no means a heavy or difficult undertaking, and, according to my experience, no work that is done in the garden gives better returns. It is my belief that half the Vine borders in the country are considerably wider and deeper than they need be, and unless these large borders are very well managed, the surface, or best portions of them, are unoccupied with roots to any appreciable extent, and the Vines derive their sustenance from a few deep-running and almost fibreless roots, many of which, perhaps, have

penetrated into the most uncongenial substance below the drainage. All this may be corrected by lifting the roots and re-forming a certain portion of the border, and August and September are the best months for performing this important work. Vines should be lifted and completely replanted, if need be, either long before the foliage has dropped or on the point of falling, or in the spring just when the buds are at the point of bursting. The autumn lifting should be preferred, as in this case the Vines, under careful treatment, will form a considerable number of fresh roots before the leaves fall, and this will insure a good start the following season; whereas, when lifted either after the foliage has fallen or early in the spring, no fresh roots will be formed till the new leaves are nearly fully developed, and consequently there is a risk of losing the crop that season. I am perfectly aware that it is possible to lift Vines in March and fruit them the same season, and if I wished to transplant them elsewhere the spring would be the time chosen for the work. Whether the Vines shall be wholly or partially lifted ought to depend upon circumstances; but, as a rule, the worse plight the Vines are in, the more drastic must the renovating measures adopted be. When the borders have been formed many years, or, say, about twenty years, they not unfrequently become a mass of inert soil, totally unsuitable for supporting the Vines; they will not root into it, and poor crops and unripened wood are usually the consequence. In other cases, the borders have been merely formed on the top of a cold, clayey sub-soil, no provision being made for the prevention of the roots finding their way into this ruinous substance, and no real attempt made to attract them or to preserve them near the surface. In both these cases I would recommend that the Vines be completely and carefully undermined and the whole of the roots relaid in a suitable compost. I must admit I have never gone to such a length as that, but a friend of mine has with surprising results. Early last September he completely lifted a house of Muscat of Alexandria, and tied the whole of the roots to the trellising on the roof till such time as he could return them into fresh soil. They were previously rooting in almost solid clay and produced rubbishy Grapes, but this season or about eleven months after the operation several excellent bunches were cut, which won the grower the first prize in a first-class provincial show, and they also largely contributed to his success in another class.

**PARTIALLY LIFTING THE ROOTS** should be practised when the border is in fairly good condition, and as a consequence occupied, thinly it may be, with active roots. Such a border we would reduce in extent, carefully removing it to about half its width. But should the border be well filled with roots, we would be content to fork away about one quarter of its width, preserving the healthiest roots only. In some cases the principal roots may have wandered far away into common garden ground beyond the border, and therefore out of reach of various good things that may be placed on or washed into the border for their benefit. To search out these roots and relay into fresh soil would be out of the question, and the most sensible measure to be adopted is to cut a trench across the border—say within 3 feet or 4 feet of the stems—and boldly sever all the far-running roots met with. These will quickly heal, and, provided the operation is performed early, fresh rootlets will push into the breadth of new compost into which they are relaid. This, again, seems a rather severe process, but one of the most successful Grape exhibitors at the recent grand

show at Bath won several prizes with Grapes cut from Vines that had two seasons before been subjected to such treatment. Half measures not unfrequently result in half a cure, and no one need be nervous about the results of severe, yet intelligent, renovating operations. This applies equally to inside and to outside borders, the former in many cases, especially where hard water is principally used, being the first to get exhausted.

**HOW TO PROCEED.**—Where there are both inside and outside borders, and each fairly well occupied by roots, either of them may be completely forked away, preserving all the best of the roots, and these, after being shortened, may be relaid in a width of fresh compost about one-quarter in extent of the old border. This fresh soil will soon become well filled with fibres, and the following autumn another width may be added, which will have a wonderful effect upon the health of the Vines. Then the following autumn the other border may be completely cleared out, and a width of fresh soil substituted, as in the case of the first border. In this manner fresh food will be constantly within reach of the roots, while the Vines, other conditions being favourable, will produce better crops of high-class fruit than they did perhaps in their younger days. Where there is only one border the process must be somewhat the same—that is to say, a wide trench should be cut along the front of the border about 3 feet broad, and in most cases this may be done with the spade. The soil being thrown back or wheeled away, another width may be cleared, and this time the soil should be forked away in order to preserve the roots as much as possible, and this may be continued up to within 3 feet or 4 feet of the stems, or, in the case of very bad borders only, the whole may be removed, every care being taken to keep the roots moist and protected from sunshine. As before stated, everything must depend upon the condition of the borders, and in the case of those well filled with roots we would only, as a rule, cut a trench about 3 feet wide along the front, and replace the old soil with fresh compost. This, with a good top-dressing, would have an excellent effect upon the well-doing of the Vines, and do away with the eventual necessity for more expensive measures. Where the borders rest on a heavy or clayey bottom, with no concrete bottom to prevent the roots from reaching it, this defect should at once be remedied; but on all gravelly or rocky bottoms there is little need for this precaution, especially if those in charge do their best to keep the roots near the surface. All old fibreless roots that are preserved should have notches cut in them at slight intervals, and from many of them a cluster of rootlets will be emitted. It is astonishing the effect a fairly rich compost has upon these woody roots, and even the old stems will emit roots into a mulch of manure if this is kept uniformly moist. Those who may be unable to commence the work of renovating their borders at the present time may yet, to a certain extent, prepare the Vines for the rough time they are to go through later on. Prior to the Vines being started it is advisable to remove some of the surface soil along the border near the stems so as to bare the principal roots, replacing the old soil with a rich top-dressing consisting, say, of loam, short half-decayed stable manure, and burnt garden refuse. This, if kept in a moist state, is almost certain to become well occupied with vigorous roots, which, besides improving the current crop, will serve to support the Vines after they have undergone the operation of being partially or wholly lifted.

**SOIL FOR VINE BORDER.**—Turfy loam is the principal ingredient used in the formation of an



orthodox Vine border, and this in many instances is very difficult to procure. Owners of Grass land object to the turf being removed in such great quantities required for forming a new border, and although I am not at all surprised at this, I would yet venture to hint that the turf gives better returns in the form of a Vine border than it will in its natural position, and besides it is quite possible to renew the turf quickly by top-dressing the stripped land and sowing it down with Grass seed. Luckily, it is possible to form a fairly good border without the aid of much turf, and if my advice is taken and the borders are formed or renovated, as the case may be, piecemeal fashion, that is to say in annual or biennial widths, the demand for turf will not be excessive. When we reformed our borders only about one-third of the compost consisted of fresh turf, another part being made up with the best of the old border, and the rest consisted of mortar rubbish, half-inch unboiled bones, and burnt refuse. The latter ingredient I consider of great value in the compost, as it comprises wood ashes, charcoal, burnt clay, and other good fertilisers, and the roots seem to be especially fond of it. The outer edge of the addition to the border is built up with turves, placed Grass side downwards, but the remainder of the turf is roughly chopped up and mixed with the other materials, the whole being added according as the enclosing wall of turf is being built. Then when it is proposed to add a fresh width of compost, this not being done till the first is well filled with roots, the face of the wall of turf or loam is shaved off with a spade, and the new addition firmly built against it. At no time should a border or part of a border be loosely put together, as a firm root-run insures the production of plenty of fibres, and the more fibres there are formed the heavier will be the weight of Grapes. Soon after the border is completed, it is advisable to cover the roots on the outside with a thick layer of leaves, these being faced over with strawy litter, and when removed in the spring be succeeded with a mulching of short manure. Those inside may be mulched with short manure either soon after completion or in the spring, and it should always be borne in mind that lifted or transplanted Vines must not be heavily cropped for a time, and never be allowed to suffer for want of water. They must have plenty of moisture, more than usual, in fact, especially seeing that many of the principal roots that previously supplied food to the Vines have been materially shortened.

**TREATMENT OF THE FOLIAGE.**—When the operation of lifting is performed during hot weather, the foliage naturally flags badly, and steps must be taken to prevent this as much as possible. The fruit being all cut—and lifting is seldom commenced till the Vines are cleared—it is advisable to both shade the Vines and also to keep the house nearly or quite close, thus materially checking evaporation. In addition, the foliage should be kept almost constantly moistened, and ten times on a bright day is not too often to heavily syringe the Vines, walls, and floors. When the Vines are recovered somewhat, more air may be gradually given and less water be distributed. In this manner the foliage will be preserved, and this, in its turn, will assist in the formation of young roots. Where the measures taken are not severe, little or no flagging will follow, and there will be less need of closing the house and frequent syringing. Later on, the ripening of the wood may well be hastened with the assistance of a little fire-heat. After reading the foregoing, some may think that this renovating process is an expensive and laborious undertaking, but it

is really no such thing; and, besides, it can be done at a time when there is the least demand upon both labourers' and gardeners' time.

W. I. M.

#### YOUNG STANDARD PEACH TREES.

THE productiveness of young standard Peach trees is a subject of so much importance to all interested in Peach culture under glass, that I may be excused for replying to "P. G." (p. 217) at some length. Alluding to my remark that I should deem it nothing remarkable for a young standard Peach or Nectarine tree to produce twelve or fifteen dozen fruit the year after planting, "P. G." adds that "he should think most cultivators would deem it remarkably injudicious to allow such a tree to do so," thus showing that he does not think such a thing practicable, and that he believes others think so too. Now, when we find the late head of an establishment like Chiswick, and an excellent general gardener like Mr. Robert Thompson, showing in the "Gardener's Assistant" that it requires seven or eight years to lay the foundation of a Peach tree, that even a supply of bearing branches is out of the question for the first four or five years; and when we find the revisers of his book repeating all his mistakes, with aggravations only a few years back; and, lastly, the *Gardeners' Chronicle* pronouncing the same book to be the best work on such subjects in the English language, I must say "P. G." and the others he speaks of may be excused for having doubts on the subject also, and I shall do my best to dispel them. There is nothing really remarkable in producing twelve or fifteen dozen fruit on a free-bearing standard Peach or Nectarine the year after planting, and, what is more, it has been practically accomplished. A properly trained standard tree makes a head nearly four times as large as a flat-trained tree on a trellis or wall, and from the latter I have myself taken four and five dozen good fruit the year after planting trees one year from maidens with about four or five small shoots to each. This I have done in one season in a whole house of trees, and the second year I took from nine to twelve dozen from the same trees and a proportionate quantity since, the fruit being all good and of nice size. "P. G." will see from this that fifteen dozen from a standard with a large unrestricted head well spread out all round is a very moderate estimate of a crop. On one of the trees referred to—a flat tree—I left ten dozen till the fruits were as large as marbles, and then reduced the number to five dozen. Our houses are much too small for standards, but if I was going to plant for myself late Peaches under glass, I would not have one trained tree. If "P. G." cannot get good fruit off standards in the south, they can 400 miles further north, as has been proved, and that is enough for me. One would hardly believe the number of shoots and sub-shoots a healthy standard Peach tree will produce the first year, if only thinned, unless they saw it. Common sense ought to tell anyone that the quantity of well-ripened wood and the number of flowers are always a safe guide to go by in estimating the productiveness of a tree; and when a young tree will produce a great many such shoots and flowers innumerable, why should it not produce fruit as well? The fact of the matter is, few English gardeners have ever seen a standard Peach tree of the right sort, and they do not know what it is like. Their ideas are derived from books, and in some of the professedly best of these I have no hesitation in saying, and could prove it if necessary, that the instructions on the subject of training fruit trees are of the most barbarous description, and are not founded on either sense or reason. I can see by the way "P. G." writes on the subject, and by what he has written before, that it is orchard-house mop-headed standard Peaches that is running in his head; whereas I speak of standards that have not been pruned and pinched, as these generally are. If you plant a young Peach tree, with four or five shoots to it, no matter whether trained or not, each shoot the following summer will produce a long shoot from its point and several more from the buds behind that; and if these shoots are well spread out to the light by tying a string to their tips and pulling them out and down a little, they will in turn each produce numbers of good laterals, all of which will ripen and set hun-

dreds of fruit buds. From a maiden with only two leaf buds left in March I have had a tree 10 feet or 11 feet from tip to tip of its two main limbs, both of which produced a great quantity of laterals, all of which ripened thoroughly and set hundreds of fruit-buds the same season. "J. C. C." last week, I observe, reiterates his assertion that Peaches from standards lack colour badly; to which I can only reply that he cannot have seen extension-trained standards, because these, being totally unlike bushy-headed orchard-house standards, bear their main crop on the outside of the branches exactly as an old-fashioned orchard Apple tree of the Codlin type does, and the fruit in consequence enjoys a free play of sun and air, thus bringing up the colour as well as could be desired. We want further particulars about "J. C. C.'s" trees, and I feel sure if we could see them they would be found to be restrictive trained mop heads of the usual orchard-house type—a form of tree I would have nothing to do with. Some of the natural round-headed Apple trees bear almost the whole of their crops on the outer surface of the branches fully exposed to the sun, and those who cannot see a standard Peach tree, I advise to study an Apple tree of that sort if they want to see how fallacious "J. C. C.'s" arguments are. He proves too much, because where the fruit ripens as green as he says, fruit buds would never form and there could be no fruit.

J. S. W.

#### STRAWBERRY BOUNTIFUL.

THIS is, I believe, but little grown, but where vigour, fertility, and the ability to resist long periods of drought are primary considerations, it will be found to possess great value. There are unfortunately many places where the poor porous nature of the soil renders Strawberry culture uncertain. In such places high flavour and size may be dispensed with if compensated for by unusual powers of endurance and great fertility. In these respects Bountiful excels, and I recommend it to all who have to grow Strawberries under such unfavourable circumstances. It is the finest looking Strawberry when in bloom that I am acquainted with, the blooms being nearly double the size of other kinds, and the foliage is of great size, of a rich green. Some beds of it here when in full flower were so attractive, as to warrant this Strawberry being grown solely for its ornamental properties. Another point in its favour is that it is quite a week later than such kinds as President and Sir J. Paxton; it began to ripen this year just as the last fruits of these varieties were gathered. Although the plants were not set out till February, and bore quite a large crop of fruit, and were never watered, not a plant has died, whilst large blanks are to be seen in other kinds growing hard by. As showing how little this Strawberry is known, I sent some of the fruit to Covent Garden, and no one there could tell what it was, and I did not find out the name until a friend, coming in one day, said: "Why, you've got that old Bountiful that was recommended so strongly to me some years ago for planting on banks and similar places where no other kind will succeed." The fruit is of medium size, rather pale in colour, and there is collectively a great weight of berries to a plant. I wish it to be understood that I do not recommend it as a market, or even as a good-flavoured, kind; but I am so often asked: "What Strawberry can I grow on my poor, light soil?" that I have thought this variety might help many out of a difficulty.

J. CORNHILL.

#### TRAINED V. STANDARD PEACH TREES.

THE relative merits of these two forms of tree have again been brought under notice. One would have thought that ere this the question might have been decided one way or another. The bush-headed standard form of tree is nothing new. In my younger days at Cloughton Hall we had untrained standards in large tubs for a good many years, but they were given up on account of the inferiority of the fruit compared with that borne by the trained trees. At any time standards might have been met with in some place or other either in tubs or planted out. The most successfully managed trees I ever saw grown in this way were at The Larches, near Preston, Lancashire, where Mr.



Newton, the gardener, had a good sized house filled with large sized trees planted out which never failed to yield an extraordinary quantity of fruit, but in all cases that have come under my notice all, except that borne on the top branches, were badly coloured and deficient in flavour.

Only the present summer an amateur near here, who is an enthusiastic cultivator of Peaches, and who grows them well, has discarded a houseful of fine trees that have for several years been in large boxes and have all along produced fine crops. The reason for their dismissal is simply because the fruit is inferior in flavour to that which he gets from another house where the trees are trained under the roof in the ordinary way. Nor is this an exceptional occurrence; it, however, goes to confirm the experience of all the growers I have met with who have tried both methods. The maximum of colour natural to a given variety of Peach or Nectarine can only be secured by exposure of the fruit to the sun in a way that is not attainable with three-fourths of that borne by untrained bush-headed trees; and colour in the case of these, as in that of most kinds of fruit, is a reliable gauge of flavour. Even pale varieties of Peach, like Noblesse, lay on the most colour when they get all the sun that it is possible to give them, and I never yet met with an instance in which the fruit of this unsurpassed variety was not flavoured proportionately with the amount of colour present. T. B.

**Pyramid Pear trees.**—Without wishing to enter into the merits of the question as to whether pyramid training is desirable for Pears or not, I think it is hardly correct to assert that no Pear trees have naturally pyramidal habits of growth. The old Swan's Egg with me is peculiarly so, and also Thompson's Pear, which shows under natural growth of some fifteen years exactly a pyramidal form. Then, even though grown as standards in market gardens, the popular Hesse kind always assumes a pyramidal habit. Urbaniste does the same, and not a few others may be found similarly inclined. Even Williams' Bon Chrétien would be naturally pyramidal were it not that the frequent heavy crops produced bends the branches out of shape. Apples assume this erect pyramidal form much less than Pears, but some are of very erect growth, as, for instance, Gloria Mundi, Sturmer Pippin, and several others.—A. D.

**Duchess of Oldenburgh Apple.**—A young tree which we have of this sort has not failed to bear well for the last four seasons, but this summer the crop is extra heavy and the fruit finer than usual. During the winter before last the tree was shifted from a poor position to a good one, and it may be the removal has had a good deal to do with the improvement effected. At the same I am convinced it is one of the best early Apples we have, especially for marketing. The fruit is rather large for dessert purposes, but then it is also of value for cooking. Ours are not highly coloured, but when ripe the skin is very clear and attractive, while the flesh is firm, briskly flavoured, and juicy. As a rule it is in season during the whole of September, but we have ripened a few in heat, other early sorts being scarce. This Apple is sometimes sold under the name of Barowsky, and it appears to be best known as such in the south-western counties. Market growers ought to plant it extensively.—W. I.

**When to gather Apples and Pears.**—Much depends on the time when Apples and Pears are gathered as regards the quality of the fruit when it comes "in season"—a term denoting not the time the fruit is fit to gather from the tree, but when it is fit for dessert. Pears are particularly sensitive in this respect, as if gathered before they are ripe, they shrivel and never ripen perfectly; and if gathered too late, they become dry, mealy, and bad. Few varieties are fit to eat as soon as gathered, but two or three days is sufficient to bring in such varieties as Jargonelle and Hesse; while others take weeks or months, the Easter Beurré not getting ready till spring. The time to gather, of course, depends on the season. All the varieties will, however, hang upon the tree, if allowed, long after they are ripe; but they should be gathered as soon as ripe. The colour of the fruit will denote this, but the best test

is the fruit parting without much force from the branch, or without bending it back at the footstalk. If a piece of the branch or bud comes away with the fruit, or if the footstalk itself breaks, the fruit is not ripe. The severance should take place easily at the base of the footstalk only. Another sign of maturity is the hardness of the seeds when there are any; but they need not necessarily be black, although they eventually become either black or brown. The transformation that takes place in a Pear after gathering and storing is something very extraordinary, and has never been satisfactorily explained. At first woody and hard, though sweet, the fruit becomes of a brighter colour after a longer or shorter interval, gets soft without shrivelling or losing its plumpness, and to the taste is sweet and juicy, and in flavour delicious.—S.

## TREES AND SHRUBS.

### BERBERIS TRIFOLIATA.

THIS beautiful species is a branching shrub from 3 feet to 4 feet high, with leaves from 3 inches to 3½ inches long, having three terminal, sessile leaflets, beautifully marbled with blue, dull green, and delicate pale veins, the slender leafstalks being sometimes 2 in. long; the leaflets are in threes, spiny-toothed on the margins, with from three to five coarse, sharp sinuities on each side, rounded and a little tapering to the base, from 1 in. to 1½ in. long and three-quarters of an inch broad, of a glaucous blue colour, marbled with dull green on the upper surface, as has just been stated, and light green beneath. The flowers are



*Berberis trifoliata*

rather small, bright yellow, and produced in April and May in few-flowered axillary racemes on short peduncles. The berries are small, globular, light red, and sweet-tasted. It is a native of Mexico, where it is found covering large tracts of the high table-land near the Hacienda del Espiritu Santo, an immense plain on the road from Zacaticas to the mining district of San Louis Potosi, and is called by the inhabitants "Acrito;" the fruit, which is rather sweet-tasted, is much eaten by children. It is rather too tender for the open air north of London, but makes a beautiful shrub for training against a south wall.

**Planting trees on knolls.**—An experienced planter writes: "I think you should above all things impress upon your readers the necessity of planting all trees and shrubs of any size on a raised knoll or protuberance, higher or lower, according to the depth to which the soil has been trenched; or, if the soil has not been dug or trenched, according to the depth to which the pit in which the tree or shrub is to be planted is dug. The object is to keep the collar of the stem above the surface of the soil, so that, when the ground is finally settled, it may stand upon a knoll, or little hill, at least an inch or two above the surrounding surface, and thus the stem will rise from its roots like a column from its

base, instead of the stem appearing like a post which had been driven into the ground. This is a point of very great importance for the health and effect of the plant, and one which has hitherto been scarcely ever attended to.

**Variegated Oaks.**—Variegated forms of the common British Oak (*Quercus pedunculata*) are not uncommon in a wild state. I have seen large trees in which the variegation was decided and constant. A considerable number of the forms grown in nurseries have a tendency to revert entirely to the green state in a comparatively short time. As it would be impossible to give distinctive characters for all of these forms, or even to distinguish some of them from each other, I need only mention two or three of the most distinct, and then merely give names of the rest without more ado. This seems to me desirable, as these "form" names in catalogues are, as a rule, not pre-

fixed by the specific name, and so it is not possible for a planter to know to which of the two species such plants belong. The same remark applies where they are catalogued as varieties of *Q. Robur*, which includes both *pedunculata* and *sessiliflora*. *Q. argentea nana* and *argentea picta* have the leaves finely mottled with pure white. In *albo-marginata* the leaves are deep green, with a broad border of creamy yellow. Other names are *Q. pulverulenta*, *Q. maculata*, *Q. argenteo-variegata*, *argenteo-marginata*, *argentea nova*, *albo-marmorata*, *elegantissima*, *elegans variegata*, *tricolor*, *elegans tricolor*, and *aurea tricolor*.—G. N.

**Transplanting Hollies.**—With regard to "J. C.'s" remarks as to the best season for transplanting Hollies, I admit this much, that according to my experience in warm soils autumn and spring planting is often very successful. Our subsoil is a stiff, cold, and poor clay, and I have found from long experience that very many things, as Hollies, the whole of the Fir tribe, and all kinds of evergreen shrubs, excepting those with very tender foliage, succeed best when transplanted in the summer months. "J. C." is quite correct in assuming that the Hollies I transplanted came off shallow heath land resting on gravel. There were no very large tap-roots, but many as much as 2 inches to 3 inches in diameter were cut off in order that the plants should sit firmly



on the trolly for removal. With regard to the price, of course it was only nominal. I may not have been explicit enough on this point. The fact is that the lord of the manor had given permission for the formation of a new cricket ground, and I found that in order to carry out the work it was necessary to remove a large quantity of very fine Hollies; it was intended to cut them down and burn them on the spot. I considered this an act of vandalism, and therefore suggested to my employer that we should remove them. He at once accepted my proposal, and the trees were transplanted with the success I have previously described. It was certainly somewhat beyond my expectation, and as many are very fine specimens, 10 feet to 15 feet in height, with a proportionate spread of branches, showing no signs of removal, I think it speaks much in favour of my suggestions.—C. D.

#### WORK DONE IN WEEK ENDING SEPT. 8.

SEPTEMBER 2.

THE rapid fall of the barometer this morning gave us warning of an approaching storm, and which we are this evening having in the long-wished-for downpour of rain. Expectancy of rain has to-day made us busy preparing for it. Gathered all Pears, Plums, Apricots, and Peaches that were ripe; also Morello Cherries for preserving. Hoed and raked ground that has been cleared of Peas, French Beans, and Potatoes, and which after rain will be re-cropped with spring Cabbage, late Kales, Endive, Lettuce, and Spinach. Tied up plants in flower garden that were likely to be knocked down by wet; also tied up Michaelmas Daisies, perennial Sunflowers, Gladioli, *Lilium auratum*, &c., in herbaceous plant borders; these borders we endeavour to keep as neat and trim as the parterre of bedding plants, by which means we obviate the objection that in some quarters is made to the cultivation of perennials, namely, their untidy appearance, a charge that only holds good in respect of those who leave both plants and weeds to take care of themselves, and then to ease their conscience call it "wild gardening," and the only appropriate way of growing hardy perennials—a way though that I trust will never become general, nor is it likely to do so till a premium is offered for the most slovenly garden, and that is not likely to be just yet; in the meantime let us continue our efforts at neatness, giving a good mass of perennials at least as much attention as we would a bed of Pelargoniums. Gave pot Strawberry plants more space, and the most open position we have at command. They are always kept free of runners and weeds, and are well syringed twice a day to prevent the spread of red spider. Fotted on late batch of Melon plants to keep them growing, till a house now ripening off its fruit can be cleared and the soil renewed in which to plant them out. Cleaning out all pits preparatory to housing sundry plants for the autumn, such as Bouvardias, Pelargoniums, Azaleas, Begonias, bulbs, &c.

SEPTEMBER 3.

The rainfall of last evening and during the night amounts to 0.67 inch; and how much it was needed dried-up lawns, and pastures, and turnipless fields, and gardens bear witness. But the drought spell being broken, we shall now probably have an abundance of moisture, and our work must be arranged accordingly. Planted out Cabbage. We plant them in rows 2 feet apart and but a foot apart in the row, alternate plants being pulled out soon as usable in spring, so that what may be called the main plot are 2 feet apart each way. Dwarf Ulm Savoy is done the same. Our first supplies of these will soon be ready, alternate plants being pulled up as required for use. By mulching and watering, we have now a fine lot of Walcheren Cauliflowers. The succession plot is Autumn Giant, and to which we have to-day given the drainings from the manure heap. A few of our finest Pears and late Peaches have also been watered with this liquid. Thinned out Lettuce, part of the spare plants being replanted on south borders; made another sowing of Cabbage and Cauliflower. These will be wintered where sown, and will be useful for filling up gaps or making fresh plantations in early spring.

The flower garden now takes up every bit of time that can be spared. After the necessary work of other departments is done much of our time is every day given to this, the most pressing requirements just now being the taking of cuttings—and we are expected so to take them, or not at all, that no gaps be discernible, or that flowers be missed. Hence only careful hands are deputed to the work, with the charge to make robbing of flower-beds a work of art. It is thus our supplies for another year are now being obtained. Work in and about the houses has been putting in cuttings of Pelargoniums, potting off Carnations, and shifting Primulas and Cinerarias into their flowering pots. Cut all early Muscat Grapes, stopped every lateral growth, and gave both Vines, glass and walls a thorough washing, and the border—an inside one—a real soaking, and afterwards mulched the border with clean straw; thus, if needs be, plants in pots can be stood on the border without the drainage getting stopped. But, even if for neatness' sake only, it is worth while thus to cover inside borders.

SEPTEMBER 4.

More grand showers during the night, but fine all day. Work much the same as yesterday, also dug and housed more Potatoes; late kinds are rather undersized, but otherwise fine crops and free from disease. Gathered remainder of Quarrenden Apples, Emperor Alexander, Red Astrachan, and the highest coloured Cellini Pippins; wasps and birds are excellent judges of ripeness, and when they have started in earnest on any Apple or Pear, then, to a certainty, has arrived the time to harvest the crop. Peaches on open walls are now ripening rapidly, and with a view of lengthening out their season, we keep them thickly shaded from the time that the first signs of ripeness are visible, and soon as fit to gather, that is when they will part from the trees without a jerk, we house them with a view of still retarding their complete ripeness in the coolest place we can find. The fruit of the latest house is nearly exhausted, and we have already begun to thin out the shoots, selecting the longest budless ones for destruction, and all shoots left are arranged and tied to be clear of each other, that sunlight may have due effect on all alike. Ripeness of wood rarely fails in the production of a full crop of fruit.

SEPTEMBER 5.

Again showery, which somewhat interfered with our usual Saturday's clean up, at least so far as outdoor work was concerned; we, however, managed to get the Grass edgings of flower beds and borders clipped, cleaned up, and the walks rolled, vases picked over and the seed-pods off single Dahlias. This persistent seeding is my only drawback, but their colours, form, and floriferousness combine to produce such a charming effect as to far outweigh the labour required to free them of seed-pods once a week, and also of bad flowers; Verbenas, Calceolarias, and Violas are all of them bad dry weather plants, yet with regular picking and moderate supplies of water, they have for weeks been, and still are, in grand flower. Watered Pines and Fig-house border. Cleaned up all houses, stopped long shoots, and tied Melons to trellis. Thinned out wood of Cucumbers, and gave both these and Melons that are swelling off their fruit a watering with clear liquid manure. The laterals of Lady Downes Vines have also all been stopped, and any that were shading the fruit were cut right back. We still use artificial heat, for, though they are coloured, they are not nearly ripe.

SEPTEMBER 7.

Another half-inch of rain; a wet day throughout. Outdoor work has been quite at a standstill, and for once we rejoice to have had it so, the rain being so much needed. Sorted over Potatoes for seed and cooking sizes, and covered the cooking tubers with clean, dry straw. It does not matter if the seed gets a little green, and therefore as the shed is dark we do not trouble to cover up the seed tubers. Tidied up both Apple and Pear rooms, and both are now quite ready for the fruit as it ripens. The ventilators are for the present left open in all weathers. Cleaning out tool and potting sheds, making labels, and washing pots have also to be included

in to-day's work. Cut back laterals on late Hamburgh Vines, so as to let light and air into the ripe fruit, which, by a continuance of this warm, moist weather, would be liable to damp off unless the atmosphere be kept on the dry side by free ventilation combined with a little artificial heat. Completed thinning out of wood of late Peaches, clearing plants of scale, sponged the foliage of Dracenas and Crotons, and washed with a strong solution of Gishurst the stems of Palms, some small ones of recent importation being completely covered with white scale.

SEPTEMBER 8.

Fine. Rolled all walks, earthed up Kales and earliest Broccoli. All runners being cleared off Strawberry plots, they are now being lightly pointed over, and will be mulched with well-decayed manure at first convenient opportunity. Gathering early Apples and Filberts. Propagation of bedding plants is at the present the principal work of indoor hands, and all kinds are now being got in as rapidly as possible. Potted a few good suckers of Pines; they are plunged in a bottom-heat of 90°, and as the soil is quite moist no water will be given them till they are well rooted, but they will have a light syringing overhead when closing up on warm days. Shading is now entirely discontinued for plants in all stages of growth.

HANTS.

#### HARDY FRUITS.

We have this day, August 31, gathered A Bec Peach and Advancer Nectarine from the open wall. A few fruits of Lord Napier are also ready, but, judging from the general appearance of the crop on the two trees, there can exist but little doubt that Advancer is a few days the earliest. The merits of Napier are well known. Advancer is darker in the skin and flesh, which is rich, juicy, and delicious, and possibly it may be found a little finer and less susceptible to injury when packed for transit in a ripe state; if so, these varieties will be found invaluable for early forcing. A great number of wasps are hovering about, but as yet they have not attacked fruit of any kind, the honeydew on the leaves of Plums and Cherries apparently sufficing for their immediate wants; meantime, aided by the cold east wind which hurries them home at night, we are administering small doses of coal-tar as a sedative, from which they never recover. All their nests we do not expect to find, and knowing that a change to bright warm days may speedily develop their true character, the necessary framing is prepared, and our Peach walls, this year better than usual, are quite ready for a covering of hexagon netting, which we keep for this purpose.

APRICOTS

on south walls, with us a light crop, will soon be over. The fruit is very fine, and the trees have made good growth, which is kept closely nailed in to the walls, foreright shoots being constantly pinched to let in light and warmth and favourable applications of water when the time arrives for turning on the hose. It too often happens that wall fruit trees are left to struggle with drought after the crop is gathered, but this is a great mistake, particularly when they present a large surface of foliage to the full force of the sun and the roots are buried in soil through which the autumn rain cannot penetrate. Peaches and Apricots are the first to resent this treatment, not only by ripening up their buds prematurely, as was the case last year, but also by casting them in the spring when they ought to be bursting into new life and promise. This has been a peculiar season from the beginning, for not only was root action retarded by a cold sluggish spring, but it has been impeded by intense drought and heat; consequently underground work remains unfinished, and the best aid we can lend is a timely and plentiful supply of water that will enable them to complete their office before the leaves fall from the trees. If well drained, there is no danger to be apprehended from over-watering; if badly drained, the sooner the borders are turned out and corrected the better.

APPLES.

Early varieties must be gathered as soon as they show signs of maturity and the fruit parts freely from the trees. Although heavily mulched and copiously watered, Echlinville Seedling and Lord Suffield,



owing to their fine size, were amongst the first to show signs of dropping. Worcester Pearmain, a very heavy crop, and the good old Kerry Pippin are also well advanced and quite fit for gathering, but they are slightly deficient in colour, and unless the weather becomes very stormy the trees will be mulched with soft Grass to let down easy any that fall, and gathering will be deferred for a few days longer. Early Apples, like early Pears, are not improved by hanging on the trees until they are quite ripe, as many of them soon become mealy and lose their brisk, but fleeting flavour. They should, therefore, be closely watched and carefully hand-picked before they begin to drop from the trees. If any of the trees require root-lifting, preparations should be made for the performance of this important operation about the end of this month. Systematic root-pruners generally allow the complete process to extend over two seasons, as the trees, no matter how gross their growth may have been, can then be brought into subjection without producing a sudden check that will endanger the succeeding year's crop. When this plan is decided upon, they dig a trench half way round each bole the first year, saving all the roots as the work proceeds; fresh compost, it needful, is then added to the old and firmly rammed down to form the new bed for the roots, which are slightly shortened back with a sharp knife and relaid in a horizontal position. More soil is then cast over them, and a barrel of water poured into the semi-circular trench carries the compost home to every root and fibre, and consolidates it without producing under pressure or injury. A little time is allowed for the puddled soil to become firm; the remainder is then turned in and gently rammed, and a mulch of rotten manure completes the operation. A period extending over a year favours the formation of new roots near the surface, the weight of the crop moderates the growth, and a repetition of the preceeding year's work on the other half of the ball brings all the roots into a horizontal position within a few inches of the surface. When root-lifting is judiciously performed in the second and third years after young trees are planted, the fruitful condition thereby induced is generally sufficient to keep them within bounds for several seasons afterwards. Much, however, depends upon the situation and the nature of the soil, the kind of stock and the mode of pruning and training. Apples on the Paradise and Pears on the Quince make most fruitful bushes and pyramids on the richest of soils and do not require much root-pruning, but rather the reverse, that is, provided they are properly planted in good sound compost free from manure, when the latter may be advantageously used for summer mulching. The free stocks may be best for making large orchard trees, but they are altogether unsuited to kitchen gardens where the soil is full of humus and rows of trim extinguisher-like trees 6 feet or 8 feet high and 18 inches through are pruned to a nicety whether the system suits them or not. Fortunately, this barbarous mode is giving way, and we now find once closely pruned pyramids growing freely on the semi-extension principle; their shoots all round from base to summit well thinned out, and left 12 inches to 18 inches in length, soon become covered with flower-buds, and fruit that does not look as if it has been checked in the middle of its growth, is yielded by the bushel where formerly the trees did not produce sufficient to justify the assertion that they were true to name.

**Planting.**—If not already done note should now be made of all alterations, additions, and renewals in each department, and as far as possible the preparation of the stations may be advantageously pushed forward. I say advantageously because the ground is now dry and in the best possible condition for delving, wheeling, and exposure to the elements, no small matter in the preparation of soil which may not be brought to the surface for many years to come. Good clean drainage, charred refuse, burnt clay, old lime rubble, road parings and scrapings all bear a telling value in the preparation and correction of heavy soils, while marl is indispensable on sand and chalk or soils that have become too light by the constant application of leaf mould or strawy manure. With very few exceptions stone fruit trees, Apples, and Pears like a strong sustaining loam resting on good drainage, and often prove sterile or ripen their fruit prematurely where suitable compost is not pro-

vided for them. There are few districts thoroughly destitute of all the materials essential to success, but the greater the poverty or paucity the greater the necessity for going into the matter at once, and getting all arrangements made for planting before the leaves fall. Next comes the

**Selection.**—Where fruit growers live from hand to mouth, that is to say, go direct to the nursery for trees as they require them, and plant immediately on arrival, the present month is perhaps the best for paying a personal visit while the foliage is fresh and healthy, and an abundance of clean well-formed trees are there to select from. Inexperienced persons are often carried away by size, but this is a great mistake, as gross wood is not always well ripened, and if it is, there is a suspicion of annual lifting having been neglected or imperfectly performed when the few strong runaway roots which have contributed to the formation of rank shoots are torn and mutilated in the operation of lifting, and the tree receives a check from which it never recovers. All the best nurserymen lift, root-prune, and transplant annually; their trees are well furnished with a wig of bright healthy fibrous roots, and, although to some not so tempting, the evenly balanced shoots of moderate strength ripen early and soon make up for lost time when transferred to their permanent quarters. The main points which the buyer should take for his guidance are clean stocks free from blemish at the junction or working, well balanced heads with base buds prominent, and foliage that bespeaks a sound constitution. Trees that have been hard pruned to keep them down to saleable size should be rejected, as it is a well-proved fact that the knife lays the foundation for canker and premature decline before such trees leave the nursery. In all well managed fruit gardens it is now usual to keep up a good reserve of all kinds by buying in maidens before they are touched by the pruner's knife, and growing them on either against the walls or on open quarters where they can be manipulated and root-lifted annually until they are required for filling up vacancies. There are few gardens in which space cannot be found for a limited number of young trees, and this is unquestionably the best time to make a selection.

**Planting.**—When young trees are received from the nursery they should be carefully examined and numbered or labelled. All roots that have been mutilated should then be cut back with a sharp knife, and they will be ready for planting, provided the stations are ready and the weather is suitable. The condition of the soil is, however, of the greatest importance, as it cannot well be too dry, provided it is sufficiently broken and pulverised to admit of firm ramming without becoming adhesive. When the roots are fairly covered with soil, it should be flooded home and left for a time to settle, when the remainder, as has been advised in root-lifting, may be cast in and firmly trampled. Wall trees should be tacked or tied in, pyramids and bushes should be staked, and all should be mulched to keep in latent warmth and protect the roots from drought and frost. It is better to defer the operation than to plant in wet weather, and trees received during severe frost should be covered up with litter until open weather favours unpacking, planting, or laying in.

*Eastnor Castle, Ledbury.*

W. COLEMAN.

#### NOTES ON RECENT NUMBERS.

**Old-fashioned Roses** (p. 241).—We do not in our gardens make half enough of the rampant straggling habit of some of the old Roses. "Coarse growing" one can scarcely call them when they flower so freely and look so well if properly placed. The general idea of growing Roses seems to be that it is necessary either to cut them down each year nearly to the ground, to trim them into hedges, or to tie or nail them tight, in most cases as tight as possible, to a trellis or wall. It is not often that one sees a Rose left to grow as it likes in its own way. We have some growing in among the Rhododendron bushes, which can have had neither manure nor pruning-knives within some yards of them for a good many years, and which are a conspicuous object for weeks together regularly every season. One of the most beautiful when grown in this way is the old "Bengal Florida," of which both the buds and full-

blown flowers are charming. "J. D." says, "Rosa bengalensis is not grown now, neither is it worth growing, as its profusion of flowers tumble all to pieces the moment they open." It certainly is not much grown, more's the pity, and its great profusion of flowers will naturally shed a good many Rose leaves on the ground, but I have never had to complain of the flowers not lasting. It varies, no doubt, from seed as much as anything else, and some forms are very much better than others, as anyone must have noticed who has seen it growing along the Riviera where it is used not only for grafting other Roses on, but as hedges between fields, and one may drive between two rows of it almost for miles—sometimes covered with bloom, sometimes leaves, and all a monotonous white mass from the dust off the roads. Scrambling up among Cypress, Arbutus, or other trees, the Bengal Roses are beautiful objects in any wild garden.

**The Marguerite Daisy fly** (p. 249), "a pest which appears to be rapidly increasing in this country." It is sad to think that with the number of "good things" we obtain now for our gardens we often receive at the same time some "very bad things," which it will require more attention than neglect to rid ourselves of. At all events, the importers of new plants have introduced more than they bargained for in many cases, and the different varieties of "blight insects" are largely increasing in number. I was in happy ignorance of any insect specially attached to the destruction of Narcissus bulbs till I received the other day a small "monograph" on the subject, beautifully got up and containing full details and drawings of "Merodon equestris" sufficient to strike terror into the hearts of all Daffodil lovers. Let us hope that the attention of all nurserymen will be directed, in their own interests, to the "stock" of blight—insects as well as fungus—they are in many cases distributing, and that they will also guard against the introduction of any fresh species into this country. I had a fine lot of "mealy bug" sent me with some Crinums this spring, sufficient to stock any number of greenhouses unacquainted with it, but I hope I have not been providing "happy hunting-grounds" for "La mouche du Narcisse" in the number of Daffodil bulbs I have planted the last few years.

**The Cotton Plant** (p. 254), as is well shown by your illustration, is worthy of being grown elsewhere than in a mere collection of curiosities, for it forms a pretty as well as interesting feature in any greenhouse, being so unlike anything else one usually sees when the seed-pods are burst open. It seems probable either that the seeds are not much advertised in catalogues, or else that the plant is not recognised under its Latin name. There are many varieties of Gossypium, but I do not suppose they are all of equal decorative value. I remember being immensely pleased the first time I saw a number of Cotton Plants in flower and in seed arranged among other plants in a greenhouse, and those who are fond of novelties and do not already know it will do well to give it a trial.

*Sussex.*

C. R. S. D.

#### QUESTIONS.

5390.—**Glass for Peaches.**—I have two houses—one roofed with rough plate, the other clear glass; which will Peaches do best under?—R. W.

5391.—**Peacock Iris.**—Will some of your readers kindly help me in one or two horticultural difficulties? I have great difficulty in getting the Peacock Iris (*Iris Pavia*) to bloom. I have grown it by the hundred, and have only had five or six per cent. of the bulbs flower. I have it out-of-doors in a light, sandy border, and there the percentage is even worse, for it is rarely I get a bloom at all. I grow it mainly in pots in a cold house. The foliage comes freely for the plant (its leaves, I think, are always long and weakly, scarcely able to support themselves), but the flowers are very few and far between. Is my experience that of others? If not, what are the secrets of success? The flower, although an old one, is one of the loveliest, and one of my special favourites. 2. I cannot succeed with *Helianthus pratensis fulgens* out-of-doors. Is it really hardy? I know the Rev. Mr. Nelson succeeded with it, but his garden was a very sheltered one, shut in by the house front on one side, and by walls on two other sides. I have happened to be at his house when it was in bloom, but if it grew in a warm corner of his garden under one of the walls, I can quite understand that I might not succeed with it in the open border. What is the experience of others, and what are the requirements for success? 3. A third failure I have had is with that best of all the variegated Ivies, *Hedera maderiensi* variegata. I have it against the stump of a tree; it exists, and that is all. Is it tender? Does it require a wall?—W. H. TILLET.



## NOTES OF THE WEEK.

**Lilium auratum platyphyllum.**—A noble specimen of this new variety of Lily has been sent to us by Messrs. Barr, of King-street, Covent Garden. The head of flowers forms a huge pyramidal mass about a yard in height, and carries six expanded flowers and eleven buds in various stages of development. The flowers are fully 10 inches across, each petal being 3 inches in breadth and of remarkably thick texture. They are of the usual colour, white, broadly banded with yellow and heavily spotted with reddish brown. The leaves, too, are proportionately large, being 9 inches in length by over 3 inches in width. This variety, we hope, will soon become less rare than it is, as it is by far the most robust of all the forms of *L. auratum*.

**Flower notes.**—I have here in bloom *Antholyza paniculata*, and I am satisfied that it is very superior to *Montbretia Pottsi*. The blooms are larger, darker in colour, and the foliage is very striking. *Gladiolus Lemoinei* and *purpureus* are in bloom side by side, and I fail to see any difference between the two except in height. A curious pale pink single *Hollyhock* brought from Merv by O'Donovan is also in bloom. I have a curious green *Gladiolus* (*G. dracephalus*), the lower petals of which are emerald-green and the upper ones spotted with black. I notice that by planting whole roots slightly forced of the white single *Dahlia* it is possible to get blooms by June 15, and to find quantities of bloom on September 7.—C. O. MILES, *Sunny Hill, Shirehampton*.

**National Chrysanthemum Society.**—A meeting of the general committee of this society was held on Monday evening last, at the Old Four Swans, Bishopgate-street, the president, Mr. E. Sanderson, in the chair. Mr. Holmes, the secretary, announced the death of one of the society's judges (Mr. Charles Turner, of Slough), and Mr. Ballantyne proposed that as this was the first assembling of the committee since that event had occurred, that a vote of condolence with the family of Mr. Turner be passed, which was seconded by Mr. Kendall, and passed unanimously. It was announced that the Veitch Memorial medal and a cheque for the £5 prize offered for competition with it had been received. It is to be offered for competition in class 12 of the society's schedule. Mr. Holmes stated that application had been made by the different affiliated societies for sixteen of the N. C. S. medals, and it was resolved that he be authorised to have them struck. A model of the intended medal was submitted for inspection.

**Pachira macrocarpa.**—The plants of this genus are better known in gardens as *Carolineas*, and the present species was introduced under that name by Messrs. Makoy, of Liège. It is now flowering in the Palm house at Kew—a tall specimen, well branched, and planted in a large tub, bearing from time to time one or two of its large, handsome flowers. It has palmate green leaves, and flowers axillary or terminal on the short branches; the buds are long and finger-like, unfolding into a wide-spreading cup-like arrangement of petals, 6 inches or 8 inches wide and deep, the inside completely filled with five bundles of long white filaments with reddish anthers, the corolla being cream-coloured. The flowering of these plants occurs only rarely in English gardens, as they require powerful sunlight to ripen their growth into flowering condition. Two other species are grown at Kew, viz., *P. insignis*, which is said to have very large red flowers, represented at Kew by a small specimen, and *P. aquatica*, which is very similar to the first-named. In Guiana and other parts of South America these *Pachiras* are said to be grand objects when in flower, as they there grow into large trees, and flower freely soon after the rainy season has set in.

**A new Primula** (*P. cortusoides* Jekyllæ).—During a visit to Munstead the other day I saw a *Primrose* very different from anything I had seen before. Its origin appears to be lost in obscurity, and the name *rotundifolia* was, however, suggested, but as it clearly belongs to the Chinese and not to the Indian *Primroses*, the name suggested would hardly be consistent, seeing that a *Primula* already bears that name. *Primula cortusoides* var. *Jekyllæ* seems the best name for this new *Primrose*, as it has affinity

with *P. cortusoides*, though distinct both in the leaves, flowers, and time of flowering. It is in full flower now, and has been for the last month. It is a great acquisition to the *Primulas*, as the flowering time of the majority of them, and *cortusoides* in particular, was over a month ago. The new *Jekyllæ* grows from 6 inches to 9 inches in height, with an upright flower-stem scape, with from four to a dozen flowers, the petals deeper cut than the ordinary *cortusoides*, and of a pretty rosy pink colour, not unlike *P. sibirica* var. *cashmeriana* of the *Botanical Magazine*. The calyx is narrower and longer, and the leaves shorter and rounder, sharply and irregularly serrated and undulated, and of a light yellowish green. The older leaves are now brown round the margins and almost orbicular.—D.

**Thunbergia Harrisii.**—Some of the *Thunbergias* take rank among the showiest and most useful of stove climbers, as they grow very rapidly with ordinary treatment, and produce in profusion their large bell-shaped bright coloured flowers in thickly packed racemes if only a little sunlight reaches them to help the shoots to ripen. The best of them are *T. mysorensis*, often called *Hexacentris*, which has bright orange-red and yellow flowers as large as those of *Gloxinias*, but with better lasting qualities than most *Gloxinia* flowers have; *T. Harrisii* with *Smilax*-like leaves and long pendent or trailing shoots, on the ends of which are clusters of pale blue blossoms; and *T. laurifolia*, which is like the last, except that it has darker coloured flowers and larger coarser foliage. Planted out in a border of loamy soil and trained over pillars or against the roof of the house in such a manner as to allow the shoots to hang loosely, they soon cover a large area, and when in flower, as they should be about this time of year, they present a striking picture. The two last mentioned are now in this condition in the Palm house at Kew. In passing we may refer to the extraordinary interest the collection of climbers in this house has now as compared with what they were a few years ago; many of the plants are now flowering, and not a few of them are first-rate plants in a garden sense.

**Hæmanthus coccineus.**—The flowering of this curious Cape plant is marked every autumn at Kew by two large panfuls which push up about this time their stout erect flower-scapes, each bearing a head of long-anthered flowers surrounded by large oval-shaped bracts, and the whole of a bright scarlet colour. After the flowers fade the leaves appear, a pair of large broad tongue-like leaves to each bulb. It is only when the bulbs attain to a large size that they flower well, and if a number of them are planted in a pan and treated liberally, so as to induce them to become root-bound, they are sure to produce their brilliant flower-heads annually. *H. coccineus* belongs to the two-leaved section of the genus, the other stem-leaved section being represented by *H. Kalbreyeri*, one of the most beautiful of the genus and which requires stove treatment; *H. cinnabarinus*, also a handsome flowered stove bulb; and *H. Catharine*, recently figured in the *Botanical Magazine*, and which is very successfully managed by Mr. Gumbleton in his garden at Cork. There is an exceedingly fine variety of this species known by the name of *Alice Barr*. Most of the Blood flowers are handsome flowered plants, and some of them have an additional attraction in their large, bright green fleshy leaves and the manner of their production.

**Lemoine's Gladioli.**—I send you spikes of two of M. Lemoine's hybrid *Gladioli*, viz., *Enfant de Nancy* and *Incendie*. I think you will agree with me that they are very beautiful. The colours are brilliant and difficult to describe. M. Lemoine's description of that of the former is "sang pourpré, divisions inférieures entièrement cramoisi noir, couleur inconnue dans les *Glaieuls*," and of that of the latter, "vermillon brillant, gorge rose, deux des divisions inférieures entièrement écarlate pourpre." This description appears to me to be a very good one, and is certainly better than any I could give. If the plants are really hardy, they will be found to be acquisitions. I am the more pleased with them, as I was very much disappointed with two of the first of the hybrids M. Lemoine sent out, viz., *Lemoinei* and *Marie Lemoine*. The plate of these in THE GARDEN was much too flattering; the colours, and particularly those of *Marie Lemoine*, are dull and

unattractive, and, in fact, in complete contrast to those of the varieties which I now send. I doubted whether my bulbs were true, but as I had *Lemoinei* from M. Lemoine direct, I think there can be no doubt as to that. I send a spike of *Lemoinei*, which is better than *Marie Lemoine*, but, at the same time, far inferior to the later hybrids. It is a feature of these hybrids that the flower-stems frequently have a branch with a second spike of flowers. One may be seen on the spike of *Enfant de Nancy*.—W. H. T., *Sprouton*.

**National Pear Conference.**—The arrangements for the coming exhibition of Pears and conference of Pear growers, to be held at Chiswick during next month, are, we understand, progressing favourably. Cards are now being issued with spaces for giving the name, season, average fertility, stock, and general description. These are intended to be used by the exhibitors for each separate dish or variety submitted. Exhibitors will be requested to fill in the required particulars wherever it is possible to do so. Where the name of the variety or stock may be unknown the space may be left blank. The cards being numbered, exhibitors should, in packing their fruit, use a corresponding number with each variety. At the close of the exhibition these cards will be collected and retained by the committee for future reference. A form to be filled up by exhibitors has also been prepared, which is intended to give the following information: Exhibitor's name and address. Number of varieties exhibited. Situation where grown, sheltered or otherwise, aspect, &c. Character of soil, subsoil, &c. Selection of varieties most suited to district, arranged for the following seasons—viz., July and August, three varieties; September, three varieties; October, six varieties; November, six varieties; December, six varieties; January to March, six varieties. Selection of varieties suited for orchard cultivation, not exceeding twelve. Selection of stewing Pears, four varieties. General remarks, as to modes of cultivation, pruning, stocks, &c. These forms can be had from Mr. A. F. Barron, the society's superintendent at Chiswick, who will also give any information needed respecting the conference.

**Gardeners' Royal Benevolent Institution.**—The late Mr. J. S. Law, of South Lodge, Enfield, has, we are informed by Mr. Cutler, left a legacy of £100, free of duty, to this institution.

## HOLMWOOD AND ITS SURROUNDINGS.

No part of Surrey is richer in beautiful scenery than the neighbourhood of Dorking, and making this his headquarters, the tourist in searching for the beautiful may become acquainted with some charming scenes by making short excursions in any direction he may think fit. The other day we gave illustrations of Betchworth Park, a place which delights all who see it, and so does the Deepdene and Chert Parks; continuing southwards, towards the Sussex boundary, the extensive common of Holmwood (or Homewood, as it was anciently called) is reached. It lies a mile or two distant from Dorking, and from it extensive prospects charmingly picturesque may be had on all sides. Formerly Holmwood was a famous chase of the Earls of Warren, and it is not less interesting at the present day. Hilly Reigate lies to the eastward, but lacks the grand old trees which characterise Holmwood. Boxhill, so well known to tourists as well as to those who search for rare native plants, lies somewhat to the north of this point, and at the foot of it stretches out the Vale of Mickleham, through which the Mole winds its sluggish course. This neighbourhood is celebrated for its Yews, which are very ancient; probably no more beautiful Yew groves now exist than those on the downs about Cherkley Court, which lies between Mickleham and Dorking. After exhausting the more striking features of the district in that direction, let us take a westerly course; here may be found the famous gardens at The Denbies and Bury Hill, particularly at the latter place, where there exists one of the finest collections of Conifers in the country. The light sandstone formation in this locality apparently suits Conifers of all kinds well, more especially the rarer kinds of Pines. Anyone, indeed, bent solely on seeing good gardens could not fail to find them in the neighbourhood of Dorking.



## AMERICAN FLOWER TRADE.

The following address, read by Mr. John Thorpe, president of the Society of American Florists, which held its first meeting, at Cincinnati, Ohio, U.S., on August 11, 12, and 13, has been kindly sent to us by Mr. Peter Henderson. Mr. Thorpe, he says, is one of the most enterprising of American florists. He is also well known to many of our leading English gardeners and florists, and, therefore, what he has to say in reference to florist work we feel sure will be read with interest. This new florists' association was the conception of Mr. Thorpe, and almost entirely organised by him, and when it is stated that upwards of 600 professional florists, representing nearly every state and territory in the United States, were present, many of them travelling from 500 to 1000 miles to get to the rallying point, some idea of the importance of the enterprise amongst American florists may be conceived. Mr. Thorpe may, therefore, well be proud of his work.

There are not less than 8000 florists, he said, engaged either in growing plants or in raising cut flowers for sale. Allowing 400 feet of glass-covered surface to each florist gives us a total of 3,200,000 square feet; in other words, 630 acres. Calculating that half of the glass structures are used for growing plants, and that one-third of the space is actually occupied by them, and averaging the size of pots used at 3 inches diameter, and allowing two crops each year, the number of plants would be about 40,000,000. The remaining half of the glass structures are used for the purpose of growing cut flowers, of which the actual number produced is almost incredible. I can state, however, that during the past season, beginning with November and ending with April, nine large growers of Roses sent into the New York market close upon 4,000,000 flowers, and when I state that this was not over 50 per cent. of the Roses sent to New York alone, the magnitude of the work of Rose-growing will be imagined. The Roses grown around Boston, Philadelphia, Pittsburg, Cleveland, Chicago, Washington, and all other places could not be less than twice as many as were produced for the New York market. This would bring up the number of cut Roses produced during the past season to 24,000,000. It would be safe to multiply the number of Carnation flowers produced in the same time from all sources by at least five. This would give 120,000,000. Fabulous as this may seem, I feel that my calculations are rather under than over the actual number placed in the market. It would, moreover, be safe to state that at least one-fourth as many Roses and Carnations are annually raised by amateurs for their own enjoyment, representing as much value as if they were thrown on the market and sold over the counter. Of various other flowers, though not in the same proportion, there are produced many millions. Of the bulb trade I have no actual data from which to make a close estimate, but it is safe to say that not less than £40,000 worth were actually imported

during the last twelve months. The bulk consisted of Hyacinths and Tulips, more than one-half being used to force for cut flowers; this does not include 500,000 Lilies of the Valley. Thus far I have not said anything about a very important branch of the business or those engaged in it. I refer to the florist's supplies and requisites—important factors in the trade. The number thus engaged is estimated at 700. The most important articles are shapes for floral designs, such as ornamental baskets, vases in glass and porcelain, and other wares, wire-work, holders for bouquets, tinfoil, wire for stemming, different papers for packing and wrapping flowers, and other articles used in the business. The actual amount of capital invested

American trade. In addition to this there is nearly as much area of land, and as much glass and more than half as much labour devoted to the cultivation of flowers by private growers; yet, notwithstanding all this, and the fact that we deserve recognition as educators of the people, florists, both public and private, have been unrepresented by any organisation until the Society of American Florists was established.

Let us see how the business has grown in ten years. In numbers we have grown four-fold, in volume of business six-fold, and in value just as much. At the sale of plants at public auction in ten weeks, the past spring, there were not less than 1,000,000 disposed of; ten years since there were not 10,000. At that

time there were scarcely twenty catalogues published in a year, now there are hundreds; and as to illustrated catalogues, they were then unknown. The florist's catalogues of today are not merely lists of plants, but they are works of art. The more catalogues distributed the better. They stir up an interest in flowers, educate the people to love them, and incite a desire for something new. Flowers and plants are used now at all social and public meetings, even in the smallest villages. In passing through the country, remote from centres of population, the florist's hand is seen everywhere. Beds of annuals, clusters of Roses, and borders of other flowers are found near every home. While a few years ago the only flower seeds sown were those saved from year to year, or those only bought for a few cents at groceries, there are now tons of seed sold, such as Mignonette, Sweet Peas, Asters, Phloxes, and Pansies. Spring flower-

ing bulbs were rarely ever seen, excepting, perhaps, a few Crocuses, Tulips, and Snowdrops, which struggled along from year to year almost unobserved. How is it now? Beds of spring flowering bulbs are as plentiful as Pelargoniums were ten years ago. I can re-

member eleven years ago in Cleveland seeing a bed of Tulips in Pearl-street—only one. Next year in Franklin-street there was one. Next year there were a dozen, and a year or two afterwards nearly every garden had one. Our friend of Pearl-street—I say our friend because he was a friend to us all; moreover, he was a dear lover of flowers—set the fashion of having beds of Tulips in Cleveland; he advertised bulbs for us all. It would pay us to give away 500 bulbs to every village in the country.

**A fine Martagon Lily.**—Here with us in a Dublin town garden the common Martagon Lily often bears from twenty to thirty flowers on a stem, and L. Martagon fl.-pl. even more, but I was in an old cottage garden a few weeks ago and counted seventy flowers on a single stem of L. Martagon album, from twenty to thirty only being our own average. I suppose this variable Lily is from the woods of Europe, as it seems to do best in flickering shade along with Crown Imperials.—B.



A Stream in Holmwood Park, Surrey.

in this branch is in the aggregate many hundreds of thousands of dollars, employing more labour in proportion than does the florist proper. Most of those engaged in this branch have other business relations, either as seedsmen, dealers in bulbs, or cut flowers. Then we have the army of cut-flower men—not producers, but those who make a business entirely of selling flowers either made into shapes or loosely. This is a growing branch, and to-day there are not less than 2000 employed in it.

The land occupied by flowering plants and bulbs of all kinds scattered over the country must aggregate at least 12,000 acres, in addition to several thousand acres used for growing flower seeds. This is accounting only for land so occupied in America. It would not be too much to say that fully half as much land in Europe is also used in the same manner for the



## NOTES.

**Aster ptarmicoides.**—Whence and when came this dwarf and grassy-leaved Aster to our gardens? It is now in flower at 12 inches to 15 inches in height, and has dense corymbose heads of milk-white blossoms. As seen growing, it is most distinct and beautiful, and for cut flowers it is invaluable.

**Billardiera longifolia.**—The blue berries of this elegant trailing shrub are now most lovely, much more so than are its greenish bell-shaped blossoms in May. Seeing that cuttings and seeds alike grow freely, one the more wonders that it is less often seen than plants less beautiful.

**On a sunny wall** among the great glistening leaves there is a white globe shining, as round and as soft as a dove's breast. What is it, do you say? Oh! well, it is only the pure cup of the great-flowered Magnolia, full of delicious warmth and fraught with nectar fit for a sun god. The Passion flower, thick-set with stars, is beside it for contrast and for company, and the flies and red Admiral butterflies are hovering over the Eupatorium flowers that best please them.

**Single Pæonies** are now so popular, that one the more wonders that our only native species should seemingly be so rare. Of course, it is tabooed in its native habitat, which is right and proper, or it would soon cease to exist. Its habitat is the steep Holme Island, in the Bristol Channel, but I am not aware if it fruits there. Its fully opened pods are very pretty at this season when they burst open in the sun, showing their crimson and black seeds. Or if gathered and brought indoors ere they open, they soon do so in a warm room, somewhat in the same way as do the fruits of the Gladwin Iris of the Hampshire woods and hedges.

**Autumn Anemones.**—The Crown Windflowers are now in blossom from seed sown in March last, and as late autumn or mild winter blossoms, no other flowers are so gay and sparkling. They are of all colours, but the blood-scarlets are to my mind most lovely, as they open their petals and expose their lovely black eyes to the sunshine of these showery September days.

**For small gardens,** few plants are so generally valuable and long-enduring as the best of the Violas. What can be finer in its way than Viola Mrs. Gray or that deliciously fragrant Mrs. Clarke, which I had from the raiser and which is generally admired? One of the most distinct and effective of the less well known kinds is Jackanapes, which Miss Jekyll sent us from that home of flowers at Munstead—a bright golden blossom with upper petals of rich warm brown. On hot, dry soils cow manure is the best stimulant, and by its use there need be no great difficulty in growing any or all of the Pansy tribe.

VERONICA.

## STATUES IN THE GARDEN.

ALLOW me to make a few observations on "Salmoniceps'" remarks about statuary in English gardens. While agreeing with him as to the beauty of the contrast between the cold grey stone of the column at Chiswick and the soft pink of a Rose which straggled over it, I deprecate the introduction of statues and pillars as a rule. The classical style of gardening introduced into this country by Le Nôtre in the reign of Charles II. had many admirers at the time, and it doubtless possessed a beauty of its own; but it is a taste hardly adapted for our chilly, changeable climate. Lovely, indeed, are the villa gardens near Rome and in other parts of Italy. The gods and nymphs who people these classic glades look quite in their proper places, for the air of Italy is full of ancient associations connected with a dead and gone religion. As you wander in those delicious pleasure grounds, with the scent of May flowers, amid Orange and Lemon groves, you may well fancy yourself back in the days "when the old gods reigned," as a Roman peasant said to the historian Ampère. The garden of the Palazzo Doria at Genoa, with its tall funeral Cypresses and the great fountain and its marble eagles, is one of the sights of the Riviera di Ponente. It is very beautiful, and strikes the eyes of the wanderer

from Northern Europe. But because a thing is charming in Italy under a bright sky and amid vivid lights and deep, but luminous, shadows, would it look equally well if transferred to an English garden with its homely trees and hardy flowers, beneath a cloudy heaven, where the days are often dull and dismal?

The Wistaria, which, as far as I know, still garlands the façade of severe, but correct, style at Corpus Christi College, no doubt gains greatly from its contact with the stone which forms a fitting background for its soft blue clusters and bright green leaves, and no person of taste could object to this contrast. Indeed, statues would not be out of place in the gardens belonging to these abodes of learning, the classic shades consecrated to the study of the literature of antiquity. They are the exceptions to our rule. But when I see damp Moss-grown figures shivering beneath the wintry blasts which are so often our portion in this northern isle, I am forcibly reminded of the words of the old Irish song which describes a garden such as your correspondent would delight in—

There are statues gracin  
This noble place in—  
All haythen gods and nymphs so fair;  
Bold Neptune, Cæsar, and Nebuchadnezzar  
All standing naked in the cauld open air.

There is one ornament which is never out of place in a garden—a sun-dial—standing, as one often sees it, on a plot of smooth-shaven turf, and casting its long shadow on the Grass. It commonly bears some quaint motto, the wisdom of other days, and silently marks "Time's thievish progress." Most of us who have travelled in our own and other countries can recall picturesque sun-dials which appeared to occupy their proper place in an old-fashioned garden. To refer again to statues, a relative of ours was the happy possessor of a garden in the suburbs of London which we all thought nearly perfect. I visited him some time ago and found to my disgust that he had recently attended a sale and purchased some plaster of Paris figures of great Apollo and smirking Pan, with other divinities rural and otherwise. His pretty garden was henceforth disfigured, and its somewhat limited space crowded with these intruders. To make matters worse, he had had them carefully cleaned. They looked ghastly on drizzling November days.

W. N.

## GARDEN DESTROYERS.

## RED SPIDER ON PEACH TREES.

THE other day a correspondent asked how he could get rid of red spider on his Peach trees, it having for years defied every effort to dislodge it. He but expresses the experience of many more besides himself with regard to this plague, which is perhaps the most common, as well as the worst, which attacks fruit trees. Its attacks are most destructive, and often the cause of crops failing altogether, or failing to ripen properly, as when it attacks a tree to any serious extent it entirely destroys the foliage long before it reaches maturity, ruining the crop for that season and probably for the next also. It is a pest that can be prevented more easily than cured, because, when once established, nothing short of rubbing and washing by the hand will remove it. Preventive measures must not only be sought for by cleaning the trees and houses of the insects and their eggs in the winter time, when the leaves have fallen and such work can be done, but more particularly by promoting a healthy growth in the trees themselves, so as to enable them to resist the enemy's attacks. Red spider infests Vines, Peaches, Apples, Pears, Apricots, Gooseberries, Figs, and many other kinds of trees and plants. During the past dry summer it has been very destructive out of doors on dry soils. At one time I had to contend with this pest when it might have been said to be chronic on the trees, and did incalculable injury. Both vineries and Peach houses were very extensive, not to speak of other fruits, such as pot Strawberries, &c. Annual preventive measures consisted in first peeling every bit of loose bark off the Vines, which took a long time, having to be done with care, by hand. Next, in washing and scrubbing both Vines and Peaches with stiff brushes and soap and

water, after which they were painted all over with a composition that was supposed to destroy or seal up any insects or eggs that were left. In addition, the roof and sides of the houses were whitewashed and cleaned as thoroughly as possible. The object of all these measures was to stamp out the spider; but they were perfectly futile, for when the time arrived when the spider might have been expected to make its appearance, it did appear, and was always very destructive. This has been the experience of mostly all who have had much trouble from spider, and there is now a general concurrence of opinion that winter peelings and dressings are of little or no use, and they have been generally discontinued. The fact is, red spider is so common everywhere, that it soon spreads whenever the conditions are favourable to its existence, and the idea of stamping it out is a hopeless one. The rapidity with which it spreads over a vinery is marvellous, and when once it gets very bad it can hardly be eradicated that year.

A KNOWLEDGE OF ITS HABITS is essential to those who have to contend with it. Red spider is a mite, closely allied to the itch mite, and it is worth noting that sulphur is the only effective antidote in both cases, only it cannot be applied to the leaves of plants as effectually as to the skin of an animal; hence sulphur, although commonly used against spider on Vines and Peaches, does not arrest its ravages very much once it has gained a footing. There are many amateurs who do not know when their trees are attacked by spider, although its destructive effects are easily discernible. This insect is hardly visible to the naked eye, but a magnifying glass of ordinary power will reveal it in thousands in all stages of development. It usually attacks the under side of the leaf, spreads its invisible web over the entire surface, and sucks the juices out of it till it dies. If not checked in time it will injure the foliage so much before the latter has fulfilled its functions, and the wood and buds have become matured, that both the current year's and the next year's crop may, as I have said, be lost. The presence of the pest may be detected before it does much damage; whenever a leaf is noticed with a rusty-red or brown-looking appearance, unless something else can be assigned as the cause, it will be found there, and may be expected to spread rapidly. As a rule, it attacks the weakest varieties of trees first, and even the weakest branches or limbs—a fact in itself which points to the kind of preventive means to be taken. When anything tends to check the flow of sap and starve the foliage on any part of a tree, spider may be expected there. In one of the vineries here once it invariably made its appearance first on the top of one Vine, above a knot that had been caused by a too tight tie years previously, and by which the circulation of the sap was checked at that point. In the garden referred to above also spider used to be destructive to the Apple trees, and for many years it was noticed to attack a particular branch of one tree before it appeared elsewhere, and to be always worst there. This branch was nearly eaten through at the base by canker, and, the circulation being feeble and growth poor, the foliage fell an easy prey to the invader. It is always worst also on trees under glass, on those branches nearest to the hot-water pipes and flues, and is notoriously destructive in houses forced early where most fire-heat is employed. Outdoors it is worst on heated walls and in hot seasons; in short, whenever the air is parched and dry or the soil dry and poor.

PREVENTIVE MEASURES.—Deferring remarks on the subject of clearing spider off the foliage after it has gained a footing, I will first speak of prevention. I have little doubt, from what your correspondent says, that his trees are suffering from excessive dryness, either at the root or top, and consequently not making vigorous growth; or, what is much the same thing, they may have lost their roots from some cause, thereby starving the foliage. Under any circumstances, he, or anyone else similarly situated, should begin by fighting the enemy through the roots of the trees, and promoting thereby stronger health in the branches, so as to enable them to resist or outgrow any attacks. First, it should be ascertained if the roots are sound to their extremities, which can be done by examination at a few places. If they are



not in good condition, but have rotted from any cause, then they should be lifted, and re-planted in good and properly drained soil; but if they are alive and active, though poor and weak, they need not be disturbed, but some of the poor soil from the surface should be removed, and a dressing of good soil and cow manure applied, as also a sprinkling of Standen's manure. If the soil be dry, it should be thoroughly watered, and be kept watered summer and winter, and frequent applications of liquid manure from the farm tank should be given even now and at intervals during the entire season. If the trees are poor, this alone will work wonders; but if they are in a good, strong soil, and only suffering from want of water at the roots, less manure water will be needed. At all events, the roots and border must be seen to first, and put in healthy order, if either are wrong from any cause. That step is of more importance than all the others. Next, at pruning time, the shoots should be cut back to where they are ripe, and the trees should not be started too early. If under glass, and subjected to artificial heat, high night temperatures must be carefully avoided, as one of the worst encouragements to spider. The day heat may be kept up as usual, but the pipes or flues should be allowed to become almost quite cold in the evening. Before the trees are started into growth for next season they should get a

and save waterings, which, nevertheless, must be applied regularly. Many fruit tree borders suffer from drought without its being suspected till red spider or something else makes its appearance.

**CURATIVE MEASURES.**—By this term I mean destroying red spider after it has established itself on the trees, a thing not easily accomplished, except by sponging the leaves with soap and water by hand—practicable to some extent on Vines before they become generally infected, and with pot plants, but hardly with Peaches. Syringing vigorously with clean water is commonly resorted to, but we have proved many a time that that does not dislodge the spider; for on Vine leaves hard syringed for half an hour at a time we have found the spider quite lively again as soon as the leaves became dry. The best plan is to wet the foliage with strong soapy water every evening for a week, and to keep it drenched all the night by letting the house be cool and close, thereby preventing evaporation. This will kill many of the insects and sicken others; if evening syringing be continued with weak soapy water, as before advised, spider may be finally got under. There are other and more potent antidotes for spider in the market, but they are not so harmless as the soap, which is quite safe. It is many years since we saw it first used in an extensive range of fruit houses, where the foliage was maintained in a green and healthy state,



*Herbertia pulchella.*

thorough syringing with soap and water, in which plenty of flowers of sulphur has been stirred, and after the leaves appear the trees should be syringed every afternoon, except on dull days, with water in which sufficient soft soap has been dissolved to colour it pretty well. This should be applied both ways, so as to wet the leaves thoroughly on both sides, and a gentle force will do this well enough. It does no good, but injury to the leaves to dash them with water. Of course the water should be nearly of the same temperature as that of the house or air. If these things are done, and persevered in, I venture to say that no one will be much troubled with spider on Peach trees. On Vines the difficulty is that the syringings cannot be so well applied as to Peaches after the fruit is set, but the other directions hold good. I have long given over applying sulphur to the leaves by means of the syringe, or painting the hot-water pipes with it, because, unless they are made very hot, the sulphur is inert, and the heating does as much injury as the sulphur does good. These directions apply to outdoor trees as well, only the syringing should be applied late in the evening. As I have said, spider is much worse on some soils than others. Light or sandy soils are worst, probably because they are most liable to become dry. In all such cases mulchings of manure should be applied early in the year, and be kept on till it is time to renew them. They will keep the driest soils moist

such as I have never seen elsewhere. A large tub of strong soapy water was made up once a week or a fortnight, and sufficient was put in the can when wanted to make the water pretty white, and the trees got it in this state every time they were syringed. I have seen spider quite killed out for the time by its use alone.

J. S. W.

#### HERBERTIA PULCHELLA.

THIS remarkably beautiful little Irid has succeeded well in a sunny border in light soil. Received from a friend who had it direct from Uruguay, it was planted during the first days of June, came into bloom at the end of that month, and gave flowers in succession throughout July and August. The engraving is of a flower from a rather weak bulb, giving one flower only on a short stalk, though this flower is about the full size. The more usual character of the plant is to have one flower-stalk about 8 inches high, branching into three, and bearing five or six flowers in succession. The colour is a clear, rich violet-purple with a wedge of clean white in the upper middle part of each petal; the texture is delicate with a bright satin-like lustre. The flowers are extremely fugacious, lasting only a few hours. Its hardiness with us has not yet been fully proved.

West Surrey.

G. J.

## KITCHEN GARDEN.

### WINTER SALADING.

AMONG contributions from the garden during winter, few are of more importance than a continuous supply of salading, and nothing will do more to insure that than being well forward with sowing and planting. Endive is one of the subjects that require immediate attention, and to select suitable varieties is by no means difficult, although there is a long list of kinds in most seedsmen's catalogues. Still, if we can get a good selection of Digswell Prize amongst curly-leaved sorts and White Batavian, no others will be needed. The Digswell Prize is the most suitable for early winter supply; two sowings of it should be made, one early in August and another a month later; this last is necessary to prevent the possibility of a breakdown, for if mild weather should continue late in autumn, there is a possibility of the first lot getting too large to go safely through the winter, and unless there is a special demand for the plain-leaved Batavian, one sowing made early in August will suffice. As soon as the plants are large enough to handle, they must be planted out in rich well-prepared ground, for quick growth is necessary to secure plants of a suitable size. To make sure of an uninterrupted supply through all kinds of weather, a protection of some sort is necessary, and cold pits filled with soil to within one foot of the glass are the most reliable, as they make it secure against the severest frost. Cold frames may also be utilised, but they require more external coverings during severe weather. About the last week in October is a good time to get the winter supply planted in the pits. To secure a supply from the open ground, a good stock of plants should be put out about the end of September in warm and sheltered borders, where the first early frost is not likely to do it much harm; the foot of a south wall is a capital place for this planting. Nearly every gardener has his favourite way of blanching Endive, but tying it up as one does Lettuces answers as well as any. In many cases Lettuces are as important a crop as Endive, but a constant supply cannot be relied upon all the winter, except there is the means of affording suitable protection under glass, as Lettuces are more tender than Endive, and suffer a good deal from damp when kept in a confined atmosphere. The best sorts for winter are the Brown Cos and Hardy Hammersmith, the last named being a Cabbage Lettuce and very hardy. Of these it is also necessary to make two sowings, for the same reasons as that given in the case of Endive, only the first sowing must be made about the third week in July and another about the middle of August. I find it best to sow the seed thinly over a good space of surface, to prevent transplanting, pulling out the plants where too thick. In lifting the plants to be placed in their winter quarters, care should be taken to get a ball of earth with them, and if they should want water at any time, it should be given without wetting the leaves. Severe frost must be kept from them, or they will quickly rot. Onions often require to be pulled for salad when quite young, and, when for winter use, the seed should be sown from the 4th to the 12th of August. If sown earlier, the plants get so large that frost is apt to injure them. The ground for Onions requires to be in fairly good heart and deeply dug, yet the surface, when dry, requires to be made firm. It is best to sow in drills, as then the seed is not only buried to a uniform depth, but more convenience is afforded for getting between the rows. There are several varieties suitable for autumn sowing, but there is no better or hardier sort than the Globe-shaped Tripoli. The Early White Naples is a useful variety where more than one sort is wanted. The Witloof Chicory is useful for filling up a gap when both Endive and Lettuces are not available. Its only merit is that it can be had with very little trouble, and it is so hardy, that no sort of weather hurts it. A little seed sown in May in an open border, and the plants thinned out in June, is about all the work necessary in connection with it, except it be to take up a few of the roots as wanted. If half a dozen of these are placed in some soil in a 7-inch pot, and an inverted pot is put over them, and set in any dark corner of a warm house, a continuous supply of leaves may be had all the winter. In order



to keep up a supply of Tarragon so as to have it in a green state in winter, a few strong, well-established plants should now have all their summer growth cut down close to the ground. In a few weeks the root may be lifted and put into a 7-inch pot. If then put into a cold pit, shoots will soon begin to make their appearance. At the end of October the pots must be placed in a warm house in a light, airy position, where they will continue to make sufficient growth to afford a supply all winter. If a large supply is required, relays of plants will be necessary. Chives, when specially grown for a winter supply, come in admirably to take the place of young Onions when frost and snow are upon the ground. The simplest way of growing them is to have a few 7-inch pots filled with the bulbs during summer when at rest. If these are kept in cold frames during the autumn, and a pot or two is introduced into a warm temperature at different times, a constant supply may be kept up. Add to the foregoing Beetroot and Mustard and Cress, which everyone knows how to grow, and there will be no lack of first-class materials to fill the salad bowl, even in the severest of winters. J. C. C.

### POTATOES SPROUTING.

THE tropical heat experienced during the summer, coupled with extreme dryness, has had the effect of shortening the growing period of Potatoes, and more especially those sorts without any American blood in them. American Rose and its numerous so-called improvements, most of which are very doubtful advances indeed, would appear to delight in a hot dry season; in fact, these sorts are generally failures on all but light soils during a wet season. Those, therefore, who still grow them have been enabled to lift and store a really good crop of tubers this year; they are said to be particularly good in quality. The Ashleaves, consisting of different sorts, have also been fairly profitable and turn out without any trace of disease, the quality, it is almost needless to add, being first-class. In some districts the Ashleaves matured their crops without once getting a really heavy shower. Potatoes, indeed, do not require a great amount of rainfall, that is, provided the ground is thoroughly well pulverised and otherwise properly prepared for them. It is the second early and late sorts that have suffered most from dryness, and, as far as the southern counties are concerned, I should say the crop will be a light one; while unless active precautionary measures are at once taken the quality of the late sorts will be greatly impaired. In our case if the dry weather had lasted till the end of August the haulm would have died down, but a few showers during dull weather experienced about the second week in August had a reviving effect, and the haulm commenced to grow afresh and bloomed a second time. Not liking this state of affairs, I examined the roots, and, as I expected, found that the tubers were likewise sprouting in some cases, and in others supertuberating. If this had been allowed to go on for a few days longer, the crop would have been spoilt, as neither the first formed crop nor the growth resulting from the same would have been fit to eat. The skins of the tubers were sufficiently set to admit of their being safely lifted and stored, but as we were not in a position to do this, the next best thing was to pull up the whole of the haulm, the men standing on the ridges while this was being done, in order to prevent any of the tubers being brought to the surface. Several inexperienced growers have asked my advance in the matter, and the consequence is all have either lifted their crops or drawn the haulm. Our labourers are the slowest to adopt the plan, but all those who neglect to take these ordinary precautions will regret it later on. In many gardens where sprouting had not already commenced prior to the glorious rains which fell during this week (ending August 29), it is almost certain now to commence, and it will proceed rapidly unless prevented by lifting or drawing the haulm. The worst offender in our case is the Scotch Champion, this being later and the haulm much greener than the Magnum Bonum. A hot season appears to suit the latter, and I have recently seen really good crops of it in this neighbourhood, but the Champions will be small and uglier than ever, though the quality is very good, as usual. Early lifting and storing will admit of various plots of ground

being utilised with such crops as Turnips, greens, Coleworts, all of which are certain to be serviceable, as there is every prospect of a scarcity of winter vegetables. My advice may be rather late for the south and south-western districts, but in less favoured localities the case may be different.

W. I. M.

### TRANSPLANTING SUMMER LETTUCES.

I CANNOT quite agree with "J. G." (p. 195) in his condemnation of this practice. I was at one time expected to keep up a constant supply of this salad plant throughout the summer months; indeed, I may say that such a supply was expected the whole year round, or nearly so, and so far as I can recollect there was seldom much cause for complaint, although our soil was by no means of a moist character, nor was the climate a showery one. As regards the summer supply, a favourite variety was the Paris Green Cos. For this a border was generally prepared by being well manured and deeply dug, and an east or west aspect was preferred to either a south or north one. Drills were drawn across this border at about 15 inches apart; water was then poured into the drills, and the seed was sown upon the wet soil and immediately covered in and the surface rendered smooth by means of a garden rake. Only a few rows or lines were sown at a time, and as soon as the seedling plants were large enough to handle they were thinned out to the proper distance apart, while the thinnings, or the necessary portion of them, which had been carefully lifted with a trowel were planted in watered drills similar to those in which the seed had been sown. Showery weather was, of course, preferred for transplanting, and if the weather was dry the plants were well watered each evening for a few days, or until they became fairly established. These transplanted Lettuces generally came into use some eight or ten days later than those which had not been transplanted. But the transplanted ones were, nevertheless, invariably found to be in all respects the best. Some of the finest summer Lettuces I have any recollection of growing were planted on the ridges between the rows of Celery plants, the increased depth of soil proving beneficial to their development. These were always cleared off before the soil was required for moulding up the Celery. P. G.

5382.—**Seakale and its varieties.**—Information is asked respecting this vegetable, and as we have it growing wild not far from here, I will briefly allude to it in the hope that it may prove a useful guide for future operations. As regards varieties, the only difference I have observed in these wild Seakale plants and in many thousands of seedlings which I have raised is that some are much darker than others, but when properly blanched there is no appreciable difference amongst them. The largest plantations of native Seakale in this part are in the neighbourhood of Southampton, where it grows freely on the beach with the salt spray dashing over it, and at high tides it is frequently under seawater. The plants, most of which are of very large size, are in early spring covered with shingle. Just before any signs of growth are visible shingle is placed over each crown to the depth of rather more than a foot, and as soon as the Kale pushes through this it is fit for cutting, the heads being like good solid sticks of Celery averaging over one pound each and excellent when cooked. It is sold when plentiful at 6d. per pound in Southampton. From their appearance I should say that some of these old plants must have braved many years of storm and flood. As regards Seakale cultivation, nothing can be easier; give it good soil and plenty of room in which to develop its large leaves, and good crowns are sure to be the result. The plan of annually raising a supply of strong single-crowned plants after the manner of the London market gardeners has, to a great extent, caused the older plan of permanent beds to fall into disrepute; but grown in any form the produce of well established crowns, with all their roots entire and blanched by means of the ordinary Seakale pot, under a covering of manure, leaves, or other fermenting material, will be able to hold its own with that from plants lifted and forced. A good permanent

bed of Seakale never fails to yield by way of return for any labour expended on it an ample supply of delicious food, and by means of a few pots and fermenting material it can be had during at least four months of the year, when other vegetables are at their lowest ebb. Many who have had their green crops destroyed by frost have had reason to be thankful that a good supply of this hardy native plant has enabled them to keep up a supply of vegetables until the return of spring. In planting, trench 2 feet deep and plant in rows 3 feet apart; place three plants in the row, in a triangle, close enough together to be covered with a large pot when blanching, and with a good large bed and attention to successional covering of fresh crowns, there will be no difficulty in maintaining a constant supply. But if it is decided to get the supply from plants lifted and forced, all that is needed is to plant them in any dark warm position, such as the bottom of a Mushroom house, where the produce will soon be fit for use; but the plants are afterwards useless, and a fresh supply must be grown annually.—J. GROOM, *Gosport*.

### GARDEN FLORA.

#### PLATE 509.

#### THE CANTUAS.

(WITH A PLATE OF *C. DEPENDENS*.)

AMONGST all the Polemoniaceæ, in which are included the Phloxes, Gilias, and Cobaeas, the genus *Cantua* stands in the foremost rank. It comprises some half-dozen or so species, all of them natives of the mountainous regions of Peru and Bolivia, the homes of the tuberous Begonias, many Fuchsias, and numerous other popular garden plants. *Cantuas*, however, cannot be said to have been at any time popular in English gardens, though they were at one time often included among the groups of specimen greenhouse plants which were about a generation ago the central objects in plant exhibitions and the pride of every good cultivator. Even now, in a few old-fashioned gardens, particularly in Scotland, the *Cantuas* are found flourishing, but they are not so generally grown as they deserve to be, and as Sir Joseph Paxton, writing over thirty years ago, predicted they would be, seeing that, as he said, "There was no reason to doubt that they, or some of them, would be as hardy and as cultivable as the Fuchsia itself, and we may expect to see them in a few years in every cottager's garden." It will be said by some who have failed in their attempts to cultivate *Cantuas* that they belong to that class of garden plants known as "miffy" subjects, being difficult to keep in health and rarely flowering satisfactorily. But we may say with Sir J. Paxton, *Cantuas* are cultivable enough when they are properly treated, and there is no great art required to grow them well and have them in flower every year. This is borne out by the specimen here figured, which was grown by Mr. Scrase-Dickins, whose method of treatment for *C. dependens* is here detailed. In other gardens as well as in that of Mr. Dickins we have seen this plant thriving most satisfactorily when treated either as a trellis plant or trained upon pillars in a conservatory. Coming from the highest elevations of the Peruvian Andes, *C. dependens* will only thrive when planted in a cool greenhouse where it can be kept supplied with plenty of fresh air and water in summer, and allowed as much sunlight as possible all the year through. A light sandy loam, or a mixture of loam, peat, and sand, suit this plant, and the border or pot in which it is planted should be carefully drained. *C. dependens* is known generally as a distinct species, and when placed by the side of

\* Drawn at Coolhurst, Horsham, May 1.





CANTUA DEPENDENS.







the other garden kinds, including *C. buxifolia*, it is seen to possess characters sufficiently well marked to justify its being considered as such. But herbarium specimens reveal its close relationship with *C. buxifolia*, which is a very variable species, bearing flowers either crimson and yellow, or white and yellow, or, perhaps, merely yellow, and all these forms may, according to Lindley, be expected to appear from the same batch of seeds. In habit, too, and also in the form and hairiness of the leaves, there is the same disposition to vary. Botanically, therefore, *C. dependens* is merely a variety of *C. buxifolia*, distinguished by its more twiggy slender growth, its small, generally toothed foliage, and larger and more orange coloured flowers.

*C. BUXIFOLIA* has stouter leaves, a semi-erect habit, and, as represented in gardens, is second to *C. dependens* in the size and colours of its flowers; but still a beautiful plant, well worthy of a place in every collection of greenhouse plants. In Peru the flowers are often used to decorate rooms, churches, &c., on festive occasions. According to collectors, some of the native forms of this plant have almost white flowers. Garden specimens have flowers almost crimson, with the tube streaked with bright yellow. In some of the warmer parts of England and Ireland it has been known to thrive out-of-doors if trained against a south wall and protected during very severe weather; and no doubt this fact led Sir J. Paxton to speak so hopefully of its proving useful for outdoor cultivation in even cottagers' gardens. When well managed *C. buxifolia* forms a shrub 6 feet or 8 feet high, and flowers freely on the ends of the young shoots, its large, terminal corymbs of long, drooping flowers being produced in May or June.

*C. BICOLOR*.—A compact, erect-growing shrub, attaining a height of about 4 feet, with leaves an inch long, obovate and slightly hairy, the whole plant having the appearance of a small *Prunus*. The flowers are borne on the ends of the short, twiggy branches, only one flower on each, and are drooping, bell-shaped,  $1\frac{1}{2}$  inches long, the tube cylindrical and pale yellow, and the corolla lobes spreading so as to form a limb an inch across and bright scarlet. A well managed plant flowers profusely, and forms a most attractive inmate for the greenhouse or conservatory. It was introduced from Peru by Messrs. Veitch and Sons through their collector Lobb, in 1846. The very variable character of *C. buxifolia* at one time caused botanists to include *C. bicolor* as a variety of that species, whilst others suspected it was of hybrid origin. It was, however, stated by Messrs. Veitch that they had never any hybrid *Cantua*s, and that *C. bicolor* was introduced by Mr. Low, of Clapton, as well as by them by means of seeds. It is doubtful if this plant is now in cultivation; we have not met with it nor heard of its flowering anywhere in recent years; we should, therefore, be glad to know if it is in existence now in English gardens.

*C. PYRIFOLIA* is an erect-growing shrub of rather stiff habit, with variable, generally toothed leaves sometimes quite 3 inches long and 2 inches wide. The flowers are produced in terminal corymbs, twenty or more flowers in each, and are an inch long, erect, bell-shaped, the lobes not spreading; they are white, tinged with yellow on the tube, the calyx being green, tinged with red-brown. It was introduced by Messrs. J. Veitch and Sons, and flowered for the first time in March, 1848. This comprises the introduced species of *Cantua*. There is a figure in Andrews' "Repository" of what is there called *C. coronopifolia*, but it is really a species of *Gilia*, and is sometimes known as *Ipomopsis*. B. W.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the

best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.

## FLOWER GARDEN.

### IPOMÆAS OUT OF DOORS.

SOME time ago there was given in THE GARDEN an interesting account of several varieties of *Ipomæa* and a coloured plate of *I. rubro-cœrulea*. I have grown *Ipomæas* myself for about seven years, and therefore my experience in reference to them may not, perhaps, be uninteresting. As is stated in the article just alluded to that *Ipomæas* are too seldom met with, they are certainly, correctly speaking, greenhouse plants, and require a moderate degree of heat to induce them to properly expand their blooms during the autumn months, their natural season of flowering; but this is no more than many other more commonly grown and less beautiful plants need, and it is very easy in most places to sow the seeds early, and by careful culture to get *Ipomæas* in bloom by the later summer months. Moreover, in most seasons several of the varieties may be successfully grown and flowered without the aid of glass (except for raising) in the open air, at least in our southern and western counties. I have myself had good blooms of *I. rubro-cœrulea* in the open air in September and October just south of London, and this, too, on a heavy clay soil, though the situation was warm and sheltered. The blooms, under such circumstances, were, of course, not as large and well finished as they would have been under glass or in a warmer atmosphere; but the plants were not, in the case referred to, put out until rather late. If, however, the seed is sown in February or March, and the plants grown on carefully in pots inside until quite the end of May, then hardened and turned out into a bed of good soil on a sheltered southerly aspect, even the lovely *I. rubro-cœrulea*, the latest to flower of any I have tried, will do well in any average summer. Other kinds that I have grown are *I. limbata* elegantissima, *I. hederacea* superba and *I. rubro-cœrulea* alba, and *I. Quamoclit*. These are all well worth growing. The seed germinates readily in any fairly rich light soil, such as a mixture of mellow loam, leaf-mould, or peat, and sand. Good drainage must be used, and it is well to give water very sparingly until the seeds are well up, as they are rather apt to decay if kept too moist. Too much heat should also be avoided, from 60° to 65° being quite sufficient; moreover, these plants cannot be grown in too light a position, shade or gloom being fatal to them. The only insect with which they are troubled is red spider, which must be kept down by liberal culture and a proper amount of moisture.

*I. RUBRO-CÆRULEA* is without doubt the gem of the lot. Its strong, smooth stem, large, handsome heart-shaped deep green leaves, destitute of hairs, and abundant buds and blossoms render it always a striking object, but its crowning glory is the exquisite colour of its flowers, as its name denotes, truly described as "heavenly." As seedlings, the hue of the flowers varies somewhat; even if the seed is saved true, and when one or more other varieties, such as *I. limbata* elegantissima (which I consider ranks next in beauty), are grown along with it, and seed is saved from these, they seem to become to some extent hybridised, at least in colour, and a range of the most exquisite blues, from lightest cobalt

to deepest ultramarine, in some cases largely tinted with purple, is obtained, while the delicate white or whitish edges of the last named variety affords an additional contrast.

The white-flowered kinds are very handsome, but it is the richness, yet delicacy, of colour in the blue-blossomed varieties that makes the *Ipomæas* remarkable. I cannot call to mind any other flower that can be compared with them in this respect; the blue of the *Gentians* is rich, but opaque and heavy; that of *Delphiniums* dull in contrast; and we must go to the sky itself, or the sea, to find anything to equal the tints of these *Ipomæas*. I may add that *I. rubro-cœrulea* with me frequently comes blotched and striped, sometimes heavily so, with rich carmine; this produces a striking effect. Has any other grower of *Ipomæas* noticed this?

B. C. R.

### NATURE IN THE GARDEN.

GIVEN a number of beautiful objects, and an artist or anyone else who has true art instinct will in most cases be able to group them successfully. What I meant in my former remarks (p. 215) was that the mere placing about of statues, fountains, and vases which are in themselves works of art, and the making of beds and walks subordinate to these, did not constitute a garden a work of art. The placing of trees, climbers, &c., amongst buildings is a perfectly legitimate way of adding to their effect. A garden is quite a different affair, and should be as much as possible a bit of real nature, as far as it can be made so. The instances of good combinations mentioned by "Salmoniceps" (p. 239) are all good in their way, though not a sixtieth part so beautiful as a Honeysuckle scrambling over a cottage porch, a climbing Rose wandering round a cottage chimney and over the Moss-grown tiles of its roof, or a China Rose trained up the rough stones of a cottage wall. The mention of the effect of flowers against grey stones and brick walls called to my mind hundreds of such instances in cottage gardens. There is no objection whatever to that kind of arrangement. What is objectionable is the conspicuous terrace, the stone edgings to beds, the vases and statuary of the cemetery type, and the general subordination of everything in a garden to artificial arrangements. All the conspicuous outlines in a garden should be as completely the outlines of plants as those in a woodland or wild scene, with just as much of the artificial as an artist could introduce into a picture in the shape of a church tower, bridge, shed, or gate. What was meant by saying that art should never be placed by the side of the nature it is derived from is strictly true. Conventional renderings of plants always look bad beside paintings of them or beside the plants themselves. J. D.

**Lawn mowers.**—Mr. Crump wishes to know how many knives there should be on a cylinder to produce the best effects. I have used several machines during the last few years, and tried almost all the various makes, and I should certainly say use three, or four knives at the outside, for a large machine. What any lawn mower can want with so many as eight knives I cannot imagine, except to cause heavy draught and a choke-up when it comes to a thick patch. These many-knived machines are only permissible on a very fine even turf, which is never allowed to get long; on long Grass or harsh or uneven turf they are useless, and always run heavily. The best machine I ever had was a Coventry with three blades and a rather high-speed gearing; this would take off anything and everything like a razor, and was easily picked up and carried from place to place. I shall never again buy a machine with more than three or four knives; if they leave the Grass at all "ribby," it is because they are not geared high enough. Between the blades of a many-knived cylinder there is no room for more than the tips of short Grass to get, and the distance between each being so small, the cylinder never gets any impetus, so that the Grass is really more "scraped" off than cut, and if not kept very sharp and exactly adjusted



the machine will not cut. I know that I, or anybody else, could do twice as much work in a given time with a Coventry, or a machine of similar construction, than with the best six or eight-bladed mower that ever was made.—B. C. R.

#### HARDY PLANTS AT BEVERLEY.

AT Bar House, in this good old Yorkshire town, Dr. Appleton has a most interesting garden which he manages under many disadvantages. In a sense, there is indeed no garden—merely a longish narrow space between high walls—such a plot as in thousands of instances in towns is devoted to lumber or worse. At Bar House, however, there is a busy and vigorous mind which finds its happiest recreation in a more than ordinary artful form of plant culture; the old walls are hid amongst Roses and Clematises, and their darkness is relieved by variegated Ivies and Euonymuses; rockwork is formed around the whole space, and it is adorned with plants of such variety and beauty that one feels a vast amount of care and study has been devoted to their selection, arrangement, and culture. A stone-built mound, conveniently raised, is richly stocked with rare alpine plants, which, at a glance, one can see are the special pets of their owner. The darker parts are occupied by choice Himalayan Primroses, as well as other kinds; Violets, Grass of Parnassus, and similar things. A bit of Grass would have been missed had it not been wisely added; it is naturally placed without a sign of pretension. Cold frames, too, are well stocked with Cape bulbs, Bouvardias, Carnations, and the less hardy Primulas. An unheated greenhouse is a handy place in any garden, and with Dr. Appleton's mode of culture and class of plants, it is simply invaluable half the year. Another longish low-heated structure completes the glass-covered part of the garden; in it are grown succulents, Begonias, bulbs, and other plants of unusual types, as well as some of the finest Tea Roses. As a rule, everything is vigorous and healthy, and some plants remarkably so. Saxifraga (Megasea) purpurascens in a 10-inch pot was bright and strong; the Edelweiss was covered with seed. Campanula pulla I never saw more compact and strong on rockwork. Tricyrtis hirta was a deep green, and the big leaves furnished the stems to the lowest node in an unusual manner; the buds, which were plump, promised to enliven the dull November days when taken indoors. Irises, Veronicas, Linarias, Campanulas, Saxifrages, Potentillas, Delphiniums, Arabis, Drabas, Ranunculi, Primulas, and Androsaces are well represented. I consider that results such as we have at Bar House, and but so faintly shadowed in the foregoing, are a proof of the practicability of plant culture under difficulties, and that, too, of a high order. True, Dr. Appleton is a scientific gardener. He applies various kinds of food to the roots at certain periods of growth and with good results. I saw grit of various kinds of stone; lime, iron, sand, &c.; loams, stiff and silky; leaf mould of a "special brand," charcoal, white wood-ash, bone dust, and other manures. I wonder if some day we shall have a pharmacopœia for plants?

J. WOOD.

**Impatiens Sultani.**—Much has been written in THE GARDEN concerning the merits of this beautiful Balsam for decorating stoves and greenhouses, but as a plant for summer bedding little has been said. I saw the other week a border about 3 feet in width, facing the south, against a mansion planted with this Balsam, and few flowers could compare with it as regards effect. It stood from 18 inches to 2 feet in height, and was covered with flowers and so bushy, that the ground between the plants could not be seen. I am told that it does not do so well when planted in exposed positions. This Balsam is most useful on account of the ease and rapidity with which a number of plants of it can be raised.—H.

**Narcissus Henry Collins.**—This fine Daffodil has scarcely received due attention, probably because its introducers did not bring it forward very prominently last spring. Those, however, who noticed it at South Kensington in April will agree that it is a handsome and remarkable flower. It is really "distinct" (a sadly misused word in Daffodil lists), and

represents a new departure in Narcissus variation. The flower is of good size and very solid, and may be best described as a magnified N. Macleayi, or a large, wide-tubed yellow N. Nelsoni in shape. The trumpet is short, stout, and cylindrical, of a rich yellow; the perianth segments are broad and overlapping, set at a right or even slightly obtuse angle to the trumpet, and of a paler colour. A peculiar tone of buff or apricot in the yellow of this flower distinguishes it from that of other Daffodils. The plant has not yet been seen growing in England, but I should suppose it to be of dwarf and stout habit.—G. H. ENGLEHEART, *Applesharv, Andover.*

#### FINE-FOLIAGED HARDY THISTLES.

It is to be regretted that so few plants of a hardy character, and especially perennials, have been selected for embellishing our larger gardens, both private and public, instead of sub-tropical plants now so popular. Many hardy plants might be used in



*Cnicus conspicuus.*

sub-tropical bedding, and thus save both time and labour at a season when our hands are generally too full of other work. One never sees, for instance, the Cotton Thistle (*Onopordon*) used even in association with such plants as the Castor-oils, Eucalypti, or the handsome-foliaged Solanums, and yet it may be said to be one of the most beautiful and imposing plants which we possess in our hardy collections. Again, the Syrian Thistle (*Notobasis syriaca*), though only of annual duration, can be raised in the open ground much easier than Castor-oils, &c., which require hot-beds and incessant attention until almost ready to plant out. The Syrian Thistle grows rapidly until it attains from 5 feet to 8 feet in height, and furnishes a variety of colour to which not only leaves, but the 2-inch or 3-inch long spines and the curious flower-heads contribute. If we want to see Globe Artichokes, we must hie to the kitchen garden, where the stock is necessarily kept, but how many have seen a well-grown isolated specimen either in a sheltered spot on the lawn or in company with a few of our own native plants? Given good soil and rich feeding, and the result is not only a handsome specimen plant, but we have also fine, large, succulent heads, which may be cut and used for table without, if done judiciously, impairing in the least the beauty of the plant. *Cnicus conspicuus*, of which the above is an illustration, shows what plants of this kind may be expected to become; and although only hardy in well-

drained situations, it well repays the trouble of yearly raising it from seed, which it ripens in this country in ordinary summers. It grows 3 feet or 4 feet high, and its stems are covered abundantly with spiny ornamental leaves, and terminated with pretty scarlet heads that are quite in harmony with the almost black-green of the foliage. K.

#### NOTES ON HARDY PLANTS.

**DOUBLE ROCKETS.**—This is the time when some free growth at the base of the stems which have bloomed should be made. Those who do not succeed with these desirable flowers as they would like, and those who have found them to be more tiresome than usual these past two years, may find out all or part of the cause by a close examination of the young leaves. These will be seen to be badly eaten, in some cases totally, by young active caterpillars; many are rolled in the half destroyed leaves, others are quite free. I pointed out a similar pest on these plants in the spring of this year, and so persistent have I noticed these attacks to be on the Rockets, that I am sure it should form part of the regular cultural treatment of these plants to periodically seek and destroy the pest. There can be little doubt that some such pests as these are responsible for the difficulties experienced in keeping some things in a healthy state, and it is quite certain to my mind that if I did not look after these caterpillars now, the want of new and well-developed crowns would find me minus blooming plants next spring; indeed, many roots are rotting from the check they have suffered by leaf grazing.

A COMBINATION, pretty and perhaps unique for effect, may be had by growing such plants as Feather-Grass (*Stipa pennata*), the purple Lady's Bedstraw or Cheese-rennet (*Galium purpureum*), *Tunica Saxifraga*, and the golden *Spergula pilifera*; all are in character at the same time, and all have the light, almost feathery, habit, somewhat tufted or cushioned. They form a pleasing contrast, and yet it is not of a violent sort, but, like the hues of each, of a neutral order. If it is desired to use them formally, the Feather Grass, with its ripened tufts, topped by the prettily-curved and animated awns, giving a mist-like effect, should be set in the rear; then the sombre, gauzy, but rich Bedstraw; the *Tunica* coming next, would form a brighter line of rose, with its numerous flowers on almost invisible stems, somewhat dwarfer than the Bedstraw; then, lastly, the golden Spurry or *Spergula*, which, from its decided colour and dense habit, is well suited for the near and outer line; it forms a solid bottom for facing the *Tunica*, which is rather wanting in such a quality, and though it is much dwarfer, it does not compare amiss with the light tops or flowers of the latter; besides, in rich border soil, the *Spergula* will grow twice or three times the size it attains in hungry quarters, as on old walls, where, let me hint in passing, it is well worth a place. If the reader will supplement this faint description by some imagination as to what the effect of these common and easily-grown plants are likely to produce either in lines or contiguous groups, the idea may be worth a trial, and I am sure the quiet beauty will at least be commendable. All enjoy a well-drained border, enriched sandy loam, and plenty of sunshine.

**SARRACENIAS.**—The remarks on the culture of these in London (p. 192) were very pleasant reading, but when they touched on the point "hardy in England," I could not but feel that there was a jar with my experience. There would not seem to be any reason why they should not endure our severest winters when we consider their habitats in North America; but, after all, extremes of temperature may not have so much to do with the indifferent manner in which they grow in the open air in this country. I would sooner believe that we are more wanting in that humid, almost steamy, atmospheric condition which must exist in the swamps under powerful sunshine. It is well known that we have the greatest difficulty in the culture of some plants from colder climes than our own. Some of the Siberian species, for instance, want something we have yet to find out, or it is just possible our climate is not cold enough for them. Anyhow, I feel sure that so long as the term "not hardy" is merely understood to mean



that a plant to which it may be applied cannot endure our severe winters it is not wrongly used; many other causes than our low temperatures are responsible for the death or sickly condition of plants, and some of the latter, on an assumption equally as fair, might be said to be "too hardy." I can verify the statement that *S. purpurea* is the freest grower of the kinds as yet in general cultivation, and that it is the most hardy, too. Still, with me it has a miserable existence out of doors, whilst under glass in a humid state it flowers, seeds, and increases freely, and, of course, in such quarters it must necessarily get more warmth. This brings us to another point often overlooked. If a plant, no matter if from the snow-line, can be made to flourish in enclosed quarters better than in the open air, where it may scarcely have a creditable appearance, when all due care has been bestowed, that, to my mind, is not a plant for out-of-door cultivation. I do not think that any more than a small proportion of so-called hardy plants prove of such a difficult class, but the *Sarracénias* are among them, and I for one never can differ with our friends who like to grow such, or any other, plants under glass. On the contrary, one often feels obligated to them for the better form in which they can show many hardy plants. I know this is delicate ground, that where to draw the line between the hardy and "scarcely hardy" must necessarily be difficult, and yet the line might be termed a double one in allusion to the mode of culture preferred and the degree of success to be obtained. This is exemplified in the person who is more content with a fairly well grown *Ramondia* out of doors than he would have been with much finer specimens grown under glass, as Mr. Joad used to grow them. My idea of the *Sarracénias* is that they do not come within the line of outdoor plants, at any rate in these parts, because they do not seem happy enough to give anyone pleasure to look at them. My experience extends over eight years with them; to me they have been a more costly affair than I care to recall. I have bought many both established and newly imported roots, and some extra strong pieces have been given me by garden friends. I may have been unwise, but I have risked the best specimens out-of-doors in the best composts and situations according to my judgment. For three years they died one after another; others dwindled, and when taken in only *purpurea* survived. I suppose the *Sarracénias* do well in the open at the Glasnevin Gardens, but at the Royal Gardens at Edinburgh the experienced curator prefers to have them under glass, and finely they are grown. With what success they may be cultivated in exposed situations in other parts of the United Kingdom it would be most interesting to learn, but whilst I receive some encouragement of a severely practical kind, I, for one, shall trust no more *Sarracénias* in the open, but try to be content with them under glass in an ordinary greenhouse, where Drummond makes finely coloured cups or pitchers 18 inches high; flava, nearly 3 feet, the flowers being the colour of and scented like the *Primrose*; and where *purpurea* is just in flower, it is dwarf and reddish both in leaf and flower. The two former are now in seed. They enjoy peat and chopped *Sphagnum* with a little sand or charcoal, and for pot culture should be set up like *Orchids*. The crowns and rhizomes are slightly above the surface in well-established specimens.

**GENTIANAS.**—The dwarf or creeping kinds, such as *verna*, *bavaria*, and *brachyphylla*, will have quite done flowering, and this, the season of growth, is the best time to apply a top-dressing. It should consist of sandy loam and peat or leaf-mould; if sprinkled over the plants, not too much at a time; the rains settle it. If with one dressing the stems are not furnished, another may be given in a short time. This treatment is of great benefit even on flat surfaces, where the plants naturally grow longish in the stems, and on sloping parts of rockwork it is absolutely needful once or twice a year. Such care has a marked effect on the health of these alpine gems; they grow faster and have a more healthy appearance all the year, and not the least advantage gained is that the big worms have not the chance to loop themselves round and just under their button-like tufts of foliage, and so snap them off one by one during winter. Many of the *Gentians* are so damaged, and it is no

unusual thing to see the tops of *acaulis* broken off and lying about from this cause. It is not easy to say if the worms are partial to the *Gentians* as food, or whether it is because they offer material of a more convenient shape adapted to their mode of foraging, and that they (the *Gentians*) exist in winter when other things are not above ground; or, it may be, that it only seems like this to us, because from the size and stiffness of the severed tops the worms cannot work them into their holes, and so the effects of their operations remain for observation, and appear all the more extensive compared with the hidden harm done to other plants. Wood-ashes have a smarting effect on the tender skins of earthworms, and when used on the surface repeatedly they prevent them from doing such injury as above described, and, in time, when the potash permeates the soil, they are dislodged. I have not yet found that wood-ashes do harm to anything excepting such forms as *Mosses* and *Liverwort*. *Orchids* like them, but the *Sphagnum* is killed in a day or two. Lawns are much benefited by them, and they kill the Moss on poor turf. *Gentians* certainly are helped by them under cultivation, and they may be applied any time for worms alone, or mixed with peat and loam to nourish the roots.

**CAMPANULA ISOPHYLLA ALEA** is one of those dwarf *Bellflowers* which everybody admires; it combines showiness with beauty. Strictly speaking, it is not a *Bellflower*, for the clear white flowers of glistening shell-like substance are nearly as flat as a *Primrose* and about the same size. Its free blooming habit, combined with the durability of the flowers, adds greatly to its value, and, owing to its lateness, helps to keep its rich genus represented until well into autumn. It is said to be hardy in many parts, but, as my cultural experience of it has only extended over the two recent mild winters, I should not like to state that it will prove hardy here in more severe ones. Even if it should require a little extra care it well deserves it, and I have little fear but its vigorous underground stems will be safe if they have the protection of a few coal-ashes. The young barren shoots should be taken now and dibbled into sand in full sunshine, and in a fortnight they will be ready for potting. Such young stock will be quite safe in a cold frame during winter. I fancy a bed of this would be a treat; it would equal a bed of white *Viola*, and the plant is about the same stature. It also makes a charming pot plant for a cool greenhouse, or one of the kind now getting more numerous—viz., unheated; it also looks pretty in hanging baskets for sunny windows or elsewhere. Light loam and leaf-mould.

**GENTIANA ASCLEPIADEA.**—Who has not noticed the effect of a good specimen of this Willow-like *Gentian* at a short distance when in full flower? The way in which the rich blue flowers are mingled with the leafy stems, nearly all their length of 2 feet to nearly 3 feet, gives a solid sombre hue to the bush-like plants such as is seen in no other plant I know. Although this is one of the easiest *Gentians* to manage and propagate, I am inclined to believe that there are right and wrong modes of treating it, because I grow it in no less than five ways, and I naturally conclude that my best specimen, which I cannot help believing is as near perfect as it well can be, is under the very best set of conditions. I need not trouble the reader with cultural particulars respecting the other four, but I may state that their drawbacks are dwarfness, stems partially bare at bottom, leaves browned at the tips, flowers borne only near the tops, small and imperfectly opened. Not one of these faults is to be seen on my fifth specimen, which will have about fifty stems over 2 feet long, the outer ones spreading, and so giving the light full play among the wealth of colour. This plant is four years old, sheltered from the midday sun by a 5-foot diameter bush of *Andromeda floribunda*; north, too, it is sheltered by a big *Rhododendron*, and west by a low wall. It is set in 2 feet of leaf-mould, with a little loam and charcoal mixed with it, and immediately below the crowns there is a dip formed where moisture can collect naturally, as we never water such things, and, lastly, a few good lumps of limestone are set close to it. I may state in passing that adjacent to it *Epigaea repens* grows like a bit of *Ivy*, and *Lomaria alpina* like

Hawk-weed. If this *Gentian* is not esteemed one of the best or most beautiful, I have little doubt but it would be more so if it were more highly cultivated. The specimen in question has always excelled its fellows here, doubtless from the more happy conditions, and my treatment of the other plants in no way does this splendid *Gentian* justice.

**CALLIPRORA LUTEA** is a *multum-in-parvo* sort of bulbous plant—a kind of miniature *Lily* less than a foot high, with numerous little yellow-brown striped flowers arranged on a stiff scape each with a stalk, and all springing from the same sheath in *Amaryllis* fashion. The flower-scape, with its floral display, is unaccompanied by the grassy foliage, and the flowers last so long, one would be almost tired of seeing them were they not so pretty. It is quite hardy here in sandy soil and full sunshine, and increases freely. It deserves to be largely grown; its love of a dry soil and lasting quality of the bloom ought not to be overlooked, for we have none too many of such things.

**ASTER BIGELOWI** is a fine *Starwort*, dwarf and of a good violet-blue colour, but it is so entirely biennial as to scarcely keep respectable in its foliar parts during flower development, and with me the flower-stems have headed over. If this is its general habit, is it worth adding to an already numerous family, especially when we have some which excel it, if a little later? In fact, the attention which has been given these past two or three years to the old perennial species and their garden forms has brought to the front such a set as leaves little to be desired—at any rate, one would not think of adding biennials otherwise faulty.

**GENTIANA SEPTEMFIDA** *v.* *CORDIFOLIA* OR *G.* *gelida* of gardens.—Fresh seed of this sown soon as ripe has flowered the first year in the seed-pot. I have come to regard it a mistake to transplant seedling *Gentians* in the same way as most other things when small. They should be either allowed to grow strong and be transplanted when pushing in spring, or, perhaps, better still, sown in separate pots and thinned out, then potted on, or planted out before the roots become bound. Few things suffer like *Gentians* by having their roots exposed or even disturbed, especially if during the growing period. In sowing *Gentian* seed a little finely-chopped *Sphagnum* and wood charcoal dust were mixed with the usual loam and peat. I wonder if these were helpful? for germination neither before nor since, without them, has been so free. When I say since, I refer to seed sown in spring of the present year, and such would, no doubt, be all the worse for being kept over from the autumn.

**THE OYSTER PLANT** (*Mertensia maritima*).—This singular and interesting plant, which came to me two years ago in very small seedlings, becomes attractive when of mature size, not so much from any floral effect as from the glaucous—almost blue—foliage; in this respect as well as in being fleshy, it remind some of the most glaucous forms of *Echeveria*. The flowers are but the merest dots of lovely sky-blue; closely seen they are tiny bells. The exudations of the stems, which turn hard, the blackness which suddenly stains the stems, the fleshy-green seeds, and the peculiar oyster-like flavour of the plant all go to render this plant most interesting; besides it is so beautiful and distinct either in the border, or pots or rockwork. It affects sandy soil, or even pure sand will do for it; it is fond of sunlight, and slugs are fond of it; they appear to be able to distinguish it by its scent.

J. W.

**Hyacinth offsets.**—Three years ago I planted a bed of offsets from my bedding *Hyacinths*, and left them undisturbed till after they had bloomed, which they did this spring. To my surprise, on their coming into flower, I found that by far the greater proportion of the blooms were a rather fine form of the Wood *Hyacinth*, a single bulb of which had not been among the ones from which the offsets had been taken. When the bulbs were lifted, we found that the majority of them were the soft white ones of the *Scilla*, and not those of the ordinary garden *Hyacinth*. We have planted *Hyacinth* offsets for years, and nothing of the kind has ever occurred before. Can anyone offer an explanation regarding this matter? Is it a case of reversion to the original



type? I ought, perhaps, to say that there were some worn-out bulbs of Hyacinths that had been used in pots, from which we cut off the bottom part of the bulb and planted with the offsets, a plan recommended to us by a Dutch grower.—H. M. W.

#### GLADIOLI IN HOT SEASONS.

I AM quite sure that "A. D." (p. 224) would not place such a low estimate on Gladioli as cut flowers if he spent a few hours at Langport any week day from the 1st to the 15th of September. He would then have an opportunity of seeing large numbers of cut spikes sent away to all parts of England. I therefore maintain that the flowers of Gladioli are more valued in a cut state than he seems to be aware of, but it is not my intention to further discuss that point. I am more interested just now in reference to the behaviour of Gladioli in hot, dry summers; they have clearly established their capacity to endure heat and drought as well, and in some cases better than most other plants. I have several hundreds growing in a poor, thin harsh soil which have not had a drop of water given them, and yet, as regards decorative effect, they are better than such plants as German Asters and Dahlias fairly well supplied with water and growing in altogether a better description of soil. I do not say that I have experienced no losses in the way of bulbs, for that always occurs in both hot and dry seasons, but, taking into account the treatment received, Gladioli as decorative plants are well worthy of the notice of all who, with a fairly good soil, wish to have conspicuous plants for the filling of their flower beds or borders. As regards the requirements of Gladioli, there is no doubt that they are somewhat fastidious as to soil when they are expected to produce spikes equal to those grown at Langport, but those whose aims are not so ambitious, may have good decorative plants if they have a soil that will grow Dahlias, German Asters, and similar plants. In selecting a soil and position for Gladioli lengthened experience has convinced me that they suffer as much from an excess of moisture at the roots as from drought. A deep soil is therefore indispensable to success. The bed should be trenched 2 feet deep, and there ought to be 12 inches of good soil for the roots to work in. A rather heavy staple is better than a light one. No one need fear to use manure for them if of the right sort; fresh manure is injurious to them, but in thoroughly rotted hotbed or farmyard manure, well incorporated with the soil and with a layer placed 12 inches under the surface, the roots will revel, and this treatment will, to a great extent, render them independent of the watering-pot. At the same time, it must be understood that in a well-drained soil they are greatly benefited by copious supplies of water during such a season as that which we have just passed through. Another point of considerable importance to remember is, that Gladioli are strong-rooted subjects when planted in a medium that suits them. They enjoy a somewhat firm soil, and for that reason the beds should be prepared for them early in winter, in order that the earth may have ample time to settle down before planting time arrives, and if the same beds must be occupied by them for several years continuously, it will be desirable to remove some of the old soil and replace it with fresh material. This need not be a prohibitive measure, for it only consists in making an exchange with some earth from the kitchen garden quarters.

#### TIME TO PLANT.

To a certain extent, the time to plant must be guided by the condition of soil. It is not wise to plant when the ground is so wet that it will tread into a paste. It is, however, necessary to get them planted as early in March as possible, for undoubtedly the bulbs suffer if kept out of the ground much after that time. We have proof every season in our own stock that they are impatient as regards confinement after the beginning of March, for although we keep them in a cool shed, they commence to make roots and to push out leaves about that time. We may, therefore, be quite sure that it is better for them to be in the ground than out of it when they begin to do that. Bulbs kept in paper bags and suspended in dry warm rooms may not start so early, but I

am convinced that bulbs kept during winter under such conditions lose much of their vitality; consequently they produce but small flower-spikes. Speaking generally, when Gladioli are planted in beds to make a display they are not planted thickly enough to be effective. The largest sized bulbs ought not to be more than 9 inches apart, and those of medium size only 6 inches or 7 inches. Thus planted, should a few bulbs fail to grow or come up weakly, they are not so much missed as when put in further apart. When dealing with other kinds of bedding plants, people generally plant too thickly, but in the case of the Gladiolus they pursue a more niggardly course, making no allowance in their calculations for a few losses. It is a favourite plan with some cultivators to place a handful of sand round the bulbs when planting, for the purpose, they say, of prevent-

the surface. Deep planting favours them in two ways: it fixes the stems securely in the soil, and it places the roots out of the reach of ordinary drought—particularly if below that point a lump of rich manure exists to entice the roots downwards; they then lay hold of it and thrive in a way that will surprise those who have not given them such favourable quarters. As Gladioli are often half starved, occa-



Traveller's Joy (Clematis Vitalba).

sionally one may see somebody recommending them to be planted in partial shade, but according to my experience there are no bulbous plants that thrive better in full sunshine than Gladioli. Heat, moisture, and good living, I am satisfied, constitute the secret of success in their case.

I find that the bulbs keep best in winter if they are allowed to remain in the ground as long as it is safe to do so, as only very severe frost would injure such as are planted at the depth just recommended. No attempt should be made to get them out of the beds before the middle of November, and very often it is quite safe to leave them out until the end of that month. They should then be taken out of the ground and laid out on the floor of a shed to dry, and the leaves should be allowed to remain upon them for at least a week after they are taken up. Before being stored, let them be cleared of all old roots and the little bulblets that sit so closely round the old bulb. By no means should they be stored until the outer scales are quite dry.

#### RAISING THE BULBS.

Fresh stocks of bulbs may be raised in two ways. The least troublesome is to take care of the little bulblets which form round the old bulbs. These are easily removed when the old bulbs are taken up in the autumn. During winter these may be kept in dry earth or sand; at least, they must be kept from the air, or they will shrivel, and consequently become weakened. In spring they may be sown thinly in drills about 2 inches deep and 1 foot apart. It is quite necessary that the ground should be made rich and deep for them; then, after one year's growth, many of them will flower the next year. Those that do not, must be treated in the same way for another year. Raising from seed is an interesting way of increasing the stock. I have raised many fine varieties both from purchased seed and also from home saved, but if we wish to have a stock quite of our own raising we cannot do better than purchase about two dozen good sorts distinct in colour. As Gladioli seed freely, there will be no difficulty in getting as many seedlings as are wanted for a private garden. The simplest way of

ing the bulbs from rotting before they start into growth. To me this practice seems inexplicable, as sand is not only an absorber, but a retainer of moisture when air is excluded, and, therefore, it is more likely to encase the bulb in a wet jacket than in a dry one; however that may be, I have many times proved that the bulbs grow quite as well without sand as with it. I have certainly much greater faith in moderately deep planting than I have in sand application, and I do not consider that 4 inches is too deep when the top of the bulb is that distance below



raising them from seed is to have a border well prepared for them; the soil must be fairly heavy, as well as rich and not less than 1 foot in depth. In this the seed may be sown in April in drills 1 inch deep and 6 inches apart. If the ground is kept moist all the summer, the seedlings will grow away vigorously until quite late in autumn; there should be no undue hurry in getting them out of the ground before winter, for if there is no sharp frost they will keep growing until the end of November. The seedling bulbs may be wintered in the same way as the old ones. In the following March let them be planted out in the same border in which they were raised; the largest bulbs may be placed 6 inches apart, but the others need not occupy so much space. If at the end of the first year the bulbs are the size of Hazel nuts, they will flower the second season and all of them the third; this is assuming that they are grown in good soil and otherwise well treated, especially as regards root moisture. J. C. C.

### THE TRAVELLER'S JOY.

WHILE we are enjoying the gaiety of Jackman's Clematis in the garden, the hedgerows are garlanded with the quiet beauty of our native Clematis, *C. Vitalba*, the Traveller's Joy or Old Man's Beard, as it is also popularly called. At this season this elegant twiner is smothered with a profusion of tiny whitish flowers, and a little later it will be conspicuous on account of its clusters of feathery seeds, which make the hedgerows even more beautiful than now. In some parts of the country the Traveller's Joy is so common, that there is no need to cultivate it in gardens, but where it does not grow plentifully in a wild state it is decidedly a worthy object of culture, and no more graceful plant could be had for covering trellises or arbours, especially if some other Clematises are mixed with it. *C. Flammula*, for instance, which is now a sheet of bloom, twines well in company with the Traveller's Joy, while bright colour may be added by planting in the mixture the later flowering forms of *C. Viticella*, the common purple variety which looks like a miniature Jackmanni. Another pretty Clematis in bloom at present is *C. canapiflora*, which has small bell-like flowers of a purplish lilac hue, borne in the greatest profusion on slender twining stalks. In some of the gardens in Sussex and Hampshire, and also in the Isle of Wight, we have seen during the past week some charming effects produced by these Clematises alone, and in one case crowds of Jackmanni flowers were peeping out of a mass of the white *Flammula* bloom.

**Phygelius capensis.**—Somehow or other this pretty South African plant is rarely met with outside of a botanic garden or the collection of some specialist, yet its ornamental properties and persistent blooming character should insure its being more generally cultivated. It is a free-growing herbaceous or semi-herbaceous plant with stout stems 3 feet to 4 feet high, terminated by large branching racemes of bright scarlet blossoms. In a warm, free soil it is quite hardy, and soon forms a large mass, which commences to bloom in May or June, and continues till autumn is well advanced. It is specially useful for supplying a bright bit of colour when a good many outdoor plants are past their best.—H. P.

**Antirrhinums flowering a second time.**—A large breadth of Antirrhinums planted out early in spring bloomed finely during the summer, and, of course, left an abundance of stems covered with seed-pods, which are just ripening. But ere these were ready to harvest the stems took a fresh lease of floral life, and almost all have pushed up at the points fresh bloom-spikes, so that just as the stems are ready to gather they are full of new bloom. I have never met with a similar circumstance before, and think the present occurrence to be worthy of note. Antirrhinums bloom so beautifully in the autumn, that I regret I have not a late blooming batch of plants to follow; but seed is of so much importance, that sowing seed under glass in October and getting the plants stout and hardy to go out in April is very important, as thus a good seed crop is ensured the same summer, whilst spring-sown plants too often bloom too late to carry a satisfactory seed crop.—A. D.

**Silene pendula compacta.**—I am pleased to learn that Messrs. Carter obtained seed from the double form of *Silene pendula compacta*. Allow me to say that I think, in relation to this compact form, double or single, the affix *pendula* is quite out of place, as neither blooms, seed-pods nor plants themselves have anything pendulous about them. My own stock this year gave a good percentage of doubles, all raised from one single-flowered plant. That alone will suffice to show that single-flowered forms can produce doubles. Never could *Silene* have found more sunshine wherewith to assist in the fertilisation of blooms than during the past year, and yet I could not find a single pod of seed on doubles, even from many plants. I disagree with your correspondents as to the relative decorative merits of the single and double forms, as here I found the singles to be the earliest to bloom, and certainly not the least effective. I regard the double *Silene* as an interesting sport, and to many attractive, but for ordinary purposes I shall always be quite as well pleased with the single forms. I have sown seed again this autumn saved from single flowers only, and shall watch the results as to the production of doubles next spring with much interest.—A. D.

## SOCIETIES.

### CRYSTAL PALACE SHOW.

SEPTEMBER 4 AND 5.

IN connection with this exhibition was also held the annual exhibition of the National Dahlia Society, and, as in former years, the nave was employed for the purpose, the fruit being arranged at the eastern end, the Dahlias in that west of the transept, and the cut-flowers found a place in the south end of the transept opposite the great orchestra. The fruit show was a very good one, Grapes being largely and finely shown, and in all the classes there was a large and keen competition.

**COLLECTIONS OF FRUIT.**—In the class for twenty dishes there were six competitors, the first prize being awarded to Mr. J. Roberts, gardener at Gunnersbury Park, Ealing, who staged a very fine collection indeed, consisting of Muscat of Alexandria, White Tokay, Alnwick Seedling, and Black Hamburg Grapes; Queen and Smooth Cayenne Pines, Sea Eagle and Nectarine Peaches, Lord Napier and Victoria Nectarines, Moor Park Apricots, Figs, Kirke's and Transparent Gage Plums, Bon Chretien Pears, Quatre Saisons Strawberries, and William Tillery Melon. Second, Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, who had Muscat of Alexandria, Foster's Seedling, Black Hamburg, and Madresfield Court Grapes; Providence Pine, Violette Hâtive and Devonshire Peaches, Pine-apple and Elrue Nectarines, Moor Park Apricots, &c. Third, Mr. H. W. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury. In the class for twelve dishes, Mr. Coomber, The Hendre, Monmouth, was first with a good lot, consisting of Muscat of Alexandria, Gros Maroc, Royal George Peaches, Lord Napier Nectarine, Alsace Apricot, Clapp's Favourite Pear, Reine Claude de Bavay Plums, Brunswick Figs, a wonderful dish of La Grosse Sucrée Strawberries, Melons, Smooth Cayenne Pine, &c. Second, Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, Bucks, with Foster's Seedling and Gros Maroc Grapes, Sea Eagle Peaches, Albert Victor Nectarines, Smooth Cayenne Pine, Cherries, Apples, Melons, Figs, &c. The best eight dishes came from Mr. W. Pratt, gardener to the Marquis of Bath, Longleat, Warminster, who had Muscat of Alexandria and Black Hamburg Grapes, Noblesse Peaches, Pitmaston Orange Nectarines, Brunswick Figs, Windsor Pears, Melon, and Jefferson's Plums.

**GRAPES.**—Of these there was a very fine display, and generally of the best quality. Mr. Roberts was again first with ten varieties, two bunches of each, consisting of grand examples of Lady Downes, Madresfield Court, Black Hamburg, Gros Maroc, Alicante, and Alnwick Seedling, black; Trebbiano, Muscat of Alexandria, Foster's Seedling, and Buckland Sweetwater, white. Mr. H. W. Ward was second with Black Prince, Gros Guillaume, Mrs. Pince, Gros

Maroc, Alicante, and Black Hamburg, black; Syrian, Buckland Sweetwater, Muscat of Alexandria, and Foster's Seedling, white. Mr. Pratt had the best five kinds, consisting of Black Hamburg, Alicante, Gros Maroc, Mrs. Pince, and Lady Downes—a very fine lot. Mr. Hudson, Gunnersbury House, was second with Gros Maroc, Black Hamburg, Muscat of Alexandria, Madresfield Court, and Alnwick Seedling. Mr. Pratt had the best three bunches of Black Hamburg, all admirably finished. The best three bunches of Muscat of Alexandria came from Mr. Lowey, Mill Hill, Hendon; and the best Gros Colman came from Mr. R. Dawes, gardener to Mr. Meynell-Ingram, Temple Newsam. Mr. Goodacre had the best three bunches of Madresfield Court, Mr. Hudson coming second; both with very finely finished examples. Some very fine bunches of Black Alicantes were shown by Mr. W. Howe, gardener at Park Hill, Streatham, and Mr. Pratt, the former finding most favour in the estimation of the judges. In the class for any other white variety, Mr. S. Osman, gardener at Ottershaw Park, Chertsey, was first with very fine White Frontignan; Mr. H. Folkes, Hemel Hempstead, being second with Golden Queen; and Mr. Roberts third with Buckland Sweetwater. The best three bunches of any black Grape were Barbarossa, weighing 21 lbs., from Mr. Dawes; Mr. Roberts coming second; and Messrs. T. Rivers and Son third with Gros Maroc. The heaviest basket of black Grapes came from Mr. C. J. Salter, gardener at Selborne, Streatham, who had finely-finished Black Hamburgs; Mr. T. Osman coming second with Alicante. The heaviest basket of white Grapes was from Mr. C. J. Goldsmith, Kelsey Gardens, Beckenham, who had Muscat of Alexandria.

**MISCELLANEOUS FRUITS.**—There was no entry in the class for two Queen Pine-apples. The best two of any other sort were Smooth Cayenne, from Mr. Miles, Mr. Goodacre being second with the same variety. Peaches were finely shown. Mr. W. H. Divers had the best four dishes, consisting of fine examples of Barrington, Prince of Wales, Princess of Wales, and Bellegarde. Mr. Roberts was first with four dishes of Nectarines, comprising good fruit of Victoria, Pitmaston Orange, Pine-apple, and Lord Napier. Mr. Divers was second with Rivers' Orange, Albert Victor, Stanwick Elrue, and Pine-apple. The best dish of Peaches was Barrington, Early Admirable being placed second, and Violette Hâtive third. The best Nectarine was the Pine-apple, all the prizes going to this variety. The only exhibitors of six dishes of Peaches and six dishes of Nectarines were Messrs. T. Rivers & Son, who had of the former Exquisite, Madeleine Blanche, Bellegarde, Raymacker, English Galande, and Princess of Wales; of the latter, Rivers' Victoria, Rivers' Orange, Newton, Rivers' Otway, Pine-apple, and Byron. The best green-fleshed Melons were Best of All and Golden Queen; the best scarlet-fleshed, Victory of Bristol and Blenheim Orange. Mr. Neighbour, The Gardens, Bickley Park, had the best four dishes of red Plums, consisting of Cooper's Large, Pond's, Cox's Emperor, and Victoria. Mr. Goodacre was second with Pond's, Angelina Burdett, Victoria, and Red Gage. Mr. J. Wells, Fernhill, Winkfield, had the best four dishes of yellow and green Plums, consisting of Webster's Green Gage, Oullins, Green Gage, and Golden Gage. Mr. Chadwick, gardener, Hanger-hill House, Ealing, was second with Jefferson's, Washington, Coe's Golden Drop, and Magnum Bonum. Mr. Holliday had the best four dishes of purple Plums, consisting of Kirke's, Quetsche, Bradshaw's, and Purple Gage. Second, Messrs. Thomas Rivers & Son, with Queen Victoria, Royal Purple, Rivers' Globe, and Prince Englebert. Mr. Wallis was the only exhibitor of two dishes of Figs, having good fruit of Osborn's Prolific and Yellow Ischia.

**APPLES AND PEARS** were very plentiful. The best twelve kinds came from Mr. Waterman, gardener to Mr. H. A. Brassey, M.P., Preston Hall, Aylesford, who had of dessert kinds Gravenstein, Duke of York's Favourite, Quarrenden, Worcester Pearmain, Red Astrachan, and Kerry Pippin; culinary varieties, Warner's King, Tower of Glamis, Lord Suffield, Gloria Mundi, Stirling Castle, and Blenheim Orange. Second, Messrs. Thomas Rivers & Son, with dessert varieties, Benoni, Red Astrachan, Early York, Irish



Peach, Worcester Pearmain, Duchess of Oldenburg, Marshman's Seedling, Hawthornden, Stirling Castle, Warner's King, and Cellini. Mr. Butler, gardener to Mr. A. J. Thomas, Orchard-lane, Sittingbourne, had the best ten kinds of Pears, consisting of fine fruit of Beurré d'Arenberg, Conseiller de la Cour, Bon Chrétien, Pitmaston Duchess, Windsor, Beurré de l'Assomption, Louise Bonne of Jersey, Beurré Hardy, Clapp's Favourite, and Doyenné Boussoch. Second, Messrs. Thomas Rivers & Son, with Souvenir du Congrès, Bon Chrétien, Beurré d'Amanlis, Grégoire Bordillon, Clapp's Favourite, Rivers' Magnet, Rivers' Princess, Madame Treyve, Louise Bonne of Jersey, and Pitmaston Duchess. The best three dishes of ripe Apples were Worcester Pearmain, Hunt's Early, and Red Astrachan, the next best being Quarrenden, Duchess of Oldenburg, and Red Astrachan. The best three dishes of ripe Pears were Desiré Cornélis, Windsor, and Bon Chrétien; the next best, Bon Chrétien, Beurré Giffard, and Dr. Jules Guyot. The best representative collection of fruit shown by dealers came from Mr. G. H. Wingfield, Market-street, Brighton; Mr. Geo. Wood, of St. James-street, being second.

**CUT FLOWERS.**—These made a pretty display, and almost all the classes were well represented. The best collection of Gladiolus spikes, not less than thirty-six varieties, came from Mr. A. R. Campbell, Cove Gardens, Gourock, N.B., who had about 120 spikes in fine condition. On the other side of the transept was a collection of 150 spikes from Messrs. Kelway and Son, Langport, all the flowers being in a high state of development. This was not for competition. The best twelve spikes came from the Rev. H. H. d'Ombain, Westwell Vicarage, Ashford, who had grand spikes of Dalila, Hesperide, Feathered Gem, Daphnis, Seduction, Archduchess Maria Christina, Flamboyant, Leander, Tamerlane, Murillo, Meyerbeer, and Raboat, the last very fine; second, Mr. A. Whittle, Bedale, with a fine lot of blooms also Quilled Asters were numerous and finely shown; those shown by Mr. J. Jones, Cedar Lodge, Bath, were of the highest quality. The best French Asters came from Messrs. J. Saltmarsh & Son, Chelmsford, a very fine lot of Truffaut's Pæony-flowered type. Hollyhocks were so fine, that they recalled the time when this flower was once so well grown round London. Mr. G. Finlay, East Layton Hall Gardens, Darlington, was first with twenty-four blooms, consisting of fine examples of Grace Darling, Ruby Queen, Mrs. Maynard, Octoroon, Pride of Layton, Majestic, Hercules, Favourite, John Finlay, Richard Ryle, Walden Queen, Conquest, Joshua Clarke, Venus, Pollie Hogg, Flora Macdonald, and seedlings. Mr. Finlay also had the best twelve blooms, consisting of J. Finlay, Hercules, Favourite, Nobilis, Grace Darling, Octoroon, F. Macdonald, Pollie Hogg, Ruby Queen, &c. Groups of early-flowering Chrysanthemums formed an interesting feature. Mr. Piercy, West-road, Forest Hill, was placed first with a well-grown selection, comprising Mrs. Cullingford, Early Hale Flora, Petite Marie, Lygon, Mons. Dufoy, Mdle. Jolivar, La Bien Aimée, &c. Second, Mr. H. James, who had some very finely-flowered plants of Mdme. Desgrange; Mr. N. Davis was third. Extra prizes were awarded to Messrs. Laing, Stanstead Park Nursery, Forest Hill, for a wonderful group of Begonias, and to Messrs. Cannell, Swanley, for Begonias, Dahlias, &c.—a large and interesting contribution.

#### NATIONAL DAHLIA SHOW.

THIS took place at the same time as the fruit show, and, notwithstanding that the dry season had told greatly against the blooms in many instances, there was a remarkably good display of this popular flower. The entries were numerous, but at the last moment, mainly through the storms of the previous day or two, some exhibitors were compelled to absent themselves. As is usual, the schedule of prizes was divided into sections of show, fancy, pompone, and single flowers. The best forty-eight show varieties came from Mr. C. Turner, who had a very fine collection, consisting of Miss Cannell, Mrs. Langtry, James Stephens, Mr. Rawlings, Mrs. Hodgson, Harry Turner, Lady Wimborne, Mr. G. Harris, Goldfinder, Joseph Green, Statesman, Julia Wyatt, Georgina, Joseph Ashby, Mrs. Harris, J. H. Keynes,

Clara, Senator, Champion Rollo, James Cocker, J. B. Service, Burgundy, F. J. Saltmarsh, John Standish, Mrs. F. Foreman, Seraph, Lady G. Herbert, Prince Bismarck, Canary, Prince of Denmark, Henry Walton, Rosetta, Mrs. S. Hibberd, Mrs. Kendal, Mrs. Henshaw, Mrs. Douglas, Imperial, John Bennett, Muriel, Constancy, Hope, Chris Ridley, George Rawlings, Mrs. Gladstone, Hon. Mr. P. Wyndham, Sunbeam, and Ruby Gem. Second, Mr. Henry Boston, Manor Farm, Curthorpe, Bedale, with a very good lot, larger than the preceding generally. Third, Messrs. Harkness & Sons, Grange, near Bedale. In the class for twenty-four varieties, Messrs. J. Saltmarsh & Son, nurserymen, Chelmsford, were first with a fine lot of blooms, consisting of Criterion, Goldfinder, James Cocker, Mrs. Dodds, Hon. Mr. P. Wyndham, J. B. Service, E. Britton, J. Ashby, Lady G. Herbert, J. Leicester, Mrs. Gladstone, S. Hibberd, Constancy, Mrs. Harris, Henry Walton, Mrs. S. Hibberd, Earl Radnor, Hope, J. N. Keynes, Mrs. G. Harris, Sunbeam, Revival, Mrs. Hodgson, and John Standish. Second, Messrs. Rawlings Bros., Old Church, Romford. Third, Messrs. Paul & Son, Cheshunt. In the class for twelve blooms Mr. John Walker, nurseryman, Thame, was first with a pretty lot of blooms, viz., John Standish, Mrs. Gladstone, Mrs. Rawlings, Champion Rollo, Geo. Rawlings, Earl Radnor, James Cocker, Hon. Mr. P. Wyndham, Monarch, Mrs. F. Foreman, William Green, and George Bennett. Second, Messrs. J. Gilbert & Son, nurserymen, Ipswich. Third, Messrs. J. Burrell & Co., nurserymen, Cambridge.

In the amateurs' division, the best twenty-four blooms came from Mr. Geo. Boothroyde, gardener at Woodville, Dover, who had Prince Bismarck, Mrs. Gladstone, Mrs. Dodds, E. Britton, Earl of Beaconsfield, John Henshaw, Rev. J. Godday, Goldfinder, Flag of Truce, Hon. Mr. P. Wyndham, Mr. G. Harris, Jos. Bennett, Clara, Henry Walton, Geo. Rawlings, Vice-President, F. Rawlings, H. Weir, Lady G. Herbert, Mrs. Henshaw, James Cocker, Miss Cannell, John Standish, and a seedling. Mr. J. T. West, gardener at Cornwallis, Brentwood, had the best twelve blooms, consisting of capital examples of Wm. Rawlings, Mrs. Gladstone, John Henshaw, Henry Walton, Mrs. Harris, Joseph Ashby, Prince of Denmark, Mrs. P. Wyndham, Geo. Rawlings, H. Weir, Mrs. S. Hibberd, and H. W. Ward. Second, Mr. John Walker, Lowfell, Gateshead. Third, Mr. J. Tranter, Upper Assenden, Henley-on-Thames. The best six came from Mr. Jonathan Harris, Broomfield, Chelmsford, who had capital specimens of Ethel Britton, Emperor, Mrs. Harris, Prince of Denmark, Goldfinder, and Mr. G. Harris. Second, Mr. A. Tanbridge, Broomfield, Chelmsford. Third, Mr. W. H. Aphorpe, Romford.

**FANCY DAHLIAS** were also well represented; in the nurserymen's division Mr. C. Turner was placed first with fine blooms of Gaiety, Grand Sultan, Fred. Smith, H. Glasscock, Miss Annie Melsome, Romeo, Annie Pritchard, W. G. Head, Chas. Wyatt, Prof. Fawcett, Duchess of Albany, Peacock, Edward Peck, Mr. Saunders, Chorister, George Barnes, Laura Haslam, Rebecca, Miss L. Large, General Gordon, James O'Brien, Robert Burns, and seedlings. Second, Messrs. Keynes, Williams & Co., Salisbury. Third, Mr. H. Boston. The best twelve came from Messrs. Rawlings Bros., who had Gaiety, Edward Peck, Lotty Eckford, Peacock, Mr. Saunders, Prof. Fawcett, Polly Sandell, Frank Pearce, Mrs. Carter, Mrs. Stevens, Annie, and Gem. Second, Messrs. J. Saltmarsh & Sons. Third, Messrs. J. Cheal & Sons, Lowfield Nurseries, Crawley.

In the amateurs' division for twelve blooms, Mr. Henry Glasscock was first with J. Lamont, Goldfinder, Professor Fawcett, Mrs. Saunders, Henry Glasscock, Polly Sandell, Miss L. Large, Canire, Peacock, Flora Wyatt, Chorister, and Lotty Eckford. Second, Mr. R. Pitfield, Diddington, Hunts. Third, Mr. H. Vincent, The Poplars, Keymer. Mr. William Steer, New Eltham, Kent, had the best six blooms; Mr. George Booth, Ryde, being second.

**POMPONE DAHLIAS** made a charming display, being in very neat bunches of nine or ten flowers. The best twenty-four varieties came from Messrs.

Keynes & Co., who had quite a representative collection, consisting of The Khedive, Dora, Gem, Flora Macdonald, Little Prince, Catherine, Sappho, Wilhelm Hische, White Aster, Cupid, Garnet, Mabel, Rosetta, E. F. Jungker, Isabel, Nemesis, Fanny Weiner, Golden Gem, Mdle. V. Faconet, Little Bobby, Darkness, Lady Blanche, Brunette, and Rosalie. Mr. C. Turner was second, and Messrs. Rawlings Brothers third. Messrs. J. Gilbert & Son had the best twelve bunches, consisting of Handels Gartner, Little Mabel, Lady Blanche, Gem, Guiding Star, H. Milesky, Little Bobby, Sensation, Pure Love, J. E. O. Enke, Garnet, and Cupid; second, Messrs. Paul & Son, Cheshunt; third, Messrs. F. J. Smith & Co., Dulwich. Messrs. J. Burrell & Co. had the best six bunches, consisting of Coquette, White Aster, Gem, Little Duchess, Prince of Liliputians, and Titania.

As is usual, the single Dahlias were numerous and very pretty; but in a few instances they appeared to show the effects of the weather. The best collection of twelve varieties came from Messrs. J. Cheal and Son, who had fine and clean examples of Charles Laws, Queen of Singles, Silver King, Negress, Alba perfecta, Brutus, Taishon, Paragon, Sunset, Formosa, and Henry Irving. Mr. C. Turner was second with Harlequin, Alba, Lucy Ireland, Scarlet Defiance, Queen of Singles, Sunbeam, Mandarin, Defiance, Duchess of Westminster, Ellen Terry, Aurora, and Lutea grandiflora. Messrs. Keynes and Co. were third. Messrs. J. Gilbert and Son had the best six varieties, consisting of Lucy Ireland, Dr. Moffat, Charles Laws, Mrs. Bowman, White Queen, and William Castle. Messrs. J. Burrell and Co. were second, and Mr. J. Jones third.

**SEEDLING DAHLIAS.**—Prizes were offered for the three best seedling Dahlias, and they were all awarded to Messrs. Rawlings Brothers, who were first with Mrs. E. Rawlings, second with Mrs. John Walker, and third with Bird of Passage.

**THE TURNER MEMORIAL PRIZE.**—The only competitor for this—a handsome silver cup to be won three times by the holder—was Mr. H. Glasscock, to whom it was awarded for twelve show and six fancy Dahlias, the varieties being George Rawlings, Miss Cannell, Imperial, Hon. Mr. P. Wyndham, Mrs. Gladstone, Shirley Hibberd, Mrs. Glasscock, Fanny Gardner, Senator, Prince of Denmark, Cypress, and Mrs. Harris; and the following fancies: Henry Glasscock, Peacock, Professor Fawcett, Canire, Mrs. Carter, Lotty Eckford.

**FIRST-CLASS CERTIFICATES** of merit were awarded to Messrs. Rawlings Brothers for the following new varieties: Bird of Passage, light ground tipped with pale lilac-purple, very pretty; Mrs. John Walker, delicate pink with wire edge of purple and sulphur centre, good petal outline and centre; Mr. Glasscock, crimson, shaded with purple; Mr. E. Rawlings, pink with faint stripes and lip of purple; and Frank Pearce, a fancy, bright deep lilac flaked and striped with crimson. Also to Messrs. Keynes, Williams, and Co. for fancy Pelican, delicate ground, striped and flaked purple. Also to the following varieties of Gladioli: Lord Ashbourne, pale cerise, feathered with purple; Princess Maude, lilac-purple, feathered with dark purple; Dora Thorne, pale buff, feathered with purple, the throat flamed with the same; and Lord Randolph Churchill, rich orange-cerise, the throat flamed with purple. These were from Messrs. Kelway & Son, Langport. The same award was made to Raboat, delicate lilac, feathered with purple, very fine, shown by the Rev. H. H. d'Ombain. In the way of miscellaneous contributions, Mr. T. S. Ware, of Tottenham, had a large collection of Pompone, single and Cactus Dahlias; Messrs. Keynes & Co., Cactus Dahlias; and Messrs. J. Cheal and Sons, Pompone and single Dahlias and bunches of hardy flowers.

**Turner Memorial prizes.**—At a meeting of the promoters of this movement, held at South Kensington on Tuesday last, the following were nominated as constituting the executive committee, viz., Dr. Masters, Messrs. H. Veitch, Cutler, James, Glasscock, Fraser, Roberts, Miles, Cannell, and G. Paul. Mr. Hibberd, the chairman of the meeting, being an *ex officio* member of the committee, Mr. Pollett is to be hon. treasurer and Mr. Douglas hon. secretary.



## ROYAL HORTICULTURAL.

SEPTEMBER 8.

GRAPES and Dahlias formed the chief attraction on this occasion, both being shown in large numbers and excellent in quality; indeed, it was one of the best Grape shows that has been held at South Kensington. There were twenty-seven classes for different varieties, and with but one or two exceptions all were well filled. The Dahlias, too, were well represented in all the sections, and so good a display served to brighten up the exhibition. A few plants and flowers were placed before the committee, and the following were awarded first-class certificates:—

**LILIU AURATUM RUBRO-VITTATUM.**—A handsome variety, each petal being adorned with a broad band of deep crimson-red; the rest of the petal was white. This was shown by Messrs. Carter, of High Holborn, and was the finest form of this variety we have seen.

**LOMARIOPSIS BUXIFOLIA.**—An elegant little climbing Fern, with fronds about 6 inches long, beset with round pinnae of a pale green hue. The slender wire-like stems creep closely to upright supports. The plant shown was attached to a Tree Fern stem. Exhibited by Messrs. Veitch.

**ROSE WALTHAM CLIMBER NO. 1.**—A beautiful new climbing variety, a vigorous grower, and an abundant and persistent flowerer. The blooms are of good size and form and very similar in colour, and quite as bright as those of the well-known Hybrid Perpetual Marie Baumann. This No. 1 variety was selected by the committee from among three seedlings exhibited by the raisers, Messrs. W. Paul & Son, Waltham-cross. Being an autumn flowerer and so attractive in colour, we regard this Rose as a great acquisition.

**DAHLIA MRS. HAWKINS.**—A variety different from most others, inasmuch as the flowers are less formal in shape than those of the show varieties—more approaching those of *Yuarezi* in this respect. Its colour is extremely pleasing, being clear yellow with the outer florets tinged with pink. The blooms are above the average size. It is, we imagine, a first-rate garden Dahlia. Shown by Mr. T. S. Ware, Hale Farm Nursery, Tottenham.

**DRACÆNA NORWOODENSIS.**—A new variety of elegant growth. The leaves are of medium breadth, bronzy green, edged with creamy white, and tinged here and there with rosy pink. The fact that this new-comer is considered distinct from the multitudes of *Dracænas* already in cultivation ought to be sufficient to recommend it. Shown by Messrs. Veitch.

**GLADIOLUS J. L. TOOLE**, bright crimson flushed with white; **PRINCE WALDEMAR**, rose-pink flaked with white; **LORD CARNARVON**, vivid scarlet, white centre. These were exhibited by the raisers, Messrs. Kelway, of Langport, and all were perfection as regards size of spikes and flowers.

**DAHLIA BIRD OF PASSAGE**, a show variety with white florets tipped with rose-pink; **GEORGE PAUL**, a pretty variety, white heavily tipped with bright crimson; **MRS. G. RAWLINGS**, a fine show variety with white florets flushed with plum-purple. All from Messrs. Rawlings, of Romford, who showed numerous seedling double varieties of great excellence.

**DAHLIA ECLIPSE** and **FAUST**, both single-flowered sorts of high merit, selected from several seedlings shown by Messrs. Cannell, of Swanley. The first is a deep crimson-scarlet with broad yellow centre; the other is of a kind of Venetian red. Both have large well-shaped flowers of thick texture.

There were but few plants beyond those certificated placed before the committee, the following being the most noteworthy: Mr. Buchan, Wilton House, Southampton, received a cultural commendation for a very fine specimen of the rarely seen *Odontoglossum Krameri*. His plant bore four spikes, carrying in all fifteen flowers. It is not a showy Orchid, but has a quiet beauty and is interesting to orchidists. Mr. Soper sent from his garden in the Clapham-road a fine fruit of the variegated Pine-apple, which excited some interest. Messrs. Carter, High Holborn, sent a plant of *Fourcroya longæva*, for which they received a vote of thanks. A fine specimen *Vanda Sanderiana*

was sent from Mr. Heywood's garden, Woodhatch, Reigate. It bore two spikes, one with seven the other with eight large and highly-coloured flowers. A cultural commendation was awarded. Mr. P. Ladds, Swanley, sent specimens of *Pelargonium White Queen Improved*, a zonal variety, having large finely-shaped, pure white flowers. Messrs. Veitch exhibited several plants of the new *Amasonia punicea*, the brilliant crimson bracts of which, in contrast with the canary-yellow flowers, making it a strikingly beautiful plant. Mr. T. S. Ware placed before the committee some fine samples of *Kniphofia nobilis*, one of the best of the varieties of Flame flowers; also *Funkia grandiflora*, *Rudbeckia speciosa*, and *Hypericum patulum* and *nepalense*, both handsome St. John's Worts. A *Eucharis* called *E. Hollingtreei* was shown, but it seemed to be but a small form of *E. Sanderiana*. Messrs. W. Paul & Son sent a specimen of the Glaucous Douglas Fir (*Abies Douglasi glauca*), which has foliage of a silvery hue distinct from the ordinary form and handsome. Mr. King, of Rowsham, showed three beautiful seedling *Coleuses* named *Lady Rothschild*, with leaves carmine-crimson, broadly edged with green; *Cloth of Gold* and *Captain Weatherill*, in the way of the well-known Mrs. George Simpson. Mr. H. Crichton, Belleaire Gardens, Glasgow, sent specimens of a new Cockscomb, the result of crossing Glasgow Prize and Empress varieties. The combs are very large and broad and of a deep crimson. The strain was commended by the committee.

**Fruit and vegetables.**—Among the principal exhibits placed before the fruit committee were the following: From Mr. Robert Veitch, Exeter, a handsome seedling Peach, a cross between *Belle de Vitry* and *Galande* and another between *Late Admirable* and *Belle de Vitry*; also from the same exhibitor a small black American Grape, under the name of *Garibaldi*. Mr. Herrin, Gerard's Cross, sent a new Raspberry named *Late Prolific*, a large fruit and very prolific sort. The committee desired to see it again. A handsome seedling Tomato was shown by Mr. Cooper, Sunninghill, and another by Mr. Mortimer, of Swiss Nursery, Farnham, both of which the committee recommended to be tried at Chiswick. Mr. Beckett, Aldenham Park, Elstree, received a vote of thanks for a dozen very fine fruits of a seedling Cucumber, which we may probably hear more of. Seedling Melons were shown by Mr. Ross and Mr. Mortimer, but none were of exceptional merit. Mr. Laxton sent samples of a cooking Plum named *Self Help*, a large black oval-shaped variety. Mr. Miles sent some capital bunches of that handsome black Grape *Gros Maroc*, and Mr. Roupell, of Streatham, exhibited fifteen sorts of Grapes, some little heard of. He also showed the same varieties grown in pots, for which he was awarded a silver Banksian medal. There was a large miscellaneous display of fruit, the principal being awarded medals, a list of which will be found in our advertising columns. Messrs. Bunyard showed fine dishes of fruits, including such fine Pears as *Dr. Jules Guyot* and some very fine fruits of *Souvenir du Congrès*. A large collection of Apples, numbering some eighty dishes, was shown by Messrs. W. Paul, Waltham Cross, who were awarded a silver medal, and Messrs. Cheal, of Crawley, had a numerous collection of Plums and Apples, and were also awarded a silver medal. Bronze medals were awarded to Mr. Bates, Poulett Lodge, Twickenham, for twenty dishes of Plums; Mr. Ford, Leonardslee, for about two dozen dishes of Plums; Mr. Divers, Maidstone, and Mr. Phillips and Mr. Dance for representative collections of Plums. Plums were also largely shown from the Society's gardens at Chiswick; indeed, the exhibition of Plums was as remarkable in its way as that of Grapes. A collection of about a dozen sorts of Tomatoes was shown by Messrs. Hooper, of Covent Garden, representing finely all the chief varieties.

## GRAPE SHOW.

THE competition on this occasion was confined solely to Grapes, and although there were many fine collections of Apples, Pears, and Plums staged, adding greatly to the interest of the show, yet without doubt the chief interest laid with the Grapes, because the classes were arranged so diversely from

those ordinarily seen at these exhibitions; classes for collections of kinds to which are attached large prizes tend to play into the hands of a few large growers, who carry off big sums with after all but a few kinds. At the recent show not only were some twenty-seven kinds invited, and at least thirty sorts were shown, but as the classes were thus limited to special kinds, two bunches only of each, not a few exhibitors were encouraged to show who otherwise would not have put in an appearance. The display of Grapes may have been less effective than is the case generally, but in its educational aspects the show proved invaluable, as in almost every instance the sorts staged were true to name. Giving the list of awards elsewhere, we need not fully particularise here the names of the exhibitors, but in some instances considerable praise is due, especially in the class for

**ALICANTES**, of which Mr. Howe, Park-hill Gardens, Streatham Common, showed some really grand bunches, weighing 10½ lbs., and superbly finished, beating Mr. Pratt, of Longleat, who, famous now as a Grape grower, was with his huge clusters only second best, his exhibits having lost freshness, whilst with him was placed equal second Mr. Lowry, Mill-hill, who had some smaller, but most perfect bunches, others being very meritorious. There were seven lots of these, and out five of

**ALNWICK SEEDLING**, though here the quality was so remarkably even, that prizes were given to each one. Mr. Clayton, of Grimston Hall Gardens, had grand shouldered bunches, very finely berried and finished; better could hardly have been shown; whilst Mr. Roberts, of Gunnersbury, and Mr. Wallis, Keele Hall Gardens, were put second, with also superb bunches, the latter's being perhaps the most perfect if a little smaller; and such good growers as Messrs. Hudson and Goodacre were equal third. Only four lots of

**BLACK HAMBURGH**, the most widely grown kind of the day, put in an appearance; Mr. Pratt here had some huge clusters, though but placed equal first with Mr. Roberts, whose splendid bunches were very fresh and superbly finished. The other bunches shown were rather poor and wanting in colour. Only two lots of *Black Prince* were sent. Very fair samples of this moderately grown Grape came from Mr. Baird, a not unknown grower of Ealing, and were good in colour if not large.

**BUCKLAND SWEETWATER** was represented by only five exhibits, generally good. Mr. Roberts came to the front again with handsome solid bunches, the berries large and well finished; Mr. Castle, West Lynn; and Mr. Allis, Old Warden Park, Biggleswade, following.

**THE DUKE OF BUCLEUCH** found but three representatives, and these were of no special value. The berries were large, but seemed in all cases to have been hard thinned, as the bunches were loose. Perhaps it is a bad setter. Mr. Allan, Gunton Park, had the best of these. An even less known Grape is the *Dutch Hamburg*, of which only one lot was shown, and those rather small. The variety, if true, has large well-formed berries, but in other respects does not seem to differ from ordinary *Black Hamburg*. One of the most meritorious Grapes in the show, as far as flavour is concerned, Dr. Hogg, again only had one representative, but fortunately these were handsome well-finished bunches, the berries having a rich golden-amber hue. One came from Mr. Hill, gardener to Lord Rothschild, at Tring Park.

**FOSTER'S SEEDLING**, one of the best white Grapes, has a smooth fine skin, covered with bloom. Mr. Miles, Wycombe Abbey, had the best samples, very perfect if not large. Mr. Allan, of Gunton Park, was awarded equal first prize for two fine bunches of *Foster's*, produced on a Vine grafted on the *Black Hamburg*, which so altered the character of the sort, that the judges at first thought they were *White Tokay*.

**OF PEARSON'S GOLDEN QUEEN**, a somewhat coarse-looking Muscat of Alexandria-shaped Grape, only two lots were shown, neither being meritorious.



GROS COLMAN brought five lots only. It is a grand Grape to look at when well done, but a bad one to colour well early, especially large bunches. Mr. Dawes, The Gardens, Temple Newsome, had good bunches about 3 lbs. each. The small third prize bunches had grandly finished and coloured berries, and showed that bulk is the chief difficulty to the cultivator in getting this Grape to finish well. What is sometimes called Gros Guillaume, but is better known as Barbarossa, had only one lot of bunches to represent it, but were excellent examples, coming from Mr. Dawes, and might have been, as far as quality was concerned, hard to beat. That coming popular Grape

GROS MAROC, although shown in but five lots, exhibits its capacity to colour well and produce fine berries. The bunches were in no case large, but the berries were fine and full of bloom. The best lot showing true oval berries came from Mr. Roberts, who, with Mr. Miles and Mr. Wallis, Keele Hall, had the same type, whilst two other lots showed the oft-met-with round type of berry. In other respects there seemed to be no divergence in character.

OF LADY DOWNES but six pairs of bunches were shown, and these, though fairly good, were in no case thoroughly finished. Probably it is too early for this winter-keeping kind. Mr. Hollingworth had the finest samples, whilst those of Mr. Wallis, if smaller, were rather more highly coloured. Four lots of Mrs. Pearson were shown, Mr. Allan having the finest, though rather uneven, bunches, and Mr. Horsfield, who came second with smaller, but well-finished ones, had staged his in pink paper, and the result was much in favour of the Grapes.

MADRESFIELD COURT was shown only by five exhibitors, though the samples were all good. Mr. Hudson had the finest bunches and deepest colour, whilst Mr. Goodacre had splendid berries, and Mr. Roberts and Mr. Vert were so even, that they were placed equal third. In these latter bunches only a little more colour was needed to make them perfect. Mrs. Pince brought no less than seven exhibits, some very finely coloured samples, large and massive, coming from Mr. Pratt.

MUSCAT HAMBURGH was represented by fair quality, and only two lots of the Mill Hill Hamburg were shown, but none showed special merit. The better known Muscat of Alexandria brought the finest show, some eight lots being staged, the best—some grand bunches having fine berries, though still wanting a little more colour—coming from Mr. Lowry, whilst Mr. Pratt ran him hard with other large clusters. Mr. Roberts came third with, if smaller at least better finished, bunches; the one lot of Raisin de Calabre sent proved to be Trebbiano, of which in its class there were four lots, all very fine samples. Mr. Hollingworth had very huge clusters, berries a trifle uneven, but on the whole very good. Mr. J. Edmonds, Bestwood Lodge, came in here a good second. Mr. Baird had the only sample of West's St. Peter's, good bunches highly coloured, whilst of Royal Muscadine the only lots shown were poor.

WHITE TOKAY brought but two lots, Mr. Roberts having the best in really fine well-coloured samples. The only other class was for any other kind, wherein some fine lots being staged, the best was found in Cooper's Black, from Mr. Wells, Fernhill, Ascot, a sort closely resembling the round form of Gros Maroc. Mr. Horsfield had Chatsworth Black, one of Pearson's kinds, the which he discarded. It is not unlike Venn's Black Muscat, and Mr. Roberts had fairly good Duchess of Buccleuch. A class for Grizzly or Muscat Grapes, the prizes offered by Mr. Roupell, of Roupell Park, did not fill, but that grower put up an interesting collection of little-known sorts.

POT VINES.—Messrs. Lane & Sons, Berkhamstead, staged on the centre table seven of their huge pot Vines, really marvellous examples of Grape culture in pots, each plant carrying from fifteen to twenty capital bunches well finished. All were spirally trained. The kinds were Black Hamburg, Foster's Seedling, Gros Maroc, Alicante, and Gros Colman. A silver Banksian medal was deservedly awarded to this fine exhibit.

**Fruit-packing prizes.**—How most effectively

and cheaply to pack Grapes well, so that they may be sent long journeys, and then open in good condition, is a problem which Messrs. Webber, fruit salesmen, of Covent Garden, have endeavoured to assist gardeners to solve. Their prizes offered for competition at South Kensington on Tuesday last, for the best packed box or basket containing 12 lb. of Grapes sent per rail over a considerable distance as an ordinary parcel, were well competed for, four boxes being presented and four baskets. On opening these it was soon seen that the baskets had the best of it, for the Grapes were in three cases very mobile and in capital condition. The two first prize baskets came respectively from Mr. S. Castle, West Lynn, and Mr. Goodacre, Elvaston Castle Gardens, both being simple cross-handle white wicker ones, light, and about 18 inches by 12 inches over. Mr. Castle having lined his basket with two sheets of tissue paper, laid in bunches round the sides, and secured the stems at the top with twine; then other bunches were dropped into the centre, and so settling down held all secure. Mr. Goodacre also lined his basket with paper, but had placed his bunches in with the stems downward, being too anxious to show the berries. That was held bad practice, because too much handling was needed in unpacking. Over both baskets and beneath the handle Willow wands were bent and fixed, and stout paper tied over completed the packing. Mr. Castle had a second, a flat basket full of Muscats, which would have taken third place, but he could not take two prizes. That had come in a specially made box, and was not a good method of packing. In the other basket the Grapes had been badly rubbed. Mr. Turton, The Gardens, Maiden Erlegh, had the best of the boxes lined with Moss and paper, and was third. One box was about four times the needful size, and was two-thirds full of Moss. No plan can be simpler or lighter than is the basket method, and apparently none can be safer.

DAHLIAS AND OTHER FLOWERS.—There were about a dozen classes devoted to Dahlias, and a capital display was brought together by the leading nurserymen and amateurs, most of the classes being numerously represented. The principal prize winners, as may be seen by the list of awards given elsewhere, were Mr. Turner, Messrs. Keynes, of Salisbury, Messrs. Saltmarsh, of Chelmsford, and Messrs. Cheal, of Crawley, among nurserymen, and Mr. Spoor, of Gateshead, Mr. Glasscock, of Bishop's Stortford, and Mr. Keith, of Brentwood, among amateurs. The display being much of the same character as that held at the Crystal Palace last week, and of which we give a detailed account, there is no need to report upon this show so fully. One of the most noteworthy exhibits was the fine collection of single varieties from Messrs. Cheal, who seem to be taking high honours this season with single varieties at all the shows. On this occasion several prizes for Dahlias were offered by Mr. Turner for competition among amateurs, and numerous exhibitors came forward, there being no less than a dozen sets in the principal class for twelve sorts. Dahlias were also shown largely in the miscellaneous class. Messrs. Cannell, of Swanley, who were awarded a silver-gilt medal, took up the largest space with a fine display of Dahlias of all sections, the most noteworthy being Mont Blanc, a large white-flowered double sort, and the new white and yellow Cactus Dahlias. The same exhibitors also showed a large collection of single and double Begonia flowers. Messrs. Kelway again showed a magnificent collection of Gladioli, including about 200 spikes, for which they took a silver-gilt medal. Mr. Ware again exhibited an extensive gathering of seasonable hardy flowers, including Lilies, Dahlias, Gladioli, Gaillardias, Hyacinthus candicans, Phloxes, and a host of other beautiful things, and which won for him a silver medal. Messrs. Laing, of Forest-hill, occupied a large space with a grand group of single and double tuberous Begonias, and were awarded a silver medal, and a similar award was taken by the New Plant and Bulb Company for a large and very fine group of Lilium auratum flowers.

**Dew of the Ever-living Rose.**—Perhaps some of your readers who have no French would be pleased by an English version of the charming lines quoted

from Victor Hugo by Canon Hole in THE GARDEN of August 15 (p. 169).—FRED. CAPES, Victoria Road, Clapham Common.

The tomb says to the Rose above :  
 "The tears wherewith the gloaming sprinkles thee—  
 What dost thou with them, flower of love?"  
 The Rose says to the tomb : "Tell me  
 What thou dost with the many things that fall  
 Into thy ever gaping maw? Dull tomb,  
 Those tears I transmute all.  
 Honey and amber blending, to perfume,  
 Amid the shade." "Sad plaintive flower,"  
 The tomb in turn replies :  
 "I make each soul that comes within my power  
 An angel for the skies."

## LATE NOTES.

**White Oleander.**—Lovely blossoms of this have been received without any letter or reference.

**Thorburn Potato** (*J. M. Thorburn*).—A fine-looking Potato; you should send it to Chiswick for trial next year.

**White Lobelia elegans** (*J. R. R.*).—A very good variety, but not so pure in the sepals as we have seen, but the lip is uncommonly rich in colour.

**Pelargonium Maud** (*C. F.*).—A good truss, but somewhat undecided in colour, judging by the sample sent, which, however, did not arrive in good condition.

5388.—**Tennis-court.**—Pulham's permanent gravel flooring for tennis-courts may be seen at the Inventions Exhibition. Its colour is not objectionable, it is very durable, and dries quickly after rain.—BETA.

**Seedling Dahlias** (*A. Campbell*).—Your flowers being badly packed were crushed when they reached us. Single Dahlias, above all other flowers, require to be carefully packed with tissue paper and damp Moss in a strong roomy box.

**Damaged Nuts** (*W. R. H.*).—The Nuts you sent were very much broken in the post. If you find them hanging on the trees with the kernels eaten out, the enemy, I think, must be a mouse. No bird could break the shells without fixing them firmly somewhere.—G. S. S.

**Seedling Carnations** (*W. W.*).—A very good gathering of seedling sorts, but being so late in the season and the flowers being very much weather-beaten, we cannot judge of their merits. As you remark, pure yellows and pure whites are valuable, and you should be careful to select and propagate all you produce of such colours.

**Crinum Powelli.**—There was a little mistake in my letter about Crinum Powelli, probably due to my having written quickly. I said that approaching, as it does, somewhat closely the beauty of the stove species, it is very striking in the open border. The word "stove" was printed "above," which was not my meaning. Crinum Powelli is far more beautiful than C. capense. C. Mooreanum I do not know.—W. H. TILLET.

**Diseased Eucharis** (*W. Wilkinson*).—I could not find any trace of worms in the earth or on the Eucharis bulb you forwarded. The earth was loose in the box and had rattled about until it had formed itself into little hard pellets. The worms were probably too fragile to withstand such treatment; if you have any more, please send them packed by themselves in a little damp Moss. The bulb is in a decaying state, but there is nothing about it to incite the cause. The small roundish dirty white insects which you mention as having attacked some of your bulbs is no doubt the bulb mite (*Rhizoglyphus echinopus*), an unfortunately very common pest on bulbs.—G. S. S.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*H. P. Blackmore*.—1, *Stapelia mutabilis*; 2, *S. Bufonia*; 3, *S. cupularis* (rare); 4, *S. picta*.—*Welshpool*.—1, *Selaginella Braunii*; 2, *S. fulcrata*; 3, *S. Mertensii* var. *robusta*; 4, *S. M. var. stolonifera*.—*R. S.*—*Tritonia aurea*.—*R. T. S.*—Variety of *Ceanothus azureus*.—*Barr & Son*.—*Alstroemeria chilensis* var.—*J. Robinson*.—*Eryngium alpinum*.—*Hooper & Co.*—*Veratrum nigrum*; shrub is *Æsculus* (*Pavia*) *macrostachya*.—*G. G.*—1, *Lonicera sempervirens*; 2, *Fuchsia boliviensis*; 3, *Mesembryanthemum* sp.—*S. D. (Laleham)*.—1, apparently a species of *Juglans* (Walnut); 2, *Euonymus europæus* (Spindle tree); 3, *Phillyrea media*.—*T. S. Ware*.—*Rubus phenicolasius*.—*G. C.*—*Odontoglossum Uro-Sinieri* (good variety).—*S. D.*—*Helianthus giganteus*.—*Barr & Son*.—*Monarda didyma*.—*G. F. G.*—1, *Veratrum nigrum*; 2, species of *Hieracium*; 3, *Telekia speciosissima*; 4, *Echinops Ritro*.—*J. W. K.*—*Arenaria* peplodes, *Aschillea Eupatori*, *Gypsophila Gmelini*, *Acanthus mollis*.—*W. Sanderson*.—*Liparis longipes*.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruit.**—*C. E.*—Apples—1, Keswick Codlin; 2, Kerry Pippin; 3, send later. Fruits not yet in character. Plums—1, Washington; 2, Nectarine Plum; 3, not known, most resembling Goliath; 4, Early Orleans.—*J. Tubs*.—1, not known; 2, Royal George; 3, Bellegarde; 4, Elruge Nectarine.—*Miss C. M.*—1, Victoria Plum; 2 and 3, Late Orleans.



## WOODS & FORESTS.

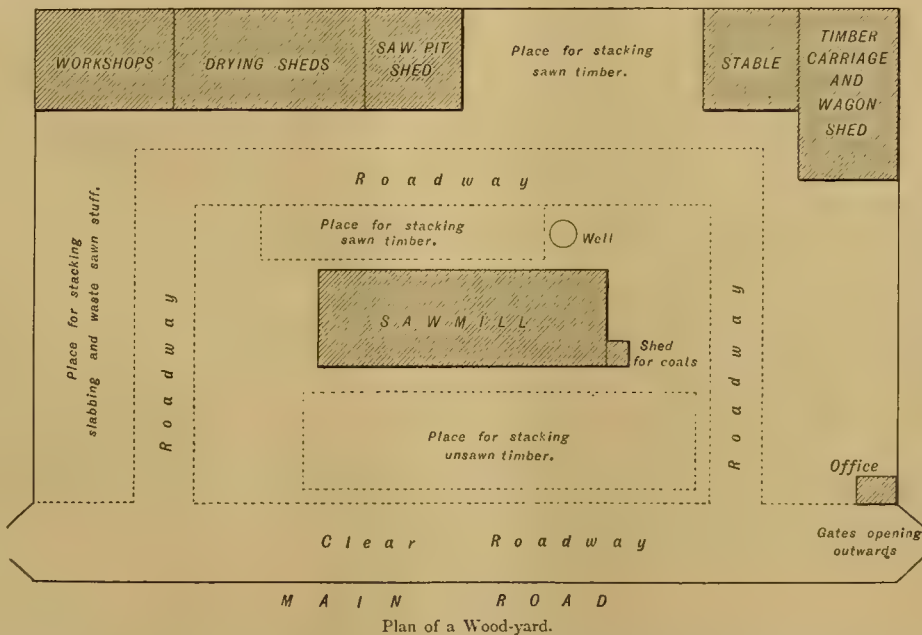
### THE WOOD-YARD.

A VERY commonplace sort of affair is the ordinary wood-yard, yet it is a thing which should occupy an important place in the economy of the estate. Either from want of sufficient thought, or from the wish to keep it out of view, the timber-yard is often relegated to a very unsuitable and in every way inconvenient position. I do not mean to imply by this that the yard should usurp the place of the lawn, or to be placed in such a position as to be an offence to the eye, but I do think a little forethought should be exercised in fixing upon a site. We often come across yards which have evidently done duty for generations. Sometimes these are fixed upon the top of steep inclines, up which every tree required for use has to be hauled before it can be sawn; in other cases we find the yard at the bottom of a hollow, into which the drainage of the surrounding district sinks, and which causes it for six months of the year to be a perfect bog; again, we find yards situated at a distance from a hard road, and in the winter-time every load of timber that goes to or from it requires double the number of horses it would be necessary to have were it by the side of the road. Without unduly pointing to these instances I will merely say that as much care is needful in selecting a place for a timber-yard as is wanted in fixing upon a site for a dwelling house. Of course there are other considerations besides those of obtaining level ground and proximity to a hard road, but these are two essentials. One important matter is to consider as far as possible the suitability of the situation with regard to the supply of timber, and another, the ultimate destination of the sawn and worked-up product. Where the sawmill is used in the yard another thing which must be thought of is water for the engine. If this can be obtained by sinking a well in the yard, a great saving will be effected. It is always a considerable item to bring water from a distance, whether by pipes or by carting. On the other hand, having water too near the surface is a disadvantage, as where the saw-pit is used it will always cause trouble and annoyance. All these circumstances need be taken into account when choosing a place for the yard, and it will generally be found, where other things are equal, that as near as may be the centre of the estate will be most convenient. Everything, however, has not been done when the site is chosen, as the size, construction, and arrangement must be decided upon. The size, of course, greatly depends upon the extent of the estate and the amount of work to be done. The construction upon whether a piece of land already enclosed is found available, as sometimes happens, and with buildings on it, that with a little ingenuity may be made to do good service. When this is so, arrangement will be subservient, but assuming that an unfenced piece of land is fixed upon, for most places the plan

given herewith is as good as any. When the ground selected is turf with a hard sub-soil, it may, perhaps, be as well to remove it, as the turf will be useful elsewhere and the hard bottom formed by the subsoil will be a great advantage in forming the yard. This decided upon, size and shape is the next matter. In the plan given the width of the yard is two-thirds of the length; the measurement we suppose to be 120 feet for the former and 180 feet for the latter.

This, as before stated, must be varied according to requirements, but for a moderate amount of work will be found a suitable size. With regard to the material for enclosing, a close-boarded fence about 5 feet high is very effective, and when the timber grows on the estate need not be very costly. Oak posts about 8 feet long, sawn down 5 feet, and of any convenient size; indeed, if economy of timber is thought of more than finish, the posts need not be squared all the way round, but merely have one flat side. Oak rails should also, if possible, be used, but these again do not call for much finish; so long as they are strong and have one sawn side they

themselves. Where the situation would allow it, perhaps another outlet may be an advantage, but if care is taken to keep a clear roadway at all the points marked, the two principal entrances and exits will probably be found sufficient. I have as yet only spoken of the materials for the fence. What is used for this, however, will be equally suitable for the buildings round the yard, only, of course, for those at the back it would have to be carried higher. In the front of the workshop a door and windows would have to be provided for, and the boarding, if 1 inch thick only, would be amply sufficient. The drying and the sawpit sheds would be open in the front, posts only being inserted at intervals, but no boarding; and with regard to the back part of the former, if the fence was carried no higher than 5 feet, it would be all the better, as it would allow the air to circulate freely. A mistake is sometimes committed in this way. If timber is stacked away thoroughly dry, this ventilation is not needed, but if placed under cover in its green state, and if thorough ventilation is not provided for, decay will set in and disappointment ensue. Whether the stabling and shed for the timber carriage and wagons will be wanted in the yard will depend upon conveniences elsewhere, but if erected in the yard, the place indicated in the plan will be the most suitable. In consequence of the length of the timber carriage extra room has to be provided; therefore, it is necessary to erect it at the right-hand side of the yard instead of at the back. The doors will, of course, be in the end of this shed, and open facing the main road. A word as to the covering. This may either be of tiles or corrugated iron. With respect to the sawmill and the drying-shed, I should greatly prefer the



will answer every purpose. The boarding should be  $1\frac{1}{2}$  inches thick, and should be of Elm. If this is not at hand, Fir or Poplar may be used, but preferably Elm. Whatever the kind of timber used, it should be squared at the edges, and be of a width not exceeding 8 inches or 9 inches, and when the fence is completed be covered with two or three coats of tar. It will be seen that the gates (or doors) marked in the plan are made to open outwards and at the side, so as to give a clear roadway through the yard and along the front of the sawmill, where the heavy unsawn timber will be deposited at the place indicated. This when it has passed through the sawmill will be stacked on the ground also allotted, the portions having to undergo seasoning operations being taken to the drying sheds also marked on the plan. The ground at the left-hand side of the yard may be devoted to stacking away the slabbing and other waste sawn stuff until it can be finally dealt with. The small building at the right-hand extremity of the sawmill shed is for coals for the use of the engine, the small circle being the well, and by the entrance gates is a small office, which may or may not be dispensed with according to circumstances. The other buildings may be taken to explain

latter, but with the workshops, sawpit shed, stable, and wagon shed, there may be something to say in favour of tiles. With corrugated iron little timber is required in the roof, and little trouble is entailed in putting up and taking down, but where the buildings are required to be more of a weather-proof nature, or where it is necessary to keep up a fair temperature, it can hardly be recommended in preference to tiles. The sawmill figured is a similar one to that of which illustrations and a plan have recently been given in THE GARDEN, and although modifications will, no doubt, be necessary under various circumstances, taken on the whole I know of no arrangement equally suitable to the general requirements of an estate where they are sufficient to warrant the use of a sawmill. In cases where the work is not enough to find employment for steam power, the sawpit shed or sheds should, if practicable, occupy the space here allotted to the sawmill. A very general plan with respect to this is to place the sawpit in the position here given. This is well enough when comparatively little work is done on it, but when in continual use it leads to a mixing up of sawn and unsawn wood that is obviated when there is an outlet at the back.

*The Banks, Lyneham.*

D. J. YEO.



## PROPERTY IN TIMBER.

THE difficulties in dealing with timber are in the majority of instances economic ones, yet we occasionally hear of differences of a legal nature cropping up with respect to it, which are not a little perplexing. When in conversation with a merchant on this subject some time ago we remember his mentioning a case in which he only just escaped an unpleasant contest. The gentleman of whom he bought a considerable quantity of standing timber died before it was all felled and removed. This gentleman who sold the timber was merely tenant for life, and as such acted within his right in making the bargain; but on his death his successor at once refused to allow any more trees to be touched. This particular case, however, did not come to a legal issue, as the new holder ultimately consented that the remaining trees should be felled and removed on condition that a very short time was occupied in the operation. The real rights of the parties therefore did not come to the test. Had they done so through the persistent refusal of the new owner to have the trees felled, the situation of the merchant would have been peculiar. He had bought and paid for his timber, and for it held a receipt, which in the ordinary phases of business transactions would have been an incontestable proof of ownership, yet through the failure of the life of one of the contracting parties, what was without doubt a perfectly valid and legitimate bargain, would, if the objection of the new owner was sustained, have become invalid, and the presumption is that the merchant loses his property. That this would actually be the case is improbable, as the claim would then lie against the representative of the personal estate of the deceased. The situation, however, is anomalous, and has some points in common with a case recently before the courts, where a large number of trees—some 20,000—had been blown down in one of the gales with which we have during the last few years been visited. This, however, was not a question between merchant and owner, but between the representatives of the real and personal portions of the estate. Shortly after the gale had occurred, and before any steps had been taken towards the sale or removal of the timber, the then owner died.

By his will the personal estate went in one direction and the real estate in another. The question in controversy arose from this. Had the deceased lived to sell and remove the timber, no doubt would have been entertained as to his perfect right to the proceeds of the sale, an amount stated to be some £3500. As he did not, however, the successor to the real estate claimed the trees as still belonging to it, and the executors also claimed them as being blown down, and, consequently, a part of the personality. Mr. Justice Pearson, before whom the case first came for hearing, decided that the trees were so far blown down, that although the roots were still partly embedded in the soil, they could no longer grow in the ordinary way, and, therefore, may be considered as severed from the freehold. This decision was appealed against, and the Lord Chancellor laid down—and with this decision Lords Justice Cotton and Lindley concurred—that so long as some new force, more than was required to overcome the *vis inertia* of timber, was necessary to remove a fallen tree, that the tree may still be considered as attached to the freehold. Whether this question will be carried to the Court of Final Appeal we do not know. One thing, however, is clear, and that is it will add another link to the chain of perplexity already surrounding the forester.

That individual will now have to direct his attention to the laws of gravitation, and have to discover with the utmost exactitude the precise amount of passive resistance offered by each individual tree as it lies prone on the soil. The dividing line laid down by our legal authorities is so fine as to render this essential. If a tree when blown down still retains a hold of its native soil, or carries away any portion of this soil, although the roots itself are entirely freed from it, as often occurs when blown across a bank or any intervening high ground, from this ruling such a tree must still be held to be a part of the freehold, as obviously this new force must be called into requisition to remove the soil still held by the roots, as the force necessary to remove the timber itself would not be sufficient to remove the timber plus the soil. Doubtless on most decisions arguments may be carried to a *reductio ad absurdum* point; nevertheless to other than legal minds the common-sense view taken by Mr. Justice Pearson will commend itself.

## VALUE OF SPRUCE TIMBER.

IN what part of Yorkshire will J. B. Webster tell us is it customary to sell timber at 52 feet to the ton? I have a record of hundreds of thousands of feet sold in past years, but no record of anything of that kind; neither do I know of any producer who sells at that figure; nor has such a thing been stated in these pages, unless it was by Mr. Webster himself. Your correspondent's deductions on that point may therefore be dismissed. As regards the value of Spruce, I may say that I have read all Mr. Webster has written on the subject, as well as his quotations from other sources, but no doubt others have remarked, as well as myself, that his so-called valuations, with the exception of some limited transactions in ladder poles, were purely speculative, and had regard to timber that never was sold; whereas it is the market I go by and the supply and demand, which show that Spruce timber is in least request, and the price always the lowest—so low that, even allowing for its rapid growth, it is an unprofitable tree to grow. Mr. Webster's account of plantations where the Spruce was valued at the enormous percentage of 5s. to 1s. above the Scotch Fir, and 5s. to 3s. above the Larch, carries its extravagance on the face of it. It is possible that in a suitable soil the Spruce might have smothered the other two trees and the comparative values be as stated, but the example is one that needs further vouching for. The relative prices of such timber hereabouts in North Yorkshire and in the midlands are, for Larch sold on the ground and hauled at the purchaser's expense, from 6d. to 8d., and for better quality 9d. per foot to timber dealers, in some cases the purchaser paying for the felling; and for Spruce as low as 1½d. or 2d. per foot is the most offered, but it is not sought after at that. Scotch Fir runs from 2d. to 4d. per foot. These ratios have been pretty constant for many years back, and are worth a volume of such imaginary valuations as Mr. J. B. Webster furnishes. Fast as the Spruce grows, it cannot keep pace in value with its neighbours, nor anything like it. Delivered at the collieries near at consumers' prices, Larch, as yet, has been 1s. 2d. and 1s. 3d. per foot, Spruce 5d., and not much taken. Descanting on the qualities of the Spruce, Mr. Webster says that "a tree capable of attaining to the dimensions of 400 cubic feet of timber in our wind-swept island is justly entitled to rank in the first class," and further on he asserts that the tree is "unsuitable" for planting in wind-swept positions—hillsides, for example. How does your correspondent reconcile these

two statements? and, above all, if, as he says, the Silver Fir ranks in the first class as a timber tree, how comes it "that speaking within the mark he can say that for every Silver Fir he has planted he has planted a thousand other kinds?" Very queer testimony this from an admirer of the tree. His locality is, we know, and according to his own showing, one of the best for Spruce. He places it in the front rank of timber trees, but in practice he plants it at less than the rate of a thousand to one! Mr. Webster's practice is much more suggestive than his precept.

Since the above was written I have just read the "English Timber Trade Report" of the past week in a contemporary to hand, and as it happens it relates to Spruce. It states that the immense quantities of this timber and Larch blown down in Scotland ten years ago is still encumbering the market. Larch, it appears, "has gone away fairly" at reduced prices, but "purchasers of those lots that contained principally Scotch and Spruce have experienced much difficulty in finding a market." Stocks, it is stated, have accumulated at the portable sawmills, and after paying for labour and other necessary expenses connected with cutting up almost nothing was left for the timber. . . . "At some of the sawmills, boards for sarking have been cut, but this trade in home timber has been made by the foreign trade scarcely worth the trouble, American and Baltic Spruce competing so closely with native growths, and being, if anything, superior in breadth, &c., that it is worse than cutting them into railway sleepers." So much for the prospects of Mr. Webster's "timber of the first rank." Of course, it will be urged that a glut of blown-down timber is an exceptional thing, but, granting as much, it must be remembered that such gluts have to be reckoned with, and that in the present instance the glut of fallen timber has almost put a stop to sales in the north for the past ten years. Moreover, Spruce trees are always blown down in larger numbers than any others, and there are always plenty of wind-fallen lots in the market.

YORKSHIREMAN.

## HEDGEROW TIMBER.

MR. YEO'S plea for hedgerow trees will be harmless, for the reason that their presence in such numbers as they exist in the greater part of England is so generally condemned, that nothing that can be said in their favour will bring about an increase of them. So behind the times is teaching of this kind, that it seems strange anyone should be found ready to commit themselves to it. Except so far as regards the effect which hedgerow trees have on the landscape the entire ground on which Mr. Yeo rests his advocacy of them is untenable. And even from this point of view their presence in the condition they exist over one-half the kingdom is as much a disfigurement as an advantage, with their branches lopped as they are, so that their long, naked trunks and diminutive heads are little better in appearance than huge brooms. This is no imaginary state of matters, but a fact that anyone who moves about much with his eyes open cannot fail to see. Neither is there any difficulty in understanding how it has come about. The owners of the land in most cases would not permit the removal of hedgerow trees on their estates, but allowed their tenants to carry the lopping process to such excess, that the presence of the trees in their disfigured state is a questionable advantage to the landscape, and their value from a timber point of view is very little.

Half the hedgerow trees as they now exist, taking the kingdom collectively, could not by any possible treatment ever be grown into timber that would fetch a price which would cover a fourth of what they have taken from the land. And there is too much reason to suppose that they will remain as worse than useless encumbrances. If, for every hundred trees that



have been allowed to stand, ten or a dozen of the best had been retained and these properly managed, there would have been a considerable gain in appearance as well as in the value of the timber; whereas, as matters now stand, hedgerow trees are of little value to the landlord, contribute little to the appearance of the landscape, and do a vast amount of harm to the farmers by taking from the soil that which should go to support the crops they cultivate. Mr. Yeo could not have hit upon anything connected with tree management, whether for use or ornament, that is so notoriously bad as that of the hedgerow trees through the length and breadth of the land—a fact that is so generally admitted by those capable of judging, that it is a rare occurrence to meet with anyone inclined to venture anything in its favour. Mr. Yeo maintains that hedgerow and field trees increase the value of property. Such reasoning is founded on a one-sided calculation that might be accepted by those who do not understand the subject; but those who do will have no difficulty in detecting the inaccuracy of the assertion. Granted that an estate offered for sale having hedgerow timber on it of some value may be expected to command a price equal to the value of the timber in excess of what the same estate would sell for if the timber were non-existent; but what about the injury that the trees have done to the crops the land has borne for the two, three, or more generations that the trees have taken to grow up? The rent that land will fetch is just in proportion to the value of the produce it will yield, and no more. Does Mr. Yeo mean to say that an estate such as he pictures, which is worth more on account of the hedgerow timber on it, has all along whilst the timber has been growing fetched as much rent as it would if the trees had been absent? Does he mean to say, for instance, that the farms in the East Lothians, composed of big open fields with scarcely a tree to be seen on them, would command the rents they have all along let for had they been encumbered with trees like the land in some of the midland counties? I scarcely think he will assert this. And if not, his calculation falls to the ground. Looking at the matter from a reasonable standpoint, the value of an estate is just in proportion to what it will let for for farming purposes. Mr. Yeo has been unfortunate in the time he has chosen to defend the presence of hedgerow trees in greater number than requisite to take off the naked appearance which long continuous lines of treeless hedgerows present, such as may be seen in some parts of Lincolnshire and Cambridgeshire, and which no one with an eye to landscape effect would like to see general. But the state of matters as regards hedgerow trees in these counties is exceptional, and the opposite extreme to that which exists in much the greater part of England, where, as those interested in matters of this kind know, the trees too often stand in almost continuous lines round the fields, so that were it not for the extreme lopping they are subjected to, the hedges under them could not live.

The plea for hedgerow trees which Mr. Yeo sets up has often been urged before, but it will not bear looking into. In cold, cutting weather the current of wind is stronger under trees than away from them, the wind, to which their heads is an obstruction, being forced down in greater volume below. A few small groups of from three to half a dozen trees here and there about the fields, away from the hedgerows, are vastly preferable, from an effective point of view, to having them in the straight lines of the hedges; and when not too numerous, and moderate lopping is practised, they supply what is needful in the way of use and appearance as well. T. B.

**Wanted, an efficient timber marker.**—Will anybody tell me where I can get a really effective instrument for marking trees? I have something called a "timber scribe," which is no bigger than a pocket knife; but this is not at all the kind of implement with which to traverse a thick wood and make legible and unmistakable marks on large rough-barked trees. What is wanted is some kind of handy, but large, tool which can be used occasionally to clear one's way in a copse or plantation. For any help I shall be much obliged. It is im-

portant there should be no mistake about the mark and no counterfeit of it easily made by others. I have to cut out and thin trees for the sake of views and improvement, and therefore an unmistakable and special mark is desirable.—W. W.

#### BRITISH WOODS FOR FURNITURE.

SOMEHOW or other the term "furniture wood" has got to bear such an impression of something foreign, that when we use it it seems almost impossible to believe that we are referring to anything British. Indeed, it may come almost as a revelation to some that we are in most places in this country surrounded by trees of what is really admirable furniture wood. Correspondents have from time to time urged the suitability of many of our home-grown woods for building purposes, but however true that may be, it is nevertheless true that many of the commonest of our woods will make furniture equally fit to grace the dwelling of the prince or adorn the cottage of the peasant. Much, of course, will depend on the kind selected and the skill devoted to its manufacture, but the fact remains that the wood itself is everything that could be desired. We have no wish to disparage or in any way undervalue the many really beautiful woods brought into this country to be worked up into furniture, but it is a simple act of justice to direct attention to the fact that many of our own woods are no less beautiful or suited to the purpose. What helps to emphasise the fact is that many of the woods to which we refer are peculiarly British, or at any rate indigenous to the country, and at the moment of writing we do not remember that any of the more recent introductions can claim equality in this respect.

**THE OAK.**—When speaking of our British trees we like, if possible, to give the place of honour to this pre-eminently British tree, and now we are writing on the subject of furniture woods we are able to do so more from the right it has to occupy the position than from any sentimental desire to see it first in the list. The term furniture, as usually applied, would refer merely to the conveniences and appliances within the house, but beyond this there is the furniture of the lawn and garden. There is something in the word that does not seem to accord with its use in the two latter places, but properly constructed and arranged the unsuitability is merely apparent. To return, then, to the use of the Oak for the more important and general of these purposes, we can scarcely fail to remember that much of the massive and almost everlasting domestic furniture handed down to us after centuries of hard wear was constructed of this wood. It would be extremely interesting to trace the history of the art of furniture making, if only in connection with the use of the Oak, but as we have rather to do with the present than with the past, we must content ourselves by remarking that this is a wood which has never ceased to hold a high place through all the various vicissitudes the manufacture of furniture in this country has undergone, and that it still holds a place second to none. That the wood is popular in the sense of being universally used would perhaps be untrue, but that it is still held in high esteem by the possessors of taste and wealth is evidenced by its presence in the drawing-room, the library, and almost every other important position in the mansion or the villa. A wood like this, which always looks well without any artificial application of paint or stain, is, perhaps, from this very circumstance more frequently imitated than any other. An indirect compliment it may be to have our doors, window-frames, and panelling painted in imitation of this really beautifully grained wood, but it is one, nevertheless, which will not pass muster with any but the most untrained eye. The deception probably is never intended to be believed in, but whether it is or not, it is a pretty plain evidence that the wood is worthy of being imitated. From this follows the very natural inquiry if worth imitating, why not worth using? But as

this is a little outside our subject here, we merely ask the question in passing, and leave each reader to answer it as suits him best. For use, however, in our better class of furniture the claims of the Oak cannot be gainsaid. Durable almost as the hills themselves, more beautifully marked than the woods of Honduras or San Domingo, and eminently suited for the plain hall chair or bench, it works up with equal suitability for the most elaborate design. For our chairs, our couches, our writing-desks, tables, sideboards, or the pews of our churches, the British Oak is equally fitted. Amidst the costliest surroundings or in the most squalid mud hut the wood of the Oak is never out of place. In the garden or on the lawn it is not so much the wood of the trunk itself, as it is the unsawn branches of it that come into requisition. It may seem like stretching a point to say that the branches of the Oak will make good furniture. It is, nevertheless, a fact, if we may be allowed to apply the term to outdoor seats and the like. In this we have to depend for effect on the curving and twisting of these branches, and the rustic appearance they present when properly arranged, more than on any particular quality in the wood itself; yet this use will only further serve to show that the Oak is what we assert it to be, viz., from its trunk to its topmost branch, the tree of all others which must head the list of British furniture woods.

**THE ASH.**—If we continued our list in historical sequence, the Elm should probably occupy the next place to the Oak, but to place the trees, so to speak, in their social order, the Ash will probably take second place. This tree, although it has not had much to do in making history, or occupied any great place in the annals of furniture making, is a wood well adapted for the purpose. The whiteness of its wood and the clearness of its grain causes it to be sought after. From the nature of the objects for which it is mostly used it is not so often seen in the more public rooms of the establishment as is the case with the Oak and Elm, as it is for bedroom suites that the Ash is used and seems peculiarly fitted. Of a less hard texture than the Oak, it is yet capable of being worked to a good surface, and the colour of the wood and its occasional feathering of grain gives to an apartment where it is found an air of lightness and elegance hardly surpassed. The Ash would be as much out of place in the drawing-room or dining-room as heavier or darker woods would be in the bedroom; indeed, the comparison is scarcely equal, as, though not so well adapted as the Ash, the Oak would be more suited for the latter apartment than the Ash would be for the former.

**THE ELM.**—This, perhaps, for certain classes of furniture is the most widely used British wood of all, and although from the beautifully figured grain it often presents it is used for the better kind of work, the Elm in a general sense may be termed the poor man's furniture wood. This is true at any rate of chairs, especially the well-known Windsor, which is found in every cottage home. Elm enters largely into the composition of this chair, and for this alone a very considerable quantity of this wood is consumed. From its name one would be led to suppose that the home of the manufacture of this chair was at or near the royal borough. This is not so, however, as, so far as the writer knows, no Windsor chairs are ever made there. A principal seat of the manufacture lies in the part of Buckinghamshire about midway between that place and Oxford. A very interesting theme would be a description of the consumption of the Elm in this district, but as we are now rather enumerating the woods than giving an account of their manufacture, we must be content with saying that a by no means inconsiderable part of the Elm placed in the market in the adjoining counties finds its way into this neighbourhood. It is rather remarkable that but little good Elm grows in the vicinity of this place, where so much is used; but this may partly be accounted for when we come to deal with

**THE BEECH.**—It is here that this tree is or was found growing to perfection, and this may to some extent account for the settling down of the chair trade on this particular spot. Other advantages it had none, as it is on no navigable river, and is but indifferently served by rail. The Beech, as previously remarked, grows here well, and this with the Elm is



the principal wood used in the cheaper kind of chair. Other kinds of furniture do not here appear to receive attention, but chairs of every conceivable shape, size, and kind of material abound in almost countless numbers. The Beech was formerly considerably used for other articles, such as bedsteads; but since the introduction of metal very little is now used for the purpose.

We have here only referred to four of our commonest trees as furniture woods, and this for the present must suffice. Perhaps at a later date space may be available for some remarks on other woods, but even if these four had exhausted the list they would be enough to show that our home-grown woods are well adapted for manufacturing into furniture.

#### REMEDIES AGAINST RABBITS.

To those whose trees and plantations suffer from the attacks of rabbits and hares the following recipes will be found useful, as they are amongst the most usual remedies:—

**ASSAFŒTIDA.**—A teaspoonful of tincture of assa-fœtida in half a bucketful of liquid clay, mud, or muck of any kind, applied with a brush to the stem and branches of young trees will preserve them from the attacks of hares and rabbits without injury to the trees. Two or three applications during the winter will be sufficient.

**CORK GUARDS.**—Rabbits and hares may be kept from gnawing young saplings by tying cork guards round the foot of the trees. The material used is virgin cork, at present so much employed in the construction of ferneries, and which can be procured in pieces of all shapes and sizes. It can be easily placed round the stems of young trees and attached in such a way that the attacks of hares and rabbits will be rendered ineffectual. The mischief caused to specimen trees planted near dwelling-houses, in parks, or on lawns, by cats and dogs, &c., may also be prevented by the same means. First fix the pieces in their proper position, and then fasten them together with wire or strong twine, an operation which can be done at a trifling expense. It would, of course, be better if such tree-protectors could be made to close round the stems and open and shut by means of hinges.

**COW MANURE.**—A mixture of lime, water, and cow manure made pretty strong forms an excellent anti-rabbit composition. There should be plenty of the latter ingredient, both to make it adhere properly, and because, if lime be in excess, the mixture dries too white upon the trees and is unsightly; whereas, if properly mixed, it dries just the right shade of greenish grey. Where tar is objectionable on account of its injuring the young trees, a simple mixture of soot and cow manure made thin enough to be put on with a brush will help to ward off the attacks of rabbits during ordinary seasons.

**FAGGOTS.**—In large plantations where hares and rabbits have to be dealt with by the thousand, one of the best remedies is to get from 50 to 100 faggots, stack them up in any corner, and you will find the rabbits burrowing under the stack in a very short time. Give them a month's peace, and then by the help of a net put all round the faggots, proceed to throw the wood over the net; you will find the rabbits at the bottom of the heap, when you should be armed with a short, stout stick, and give them the *coup de grace*.

**SULPHUR.**—A mixture of equal proportions of sulphur, soot, and lime made into a thick cream with liquid cow manure is also very effectual in cases where a strongly-smelling remedy is not objected to.

**TAR.**—Where appearance is of no consequence Stockholm tar is recommended. Gas-tar should never be applied to young trees, especially if the bark be already stripped away from them. The stems should be tarred from the ground to about 20 inches in height. If the trees be planted for ornament, the following plan is preferable if the extra expense be no objection: Instead of applying tar to the tree itself, stick three or four stakes round each plant, at the distance of 9 inches or a foot from it, then tie a piece of fresh tarred line round the stakes at the distance of 9 inches from the ground. The tar should be mixed with an equal portion of manure, of

about the same consistence as the tar, or it may injure some of the trees. A strip of tarred paper tied round the stem is also of service where the rabbits are not very numerous. Strong subjects may be daubed with a mixture of equal parts of gas-tar, cow manure, and water made into a thick paint. If there be any marks of old bites, they should be carefully painted over.

**VARIOUS REMEDIES.**—Amongst miscellaneous remedies we may cite the following: Place a thin layer of reeds or refuse round the stems, and fasten it with a tough reed or tie of straw. Rub the bark with something distasteful to them, such as strong-smelling grease. The application of a paint made of butter-milk and soot when snow falls, and again in March, is said to be an excellent remedy. Wire netting or tying Birch or Heath round the necks of plants are effectual remedies in severe seasons where the rabbits are numerous. C. W. Q.

#### SOILS FOR LARCH.

THE following remarks from the pen of an experienced planter of forest trees are worth the attention of young foresters:—

**SOILS SUITABLE FOR LARCH.**—"1. *Sound rock*, with a covering of firm loam, particularly when the rock is jagged or cleft or much broken and mixed with the earth. In such cases a very slight covering or admixture of earth will suffice. We would give the preference to primitive rock, especially micaceous schist and mountain limestone. Larch seldom succeeds well on sandstone or on trap, except on steep slopes, where the rock is quite sound and the soil firm. We have had no experience of Larch, except very young, growing on chalk and its affinities. Primary strata are generally well adapted for Larch, except where the surface has acquired a covering of peat moss, or received a flat diluvial bed of close wet till or soft moorish sand, or occupies too elevated or exposed a situation, the two latter exceptions only preventing the growth, not inducing rot.

"2. *Gravel*, not too ferruginous, and in which water does not stagnate in winter, even though nearly bare of vegetable mould, especially on steep slopes and where the air is not too arid, is favourable to the growth of the Larch. The tree seems to prefer the coarser gravel, though many of the stones exceed a solid yard in contents. The straths, or valleys, of our large rivers in their passage through the alpine country are generally occupied for several hundred feet of perpendicular altitude up the slope by gravel, which covers the primitive strata to a considerable depth, especially in the eddies of the salient angles of the hill. Every description of tree grows more luxuriantly here than in any other situation in the country. The causes of this are: (1) the open bottom allowing the roots to penetrate deeply without being injured by stagnant moisture; (2) the percolation of water down through the gravel from the neighbouring hill; (3) the dryness of the surface not producing cold by evaporation, and the ground, on this account, soon heating in spring; (4) the moist air of the hill refreshing and nourishing the plant during the summer heats, and compensating for the dryness of the soil; (5) the reverberating of the sun's rays between the sides of the narrow valley, thus rendering the soil comparatively warmer than the incumbent air, which is cooled by the oblique currents of the higher strata of air, occasioned by the unequal surface of the ground. This comparatively greater warmth of the ground, when aided by moisture, either in the soil or atmosphere, is greatly conducive to the luxuriance of vegetation.

"3. *Firm dry clays and sound brown loam.*—Soils well adapted for Wheat and red Clover, not too rich, and which will bear cattle in winter, are generally congenial to the Larch.

"4. *All very rough grounds*, particularly ravines, where the soil is neither soft sand nor too wet; also the sides of the channels of rapid rivulets. The roots of most trees luxuriate in living or flowing water, and where it is of salubrious quality, especially when containing a slight solution of lime, will throw themselves out a considerable distance under the stream. The reason why steep slopes and hills, whose strata are nearly perpendicular to the horizon, are so much affected by Larch and other trees, is because the

moisture in such situations is in motion, and often continues dripping through the fissures throughout the whole summer. The most desirable situation for Larch is where the roots will neither be drowned in stagnant water in winter nor parched by drought in summer, and where the soil is free from any corrosive mineral or corrupting mouldiness. Larch, in suitable soil, sixty years planted and seasonably thinned, will have produced double the value of what almost any other timber would have done in the same time and situation; and from its general adaptation both for sea and land purposes, it will always command a ready sale."

**SOILS UNSUITABLE FOR LARCH.**—The same experienced and scientific author has enumerated the situations, soils, and subsoils in which the Larch, if planted, though it will grow freely, is subject to the rot or to other diseases.

"1. *Situation (steep slopes excepted) with cold till subsoil, nearly impervious to water.*—The Larch succeeds worst when moorish dead sand, alone or with an admixture of peat, occupies the surface of these retentive bottoms. Where the whole soil and subsoil are one uniform, retentive, firm clay, the Larch will often reach considerable size before being attacked by the rot. When this heavy clay occupies a steep slope, the Larch will sometimes succeed well, owing to the more equable supply of moisture and the water in the soil not stagnating, but gliding down the declivity. In general, soils the surface of which assumes the appearance of honeycomb in time of frost, owing to the great quantity of water imbibed by them, will not produce large sound Larch.

"2. *Soft sand soil and subsoil.*—Sand is still less adapted for growing Larch than clay, the plants being often destroyed by the summer's drought before they attain sufficient size for any useful purpose; the rot also attacks them earlier on sand than on clay. It appears that light sand, sloping considerably on moist back-lying alpine situations, covered towards the south by steep hills, will sometimes produce sound Larch; whereas, did the same sand occupy a dry front or sheltered situation, the Larch would not succeed in it. The same moist back situation that conduces to produce sound Larch in light dry soils may probably tend to promote rot in the wet. The moisture and the less evaporation of altitude may also in some degree diminish the tendency to rot in dry light sand and increase it in wet clay. Larch will sometimes succeed well in sharp, dry, alluvial sand left by rivulets.

"3. *Soils incumbent on brittle dry trap or broken slaty sandstone.*—Although soil the *débris* of trap is usually much better adapted for the production of herbaceous vegetables than that of sandstone or freestone, yet Larch does not seem to succeed much better on the former than on the latter. The deeper superior soils generally incumbent on the recent dark red sandstone are better suited for Larch than the shallow inferior soils incumbent on the old grey and red sandstone.

"4. *Ground having a subsoil of dry rotten rock, and which sounds hollow to the foot in time of drought.*

"5. *Rich earth or vegetable mould.*—Independently of receiving ultimate contamination from the putrid juices or exhalations of this soil, the Larch does not seem, even while remaining sound, to make so much comparative progress of growth in it as some of the hard-wooded trees, as Elm, Ash, and Sycamore.

"6. *Black or grey moorish soils with admixture of peat moss.*—Although the soils specified in this class will not afford the finest Larch timber, yet they may be very profitably employed in growing Larch for farming purposes or for coal-mines, where a slight taint of rot is of minor importance. The lightness of Larch, especially when newly cut (about one-third less weight than the evergreen Coniferæ), gives a facility to the loading and carriage, which enhances its value, independently of its greater strength and durability. Those Larches in which rot has commenced are fully as suitable for piling as the sound; they have fewer circles of sapwood and more of red or matured wood. When the rot has commenced, the maturing or reddening of the circles does not proceed regularly, reaching nearest the bark on the side where the rot has advanced farthest."



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"This is an Art  
Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## INDOOR GARDEN.

### WINTER FLOWERS.

THERE are many plants which may be induced to flower in winter ; but while some only give a scant and ineffective supply of blossoms, others produce them in summer-like profusion and richness ; and it is these which we wish to bring prominently into notice. Of the twelve months, December and January are those in which flowers are most valued ; about Christmas and onwards anything in the form of a flower is welcome, and showy blooms are greatly appreciated.

**CAMELLIAS.**—What Rhododendrons are in our woods and pleasure grounds in April and May, and Roses in our flower beds in June and July, Camellias are amongst indoor plants about Christmastide and throughout the winter, and therefore their culture should be universal. Many of the newer varieties have larger blooms than the old sorts, but for supplying a large quantity of useful flowers the old kinds have everything to recommend them. The old double white, for instance, is perhaps the finest Camellia grown. None can surpass it in purity, and none will produce more blooms when planted out in a bed. Many get their plants to make abundance of wood, and flower-buds are formed in plenty, but they fall off before they open, and many fine blooms are consequently lost. This misfortune is said to be caused in many different ways, but I attribute it to three. The first dryness at the root, the second aridity of atmosphere at the time when the blooms should be opening, and the third indifferently ripened wood. Camellias dislike dryness in any form, and soon show their abhorrence of it. We all know that no half-ripened wood will bloom or fruit perfectly, and this applies forcibly to Camellias. We grow our plants in all the sunshine possible throughout the year, and the roots and atmosphere, especially in winter, are constantly moist. If we cannot syringe twice daily through danger of damaging the blooms, we moisten the ground under them and the centre leaves where flowers are not so plentiful as outside. In order that Camellias may bloom freely about Christmas, they should be induced to make young wood in April or about that season, and then the buds have plenty of time to swell up, mature, and open at the proper season.

**BOUVARDIAS** should be grown in every garden to bloom in the winter. They are like *Ixoras* in miniature, but much easier grown, and mostly more profuse in blooming. At one time we had upwards of a dozen sorts, but now variety has no charm for us ; we only value those which bloom best, and these we have found to be *B. Vreelandii*, pure white, and *B. Hogarth*, a very fine scarlet. Plants of these in 6-inch pots will produce from two to three dozen heads of bloom in December, and as each will measure from 3 inches to 5 inches in diameter they are objects of the greatest beauty ; and, besides this, when grown in a stove temperature and induced to go on making wood they keep on flowering in constant succession. We propagated young plants of them in March, grow them

in cold frames during summer, and keep the shoots well pinched in until September, when, in a little more heat, they throw up numerous shoots and lovely flower-heads in profusion.

**POINSETTIAS** are most brilliant in winter. The brightest bed of scarlet *Pelargoniums* which anyone ever saw in summer does not excel a quantity of these placed together when fully developed. July is soon enough to put in cuttings of them. If taken and rooted in March or April, the plants will be fully grown by August ; then, as a rule, the bottom leaves fall off, and the plants do not improve. Late-rooted plants, on the contrary, cannot do this ; they grow on until December, and they have a freshness both in foliage and floral bracts which early ones never possess. They require no special forcing to have them in perfection in winter. It would be almost an impossibility to prevent them from blooming at Christmas ; very good plants of them may be grown in 6-inch pots. They will do with little more than cool frame treatment until October, when an intermediate temperature will grow them on and bring them out well. The largest heads will be formed in a very warm place, but the most useful are those from an intermediate house. Heads cut from great heat will not remain fresh and bright in rooms for more than two or three days, but firmer and cooler-grown ones will last a fortnight or longer.

**PRIMULAS**—*i.e.*, those belonging to the Chinese class—are thorough winter flowers, and most useful they are, especially the double varieties. Their culture is so simple and their flowers so well known, that I need not enter into any lengthy statement here in their favour, but it cannot be too much known that everyone who possesses a greenhouse should have some well-grown and full-bloomed *Primulas* with which to decorate it in winter.

**CINERARIAS** are charming during the dull season, and well worth all the attention required to make them bloom, and after all there is nothing in this worth speaking about, as it is simply a matter of sowing the seed early. Our January plants are the produce of seeds sown in April. They are kept in cool frames until October, and then moved into a temperate conservatory to bloom. Insects are never allowed to injure them, and they are potted on from time to time until they get into 8-inch pots, in which they remain. Dwarf bushy plants with plenty of bloom stems are the best, and these can be secured by growing the plants in plenty of light and near the glass.

**OF BEGONIAS** we like *B. insignis* best. This we grow on like the *Bouvardias*, and it makes a most beautiful winter-flowering plant. Through checking the leading shoots it is induced to form many side branches until it becomes bushy, and then it forms itself into one elegant and drooping mass of light pink blooms. It is well suited for dinner-table decoration or for that of the drawing-room. It is a plant from which one may cut basketsful of bloom. Of all winter-flowering *Begonias* this is the one I can recommend with the greatest confidence. Plants of it will bloom as freely in 2-inch and 3-inch pots as in 6-inch and 8-inch ones.

**CALANTHES** are a very fine class of mid-winter blooming plants, and wherever there is a stove they should be grown. If started into growth in May, and grown on in pots or baskets in a stove temperature, they will develop bulbs which will produce from two to four spikes of bloom each, and these may be had in great beauty before Christmas. Here we have only the heat of an intermediate house to give them, and they do not bloom with us in November

as they do in many places ; but they are fully out in January, and we find them most useful for all kinds of cut-flower decoration.

**EUPHARIS AMAZONICA** is another gem in December ; its delicate flowers, of the greatest purity, are unsurpassed by those of any other stove plant. This Lily-wort, we find, does best when undisturbed at the root for years ; our best plant has not been turned out of its pot for three years. It is not so large as some we have seen, but it blooms uncommonly well, and in January often opens its fourth crop of blossoms the same year. During the time it is throwing up its flower-spikes and blooming it is put into the warmest place we have, and during that time it makes many fresh leaves. As soon as it has finished flowering it is placed in a cool house for a few weeks, and then it is subjected to strong heat again to induce it to bloom ; this it never fails to do if plunged in the Pine bed where the bottom-heat is about 90° and the atmospheric heat 65°. To have it in bloom in December, I would recommend its being rested in October and plunged in heat in November.

**ZONAL PELARGONIUMS.**—These are very showy in winter ; even those which have been blooming in pots throughout the summer are in use then. The only way by which they can be got to bloom freely and make a fine display in December is to propagate young plants in May, shift them into 6-inch pots as soon as ready, and keep them in the open air from June until September. During that time they should not be allowed to bloom, and a sunny position ripens the wood and hardens it for winter flowering. The end of September is a good time to take them indoors, and a light, airy greenhouse or pit is the kind of structure in which they will succeed for some months afterwards. In winter we have had plants of *Henri Jacoby* bearing eight and ten massive trusses of the brightest hue. As a scarlet, this variety has no equal as a winter bloomer.

**EPACRISES** are lovely in winter and spring, and never fail to give satisfaction. They do not bear confinement in rooms well, but they supply a very fine lot of cut bloom, and their long shoots, so beautifully furnished with various chastely-formed and coloured flowers, are charming for vases. They bear being cut down when in flower better than most plants, as this only encourages them to produce more shoots, which bloom in their turn, and ultimately give place to a host of others.

**THE ERANTHEMUM PULCHELLUM** is a famous plant for blooming in December. It produces a multitude of flowers at the end of every shoot of a bright sky-blue colour. Spring-rooted cuttings flower in winter, and so do old plants if cut back in early summer and allowed to form bushes in frames throughout the bright months of the year.

**AMONGST AZALEAS**, the wonderfully bright, small-flowering *A. amœna* is one of the best of these to flower in profusion at Christmas, and it is most useful for cutting or pot decoration. *Fielder's White* is another *Azalea* which almost blooms naturally in January. *Borsig* forces well, is semi-double, and very fragrant ; the flowers are pure white, and it forms a good companion to *Stella*, which is a very bright free-flowering kind.

**ROMAN HYACINTHS** and variously coloured Tulips of the Duc Van Thol section and double Roman and Paper-white *Narcissi* are about the only bulbs we can force profitably to flower in December. Many other good things might be named were we going into winter flowers generally, but these remarks are strictly confined to subjects which may be



easily grown, and which bloom profusely in December and at Christmas. G.

**Eucomis punctata.**—This makes a capital companion for *Agapanthus umbellatus*. They succeed under exactly similar conditions, flower at the same time, and the *Eucomis* has the advantage of being sweet-scented. Both are useful in the conservatory along with late Lilies and Salvias, and they last a long time in bloom.—J. G. H.

**Oleanders.**—I have an Oleander over 4 feet high, and every summer it is a mass of lovely pink bloom—large flowers and deliciously scented. It stands in a cool greenhouse, and three or four times a week we mulch it with spent Tea leaves, and then give it plenty of water. Let anyone who has an Oleander try this plan, and they will be sure to succeed. I had forty blooms and thirty-six buds on three clusters three weeks ago.—J.

**Double white Pelargoniums.**—If "P. G." (p. 243) will refer to my concluding remarks on seedling Pelargoniums, he will see that I was dealing with the Ivy-leaved section, not the zonal. The variety which "P. G." recommends—viz., *Le Cygne*—I already have, and regard it as the best of the white double-flowered zonals; but with regard to the Ivy-leaved class (as before stated), as far as my knowledge goes, a good double white is still a desideratum. Jeanne d'Arc is often spoken of as a white, but in reality it is pale mauve, though in all other particulars except that of colour it might serve as a model, being a first-rate variety.—H. P.

**Luculia gratissima.**—This is one of the prettiest and sweetest of our November and December flowers; our plants of it are small and growing in 6-inch and 8-inch pots, but they are bushy, and on the end of each shoot a large cluster of buds has formed. As a lovely pot plant for a room, the *Luculia* has no equal late in the season, and its flowers are most valuable for cutting. In plant lists it is classed as a greenhouse shrub, but ordinary greenhouses are too cold for it; it succeeds best in an intermediate temperature, and may be grown in either this or a stove until the blooms open, when they will remain fresh for a long time in a favourable corner in a greenhouse or conservatory. Our plants do well in a mixture of half peat and half loam, with a liberal dash of silver sand.—J. M.

**Heliotropes as wall or pillar plants.**—Few plants are more popular than *Heliotropes* either in pots or for supplying cut flowers, and for the latter purpose there is no plan I have yet found equal to that of planting them out in a greenhouse or conservatory in which the minimum temperature is about 50°, and training them as wall or pillar plants. In such a position they flower almost continuously the whole year round, and the quantity of bloom that even one good plant will yield is incredible. There are a good many varieties of *Heliotropes* now in cultivation, but as a rule the darkest flowered ones, such as *H. Voltaireanum* and *President Garfield*, find most favour; the greatest enemy to them is green fly, but this may be readily kept in check by timely fumigation.—J. G., *Hants*.

**Cyclamens.**—What is the best soil and temperature for *Cyclamens*? asks a correspondent. A compost in which I find *Cyclamens* to do well consists of one half good fibrous loam, the remainder being leaf-mould and thoroughly decomposed manure in equal parts, adding thereto quite one-fifth of the whole of coarse silver sand. If, however, there is any doubt as to the quality of the loam, if it is all of a close, heavy nature, the quantity of this ingredient should be reduced, and the deficiency made up with leaf soil and a little peat in small lumps about the size of a pea, for *Cyclamen* roots are so tender, that they cannot work freely in soil that runs closely together. For this reason, the compost should never be pressed in with the fingers; smartly tapping the pots on the bench will settle it quite firmly enough. Young plants that have been raised in August, which is the best time for sowing, and which have been kept in a cool house through the winter, should be started in a temperature of from 58° to 60°, with a rise of about 10° in fine weather during the spring months. As a

rule fire heat is required till the beginning of June, and from the middle of that month up to the end of October they should be kept in cold frames. During the summer months *Cyclamens* like a cool, moist atmosphere, with plenty of air in fine weather.—J. C. B.

**Brugmansia suaveolens.**—This plant, known by some as *Datura arborea*, becomes large and showy when planted out in a greenhouse or conservatory and allowed to extend as much as it pleases. We have one which flowers twice a year—first early in spring, and again in autumn. When it has done flowering, we cut it in close to the old wood, and it soon runs up again to a height of 9 feet or 10 feet. It would do well enough if left uncut, but it takes up too much room, and its broad, handsome leaves and wide-spreading branches shade so much everything around it, that we are obliged to restrict its growth, and as it blooms profusely twice annually, as just stated, under the cutting-back system, we have no desire to grow it otherwise. Its trumpet-shaped flowers are quite a foot in length and fragrant. They do not remain long fresh in a cut state, but when left on the plant they do not wither quickly, and they open in succession for a considerable time. Where it cannot be planted out, it may be grown in a large pot or box. It is never troubled with insects, and it is very easily propagated by means of cuttings. Some of the smaller growths, if taken off now, put singly into small pots, and kept in a close place for a fortnight or so, will root freely and make good plants in spring.—CAMBRIAN.

**Winter Violets.**—Those desirous of having a good supply of Violets during the dark days of winter must lose no time in getting the plants transferred to the frames or pits in which they are to remain, so that they may be well established before the short days are upon us. Presuming that a good plantation of young runners of the desired sorts was planted out in spring, and have been carefully tended since, they will now be fine sturdy plants, with plump, well-filled crowns. After trying various plans, I can now recommend the following, viz.: Take some ordinary Cucumber frames and set them in a position where they will get a maximum of sunlight, raise the back of the frames on bricks so that they may present a sharp slope to the south, then fill them about three-parts full of stable manure, treading it in firmly so that it may yield a gentle, lasting heat; on this spread a good layer of soil similar to that used for Cucumber or Melon beds, then lift the Violets, with good balls of earth attached to them, and set them on the bed, allowing the crowns to be about a foot apart; fill in between the plants with fine soil, press all down firmly, and give a good soaking of water. The glass lights need not be put on until the plants begin to flower in November; then the lights must be tilted up on all favourable occasions, as Violets enjoy plenty of air. I find *Marie Louise* to be the best double kind for early winter flowering, but the older Neapolitan makes a good succession to it, and with a good stock of *The Czar* and other single varieties, a good supply of this sweetest of all flowers will be assured.—J. G., *Hants*.

**The Lily of the Valley**, when forced, often fails. Sometimes the cultivator is to blame when imported crowns do not succeed. In other cases it might happen that they were packed together in too large masses, and have heated in the crates or boxes in which they were imported. Those who force Lilies of the Valley for market early in the year seem to push them on into flower without caring to have the leaves well developed with the flowers. Perhaps their customers do not care whether the leaves are well grown or not; but the beauty of both the wild plant and the garden plant is to see it with leaves full sized and bright green, with the flowers partly hidden amongst them. I hold that the nearer our forced plants approach this condition the more credit ought to belong to the cultivator. In order to get leaves as they ought to be, and flowers at the same time, the plants must be forced with bottom heat, and they must not be forced too rapidly. 55° is enough, and they ought to be well exposed to light. Crowns are certainly the best, but they are useless after they have been forced. Home-grown clumps were used for forcing long before crowns were imported, and

they are used now by many people. It is not necessary to plant them out again; they may be grown in pots all the year round, and be forced again the following season. I know a grower who took a prize in London for Lily of the Valley, and he told me that the plants with which he gained the award had been grown in pots for nine years. They were not such plants as would take a prize against well-grown imported crowns, but they were very good, and such plants as would satisfy most people for the decoration of the greenhouse or conservatory; the cut sprays, with leaves attached to them, were good enough for all purposes to which such flowers are applied.—J. D.

**Gladiolus The Bride.**—This variety is sometimes known as *Colvillei albus*, but I prefer *The Bride*. It is one of the most beautiful of *Gladioli*, and it is also one of the most useful white flowers which we possess. Its bulbs are by no means dear when purchased by the dozen or hundred, and all who have the slightest demand for cut flowers should grow this variety in quantity. It is exceedingly well suited for pot culture, and it succeeds admirably in beds and borders in the open air. Bulbs for forcing may be potted and treated like those of *Hyacinths*, and if bought and potted now, they will grow on slowly and flower freely in March and April, and at Easter their lovely spikes of white flowers will be valued more than anything. The bulbs are no larger than those of an ordinary *Crocus*, but I have often found such bulbs to produce from three to five bloom-spikes from a foot to 18 inches in height. Failure need not be apprehended; indeed, all who grow them are astonished that their culture is so easy. If pots cannot be spared, quantities of them may be planted and grown in boxes, *i.e.*, where the flowers are wanted only in a cut state. Their spikes last an unusual length of time when cut, and their graceful appearance fits them admirably for artistic decoration. After blooming their bulbs are not useless, but go on flowering year after year. In the flower garden, too, they have a very charming appearance, but I am as much pleased with them in the herbaceous border as anywhere, and as the bulbs are thoroughly hardy and may be planted out at any time during the winter, this *Gladiolus* may justly be classed amongst the best of hardy flowers.—CAMBRIAN.

## QUESTIONS.

5392.—**Filberts.**—I have some Filberts which I should like to preserve. Will some of your readers kindly say how I am to proceed?—ONE IN A FIX.

5393.—**Guernsey Lily.**—I cannot grow this Lily satisfactorily. Will some reader of THE GARDEN kindly help me in this matter by describing what treatment it requires?—F.

5394.—**Tuberose.**—Can any of your readers tell me what to do with Tuberose which, instead of coming up with a single stem, produce nothing but small offsets? They were newly planted in the winter, and were supposed not to have been flowered before. Is it of any use keeping them?—H. R. C.

5395.—**Diseased Pears.**—Will someone kindly tell me the cause of Pears beginning to decay from the inside before they are ripe and while hanging on the tree? The Pears look in fine condition, but are quite rotten inside; the tree is planted in light soil with a northern slope, and appears in healthy condition.—G. S. S.

5396.—**Chrysanthemums for exhibition.**—Will some *Chrysanthemum* grower kindly tell me how to ripen the young growths? Last year I had plants of large-flowering kinds that made very large growths, but the flowers were comparatively small—a circumstance which I attribute to the growths not being well ripened.—W. S.

5397.—**Plant supports.**—Can any of your readers recommend any good support for Dahlias, Delphiniums, and other tall-growing herbaceous plants? Mine are tied to strong stakes, but these do not prevent their being much broken by wind. I have tried the girdles figured in THE GARDEN, p. 274, Vol. XVIII. These do fairly well for Phloxes and for low-growing plants, but Delphiniums and other tall ones get rubbed and broken against the wire band at the top.—J. H. W. T.

5398.—**Sudden failure of a Vine.**—Can any reader of THE GARDEN kindly explain to us the reason of the following catastrophe? A Vine (*Mrs. Pearson*) was planted in 1881, and did remarkably well till this August, when, without the least warning, the leaves died away, and in a few hours the whole plant looked quite dead. The wood is now splitting as if a sharp knife had made deep gashes along the grain. The roots appear to be quite healthy. The Vine this year had a promising crop, and has been attended to by a competent gardener. For any information regarding this matter we shall be much obliged. The neighbouring Vine (*Lady Downes*) is in perfect health.—G. M.



## ROSE GARDEN.

## MARECHAL NIEL ROSE.

It is unfortunate for the welfare of this Rose that some entertain an opinion that it does not succeed grown under glass along with other plants; in other words, they have an idea that when thus grown it does not get a proper season of rest, and then they set about inventing some means of altering its condition, which results in no benefit, but rather injury to it. What effect a constant forcing temperature might have on it I have never tried, but as to its requiring treatment different from that usually given to ordinary greenhouse plants during winter, that is quite a mistake. We have grown it many years in a house in which bedding plants are kept during winter, and it grows and flowers as well as anyone could wish. As a matter of fact, it is hardly without flowers from April to the end of September; therefore I am satisfied that, although it likes a warm temperature during summer, it gets all the rest it requires in a house to which fire-heat is only given during winter to keep out frost. Would it not be better for the plant to get the branches outside the house during winter? is a question often asked; others are frequently put respecting the winter treatment of this Rose. Certainly, if the branches were placed outside, to say nothing about the possible injury in twisting them about to get them out of front or side lights, the risk from frost would be great. Of course, those who force this Rose for the sake of getting early flowers give it a judicious rest. But these remarks are only intended to apply to plants of it cultivated in greenhouses with other plants which only require protection from frost. Other details of winter management are very simple. What pruning is required should be completed by the middle of November, as by that time most of the leaves will have fallen and the plants will be going to rest. Plants three or more years old, if they have made satisfactory growth, will have long branches, which will have produced flowers the present year. The small shoots which have flowered must be cut back to within two or three buds of the main branch; but the leading shoots should not be cut back all the time there is room for them to extend. When plants of this Rose have filled the space allotted to them, and the roots are growing in a deep border of good soil, they will last for many years if the young growth is spurred back every year in the same way as that of Vines, but, unless the soil in which they are growing is exceptionally good, younger plants produce much the finest flowers. Those who possess this Rose should make an effort during winter to give the border in which the roots are placed a good surface-dressing of loam and rotten manure in equal parts, but previous to doing so a portion of the exhausted surface soil should be removed with a trowel or a pointed stick. This may be done without injuring the roots, and without appreciably raising the height of the border. It is more necessary to give an annual top-dressing when the root space is restricted than when there is plenty of room; but in both cases it will be found that the plants keep longer in vigorous condition than without such attention. Young plants should have all the root room possible, for the most satisfactory results are obtained when the roots are not restricted to a narrow space, and where possible they should be inside the house. I have grown better specimens in large pots inside the house than is usually obtained when the roots are in a border outside and the branches brought into the house and trained

in the usual way. Where, however, it is not convenient to have the roots inside, a good border should be made close to the front wall on the south side, for the requirements of this Rose are very similar to those of Vines; both roots and branches like warmth, and they do better, even if the soil is not quite so rich, if the sun has full play on the surface over which the roots are growing. This explains why it may be occasionally seen thriving in the most satisfactory manner with the roots under paved yards or paths; the heat is absorbed by the paving material and conducted to the soil, and the Rose shows its gratitude for such favours by making good growth and producing plenty of flowers. Where it is necessary to provide soil for it, it should consist of the most substantial kind. A depth of 18 inches of good turfy loam is best, but it will also thrive in any good garden soil that will grow good Peas and Cauliflowers. It is very unfortunate that this Rose is so liable to be affected with canker, for which, too, there is no known remedy, nor is it always possible to trace the cause. In my own case, the strong heavy loam which we are obliged to employ for it favours the development of canker to a degree that renders the plant, when attacked by it, useless in a few years. Since I have ascertained this fact I have employed a much less quantity of the loam, and used instead a much lighter material, so that we do not suffer from canker to the extent which we did. It is worst with us when it affects the plant just on the surface, and the only thing I can find to check it is to cut out the affected parts in autumn, and then paint the parts with a mixture of soft soap and pounded charcoal in equal quantities. There is, however, no certainty what part may be affected; I have seen old stems quite 10 feet from the ground quite distorted by it. When it affects the plants so far from the roots, I believe the cause is a bruise when the wood is young. A slight blow from a hammer, or the pressure from the end of a ladder, is quite sufficient to account for it. It therefore behoves cultivators to be careful not to injure the growth in any way. It is now pretty generally acknowledged that this Rose does better on its own roots than on any other, and where its growth is required to cover much space, there cannot be a doubt that own-root plants are the best, and I believe they will be found to last longer than when budded or grafted on either the Manetti or Brier stock. When worked on the Brier, I have had them almost cease to make any growth after six or seven years, and as the young shoots will strike as freely at this time of year as Verbenas, there is no difficulty in thus raising plants.

J. C. C.

**Reine Marie Henriette.**—Allow me to call the attention of Rose growers to the wonderful blooming property of Reine Marie Henriette. Amongst a varied collection of Hybrids and Teas this Rose was the first to bloom this summer, and now (September 4) the tree has at least thirty flowers on it. From my experience I should advise pruning to be most sparingly performed. I may add that the tree is in the middle of the garden, and well supported by stout stakes. —J. GARRETT HORDER, 32, Crockherbtown, Cardiff.

**Insects on Roses.**—At this season Rose shoots are apt to be attacked by green fly and other insects, which cover their points and injure or destroy the flower-buds. I have known many Roses, especially in unfavourable situations, ruined by insects; the buds which formed never opened properly. When insects are allowed to increase and overrun the shoots imperfect development is sure to happen, and no after-cleaning will rectify the damage. The only way to succeed is to check them from the first, and get them cleared as soon as possible. It may be no easy matter to keep the plants perfectly clean,

but all who care to try may save their crop of flowers. Dryness at the root will always cause insects to take possession; therefore Roses thoroughly watered will stand a good chance of escaping. Cold winds and general starvation of root and branch will induce hosts of insects, and in order to reduce their numbers the first thing to do is to have the plants in a healthy condition at the root. Tobacco powder is excellent for clearing insects off Roses; aphides cannot withstand it. It should be put inside a fine muslin bag and dusted on the shoots affected. If put on at night and syringed off in the morning, nearly every insect will be washed off at the same time. When the shoots are dry, and much of the powder is likely to fall to the ground or be blown off as soon as put on, the best way is to damp the shoots first and then put on the powder, which may thus be made to stick. Soapsuds, if applied by a syringe freely, will clear Roses of most kinds of insects, and one wineglassful of petroleum to a gallon of water and a small piece of washing soda, mixed up together, will take off every living thing, but this must not be allowed to stay long on the trees; it should, indeed, be syringed off after being on, say, five minutes. Evening is the best time to do all this kind of work, and it should be done before the buds are far advanced or the crop of blooms may be injured or lost.—CAMBRIAN.

## ROSES UNDER DIFFICULTIES.

LAST year a rosarian of my acquaintance determined to make Roses grow successfully, in spite of almost every possible disadvantage, such as poor sandy soil, excessive drainage, exposure to strong winds, smoke, and, last of all, insects, through cats keeping down the birds. He started with forty trees, which yielded last year 241 blooms. This year thirty plants produced, up to September 7, 316 really good blooms, or an average of some ten blooms each. Disbudding was persistently practised—viz., no shoot was allowed to bear more than the one central bud of a cluster, and the branches were not permitted to be overweighted; so there was no chance of overblooming, and therefore the trees have made good wood for next year. The varieties are: John Hopper, Baroness Rothschild, Baronne de Maynard, Comtesse de Serenye, General Jacqueminot, Mme. Lacharme, Senateur Vaisse, La France, La Rosiere, Alfred Colomb, Mrs. Charles Wood, Marie Verdier, Beauty of Waltham, Captain Christy, Charles Lefebvre, Star of Waltham, Baron de Bonstetten, Dr. Andry, Pierre Notting, Mme. Victor Verdier, and Gloire de Dijon. In November last year all suckers were removed, and a mulching of rich stable manure, 3 inches thick, was placed over the whole narrow border in which the trees stood, about 2 feet apart, taking care to keep the manure from touching the stems. This keeps the roots so warm, that in the severest weather root growth proceeds, as the rootlets lay hold of the rich store washed into the soil by rains and melting snow, besides manure itself being taken bodily down by worms, whose runs afford ready passage for the liquid, and also assist aeration. Last winter was so mild, that in every part of the kingdom growth of shoots was only partially arrested and never stopped; and here my friend got a distinct advantage from the altitude of his garden and its exposure to easterly winds, which hardened the wood, so that when pruning time came, the immense sacrifice we all had to make of top growth was only partial in his case. In consequence of their abnormal advancement during the winter, the trees in question were pruned three weeks earlier than the year before. The branches also were left longer than usual. As might be expected, the first Rose was cut exactly three weeks earlier than the previous year, viz., June 6. Green fly was in unusually strong force, but was kept in check by syringing with a decoction of quassia chips and soft soap. Mildew appeared, as it often does with high culture, though last season it was effectually kept down by doses of liquid manure given to the roots during blooming time, and flowers of sulphur sprinkled on the affected parts. Wherever practicable, the best way of getting rid of this pest (like many others) is to watch for its first appearance, and pick off every leaf and shoot attacked, burning them. If this be not done at the outset, the mildew spreads at an alarming rate,



seriously interfering with the leaf functions. The same is the case with regard to green fly, and all the ills to which the Rose is heir. The early parents of all the summer broods should be assiduously watched for in spring and annihilated. Small birds are our friends; they search the branches for food if we can coax them into the vicinity. The number of pests destroyed by insecticides is nothing compared with the myriads eaten or carried off by birds. Here, in Yorkshire, we find it a good plan to go north for our plants. The foregoing remarks apply particularly to bleak, exposed parts, where Roses are only grown under difficulties.

Leeds.

R. A. H. G.

## FRUIT GARDEN.

### MIDSEASON AND LATE PEACHES.

I RECORDED (p. 108) my opinion regarding the different early sorts of Peaches and Nectarines with which I am acquainted, and I now propose to supplement that account with further notes on later sorts. The season of 1885 appears to have been most favourable for Peach culture both under glass and on open walls, and I never remember to have seen heavier crops of large, handsome fruit than may be found in different gardens this year. Further, the trees under glass have formed abundance of medium sized growth, which promises to ripen satisfactorily, and even those on open walls have, considering the bad start which they made, also nearly matured plenty of fruiting wood for next year. Every season we find it necessary to remove one or more trees from the houses, either because they do not properly respond to fairly liberal treatment, a circumstance owing, in most cases, to bad culture in years gone by, or because the variety is not equal to others which we may wish to introduce. When the stems of fruit trees refuse to swell properly and limbs fail just before the fruit is ripe, it is very evident that something is seriously wrong, and this in many cases is, I believe, owing either to unripened growth having been laid in when the trees were comparatively young, or because at some time, it may be several years previously, the trees have been much over-cropped as well as neglected. I have much faith in the efficacy of wholly or partially lifting Peach and Nectarine trees directly it is found that the roots are principally far below the surface, and therefore out of the reach of top-dressings and the best portion of any liquid manure that may be given them. Lifting and replanting in good fresh compost is a sure cure for the yellows, and no time should be lost in completing this work where it is necessary. Lifting is also advisable where the trees continue to grow much too strongly to be profitable. In some districts, especially in the north, where the atmosphere is much more moist than in the south, lifting is absolutely necessary, and in many cases it has to be repeated a second and even a third season before the trees have been got into good bearing order. Partial lifting is sometimes sufficient, especially when checking growth in young trees is all that is required, or perhaps merely effectively working in a few barrow-loads of fresh compost in order to put new life into hard-worked and fairly healthy trees; but I find this will not always cure the yellows. Nothing short of completely lifting and replacing the roots in good fresh soil much nearer the surface than heretofore will answer.

A JUDICIOUS SELECTION OF VARIETIES has much to do with ultimate success as regards Peach and Nectarine culture, and now is the time for replacing discarded sorts or worn-out

trees with others prepared, perhaps, for the purpose on open walls, and also for selecting and obtaining young trees from nurseries.

In our case, we have young trees under glass for transferring to an early as well as a successional house, while for the late unheated house there are several young trees on open walls to select from. All were maidens when received, and all have fine, clean stems and correspondingly healthy growth, and with careful removal and replanting some may fruit next season heavily, and thereby prevent non-utilisation of much valuable house-room. Before I proceed with my remarks upon the different varieties, let me take this opportunity of protesting against Mr. Coleman's statement (p. 137) that I am disposed to shoulder out good old sorts in order to make room for mere novelties, as I never yet destroyed a tree of a really good old sort that was worth keeping. I wish also to thank him for kindly replying to my inquiries as to the merits of the A Bec Peach. I have previously alluded to the free-growing and fruiting habit of the Crimson Galande Peach, and I have since seen several very handsome dishes of it shown at different exhibitions, at which first prizes were always awarded to it. I am also informed that one noted market grower has planted several hundreds of trees of it, strong proof, if proof were needed, that highly-coloured fruits find most favour, quality being a secondary consideration in the case of exhibition and market fruits. Bellegarde is also a remarkably handsome variety, and one which forms a good succession to either Crimson Galande or Royal George. It is in every respect a grand sort for exhibition, and will please the taste of even a connoisseur. It is of fairly robust habit, and altogether I am surprised that it is not more generally grown than it is. The best examples of it which I have seen this season were grown by Mr. Nash, at Badminton. Royal George is a universal favourite, and that, too, in spite of its liability to mildew. There are several forms of it in cultivation; the one we have under glass produces medium-sized highly coloured fruit of excellent quality. On the open wall it grows much larger and otherwise differs from trees of it under glass, but I still think it is rightly named. Grosse Mignonne is another deservedly popular sort; with us it grows very freely. It is a large-flowered variety, but we never experience any difficulty in effecting a good set, while its fruits are large, handsome, and of first-class quality. It has various synonyms, such as Royal Kensington, which used to be sent out by Mr. Pitman, from Osborn's Nursery, as a better grower than Grosse Mignonne; Padley's Seedling, Neal's Purple, Royal Sovereign, and other less known names also all belong to it. Alexandra Noblesse has this season proved exceptionally good in every respect, and the many admirers of the old Noblesse will do well to give a trial to this improved form of it. With me it quickly formed a handsome fruitful tree, and I am inclined to think it a lucky mistake on the part of the nurserymen who supplied it to me under the name of Early Alexandra. Like the old Noblesse, it is a large yellow Peach, and of first class quality. With Goshawk, an American variety, I have not had much experience, but Mr. Ward, of Longford Castle, grows it to perfection and thinks highly of it. It is rather larger than Exquisite, but in other respects much resembles that yellow-skinned sort. I observe that Mr. Rivers considers this the "finest mid-season Peach known;" will Mr. Ward endorse that assertion? Mr. Rivers also considers Princess of Wales to be one of the largest and best Peaches in cultivation, but according to my experience

it is one of the largest and poorest Peaches grown. The flowers of this and Lord Palmerston are also "very beautiful," to quote Mr. Rivers, but Lord Palmerston is, in my estimation, not worth house room. Perhaps my treatment of it is at fault; what says Mr. Coleman? Among the latest Peaches the best known, and, as far as my experience goes, the best variety is Barrington, and this sort ought to be included in every collection. The tree is of robust fruitful habit, and the fruits, which are extra fine in size, are of good appearance and quality. Walburton Admirable I also admire, one of our best trees being of this variety. It generally produces a good crop, and its large handsome fruits are excellent in quality; on the whole this sort may be said to be one of the most luscious Peaches in cultivation. Early Admirable has been shown in extra good condition this season, and is a useful variety for early September shows. Sea Eagle was strongly recommended to me for late crops, and the tree I have has made excellent progress. It is evidently a very fine and handsome late variety, and I am in hopes that it will prove a good addition to our limited list of late Peaches.

NECTARINES are yet much fewer in number than Peaches, but there are amongst them some good sorts. Lord Napier in an unheated house perfected a good crop, but we were obliged to discontinue syringing, otherwise the skins of the fruits would have been badly scarred, this being followed by cracking. To succeed this we have Pine-apple, a sort which may safely be said to be superior to Pitmaston Orange; altogether I am of opinion that it is the best Nectarine with which I am acquainted. It grows freely, crops heavily, and the fruits are highly coloured and richly flavoured. Elruge is of easy cultivation and the fruits colour beautifully, but I cannot speak highly of its quality; it therefore had to make room for a second tree of Pine-apple. Downton is another large handsome Nectarine and very easily grown, but its quality is only second-rate. Hunt's Tawny also succeeds well under ordinarily good treatment and is a showy variety, but it is not often first-rate in quality, and for this reason I cannot strongly recommend it. Stanwick Elruge is a very promising sort, and will be grown by me in preference to either Elruge, Downton, or Hunt's Tawny. Victoria grows healthily and crops heavily, the quality of the rather green-looking, though ripe, fruit being excellent. It is a good late sort, and strongly recommended by Mr. Rivers and others.

W. I. M.

Standard Peaches, such as I have advocated, differ in no way from orchard-house specimens praised by "T. B." and others in days gone by, except that they bear fruit sooner, much more of it, and, owing to the absence of pinching and their thinner habit, expose it better to the sun and air, and therefore it is of better quality. Pot and planted-out orchard-house Peach standards are warranted by Mr. Rivers to give the "greatest satisfaction" to all who may grow them; but here we have "T. B." recording for the first time the banishment of all such trees from their houses "by all he has met with." Neither "T. B." nor anyone else can, however, produce one established standard Peach tree, such as I describe, with crops so ill-coloured and ill-flavoured as they state; and as a set-off against the extinct "bush-headed" specimens of Claughton Hall "forty years ago," I refer him and others to existing examples of large trees at White-hill, near Edinburgh, where he can have ocular demonstration any summer of the fallacy of his arguments. I have taken more trouble than some of your correspondents to satisfy myself on this subject, and I predict that future practice will utterly demolish their case. Let them go out into the fields and see how other fruit trees behave



in their mode of bearing when not too much interfered with, and afterwards sit down and write their impressions.—J. S. W.

#### APPLE LADY SUDELEY.

HAVING seen fruit of this handsome early dessert Apple in 1884, I resolved to go to Petworth this year to see Mr. Jacobs' trees, and I confess that I was amply repaid for my journey by seeing the best display of Apples I have ever before witnessed. Two trees of this variety were covered with hundreds of fine fruit, and although growing amongst others consisting of all the best old varieties, such as Scarlet Nonpareil, Melon Apple, and others, Lady Sudeley could be distinguished at a glance. I have seen larger trees and heavier crops in Kentish orchards, and more brilliant fruits in orchard houses, and on wall trees, and cordons, but I never saw fruits on fully-exposed bush trees to equal those on the trees in question. In addition to their bright colour, they looked as if varnished, while the perfume emitted by them was unusually powerful. As regards flavour, this Apple is superior to any sort ripe at the same time. It is not surprising, therefore, that the produce of Mr. Jacobs' trees has for years past carried off all the first prizes for Apples at the Sussex shows. In fact, during the season in which it is at its best, viz., August and September, I do not know any Apple that could successfully compete with it, having, as it has, size, colour, and quality on its side. As a market fruit it will take a leading place, as it becomes fit for use before the competition from foreign Apples begins. Mr. Jacobs has no difficulty in selling his Lady Sudeleys at so much per dozen, and as a rule makes from £8 to £10 a year by the produce of two fair-sized bush trees, the crop being generally bespoken long before it is ripe. In gathering, only a few dozens are taken at a time from the outside of the branches. There is usually a good lot fit for use the first week in August, but this year it was quite the end of the month before many were ripe, and they keep on maturing until October. When gathered they are best about the end of a week's time; if kept long, they become mealy and flavourless. The trees in Mr. Jacobs' garden are fine specimens, spreading and healthy. They get no pruning or training of any kind; but when the fruits are well set they are thinned, and never fail to produce a good crop every season for these last sixteen years. I may add that Petworth is in a good fruit-growing part of Sussex, and that the trees in question have a rich root-run. There can be no question that the majority of English orchard trees are starved, and that to that circumstance may be attributed most of the ills that befall Apple trees. I send a few specimens of this Apple, gathered last week, and just now fit for use.

Gosport, Hants.

JAMES GROOM.

\* \* \* Samples of Lady Sudeley Apple have also been sent to us by Messrs. Bunyard, of Maidstone, and fully bear out all that Mr. Groom has just stated. Their flavour is good, but they had been kept too long. They evidently should be eaten almost as soon as gathered. As regards appearance, this Apple is all that could be desired. It is above the medium size, and richly streaked with crimson on a yellow ground—just the Apple that in the market would attract the attention of buyers.—Ed.

#### FOSTER'S SEEDLING GRAPE.

As the reference to the awards made in the class for this Grape at the recent South Kensington show in your report at page 277 seems to convey an impression diverse from that which really took place, I would like to say that the judges did at first award the first prize in the class to Mr. Allan's bunches, as they were without doubt the finest, and certainly struck the judges as remarkably good examples of this variety. Mr. Miles' handsome bunches were placed second and Mr. Horsefield's third. Very shortly after the judges' attention was drawn to the class again, and it was pointed out to them by Mr. Barron that Mr. Allan's bunches were not true to name, but were really White Tokay. As a result the bunches and berries were compared with those in the class for the latter kind. Berries were also tasted,

as also were some from Mr. Miles' bunches, and were found to be very dissimilar, those from the Gunton Park bunches being somewhat hard and fibry, requiring masticating, whilst those from the Wycombe bunches proved to be fine of skin and soft and melting of flesh, differing also in flavour. Again, the Gunton Park berries were bloomless, transparent, showing, as is so noticeable a feature of the Tokay, the texture of the flesh through the skin. On the other hand, the true kind has good bloom, skin thin and not transparent, and therefore the flesh of the Grape is not discernible. The judges upon being, because of these facts, satisfied that Mr. Allan's bunches were not true to name, passed the first prize on to Mr. Miles, Mr. Horsefield being placed second, and Mr. Taylor third. It was, however, represented by Mr. Barron that White Tokay had been sent out from the north as Foster's Seedling, and there was no reason to doubt but that the entry was a *bona-fide* one. Upon that representation the judges awarded the bunches an extra prize, equal to a first prize. The statement that these Grapes were the produce of a graft of Foster's Seedling upon the Black Hamburgh is one upon which some doubt may well be cast, assuming, of course, that the Foster's meant is the true one and not the spurious one. It would be interesting to know whether other gardeners have ever made the same experiment, and, if so, what has been the result. I very much doubt whether in all the annals of Grape culture it can be shown that grafting has ever so changed the character of any variety that its fruit could not be recognised, and was absolutely changed into quite another sort. One might have imagined that in this particular instance "working" Foster's Seedling upon the Black Hamburgh would, if having any effect, at least have served to darken the berry. In the case under notice the reverse was the result, for the greenish yellow of Foster's was converted into the paler hue of the White Tokay. I do not for a moment wish to throw any doubt whatever upon the *bona-fide* character of Mr. Allan's action in exhibiting these bunches as those of Foster's Seedling, as so good a judge of Grapes as he must be would be assured beforehand that any attempt to mislead would soon be detected. On the other hand, the change, if change it be, wrought by the grafting is most remarkable. Perhaps Mr. Allan will send up to South Kensington next month a bunch taken from the Vine from which the graft was originally taken, and also a bunch from the same Vine as those bunches shown the other day were taken from, for special comparison. Still further, perhaps some other Grape growers will try the same experiment in grafting, and in a year or two report their results.

A. D.

**Duke of Buccleuch Grape.**—What has become of those fine examples of this Grape which its advocates write about from time to time, but which no one can ever discover? There has been a great Grape show at South Kensington at the very time when the Duke is said to be at its best, and what is its record? Bad. I have the three chief reports of the show before me. One says the examples shown were "of no special value," another that they were "not satisfactory," and the third that "the Duke is evidently not a popular Grape." So far, in fact, as I can make out, it seems to have been considered the worst Grape in an exhibition of some two dozen sorts.—S. W.

#### NOTES ON RECENT NUMBERS.

**Cantua dependens** (p. 270).—For some years there grew against a pillar at one end of our conservatory a scraggy, miserable sort of plant, not over well clothed with leaves at some times in the year, and never producing anything at all in the way of a flower to make it worth caring for. "That wretched thing had better be cut down, though it may be left for the winter till its place can be filled up," was the decision come to at last, and cut down it would have been had it not been found to be covered with buds the following spring, which, as soon as they opened, gave one a very different impression of *Cantua dependens*. Since that time it has never failed to bloom regularly each year, and when the flowers are seen in profusion the big pendent bunches are very pretty and effective; they last well cut and placed

in water, and continue to open on the plant for some time. Old specimens are free-blooming enough, but not so young ones, and I have no doubt that in many gardens it has been destroyed as worthless from want of patience to allow it to get to a sufficient size. After blooming it generally sheds most of the leaves, but young vigorous growths are soon formed, which keep green and fresh till the following summer. The long slender shoots when old are exceedingly brittle; in fact, I do not know of any plant which is so easily broken, but as it naturally hangs pretty straight down, very little pruning or tying in is required. The plate in last week's number was not drawn from flowers off the plant here, but from some others which were sent, I believe, just before. Ours are much brighter in colour round the edge of the petals, gradually fading off to a lighter shade inside the throat, and the trusses generally have from eight to sixteen buds on each, not merely two or three, as shown in the plate.

**Gladioli as cut flowers** (p. 274).—It is surprising to find that anyone should hold them in low esteem as such, for they have certain very good points which render them particularly well adapted for use indoors. The spikes may be cut as soon as the blooms begin to burst, when they will travel well, and placed in water will continue to open the whole way up almost quite as well as if growing in the ground. They last a long time in a room, and, what is a great advantage, the withered blooms may be picked off without disturbing any arrangement in a vase, &c., with foliage or other flowers. The flowering season is prolonged so much by the different species and varieties, that a succession may be kept up from the open ground for at least five months, and by a little forcing for a good deal longer. The dwarf early sorts are not half enough planted either for garden effects or for cut flowers, though the ramosus type which follow next are somewhat better known. I should think they would be likely to succeed in districts inland where the later blooming hybrids suffer from the heat and dryness of the air. When one sees the way in which the *gandavensis* section are grown in Scotland, the north of England, or round the sea-coast, one is sometimes so disgusted with the poor little specimens that are produced elsewhere as to be discouraged from attempting to cultivate them. It does not seem impossible but that a cross with *tristis* (and I believe there are other sweet-smelling varieties) might give us a bright colour in what is otherwise a dull-looking sort, or a sweet scent in others which seem to lack this alone to render them perfect types of floral beauty.

Sussex.

#### NOTES OF THE WEEK.

**Clematis Flammula var.**—Mr. C. Wilson sends from his nursery at Birmingham-road, Warwick, sprays of a variety of this *Clematis* bearing larger and whiter flowers than usual, but he does not state if it is a seedling or not. We are inclined to think it is. It is decidedly superior to the ordinary form, of which he also sends sprays.

**Begonias out-of-doors.**—I send you a box of *Begonia* blooms cut from plants growing in the open ground. I consider them good flowers to be taken from plants bedded out. The bed in question shows well what grand plants they are when in fine condition.—E. MOLYNEUX, *Swanmore Park, Bishop's Waltham*.

\* \* \* Really excellent blooms, large, and highly coloured. There is also a pure white sort with large round flowers which must have a fine effect in a mass.—Ed.

**Passiflora cœrulea Colvillei.**—Under this name, Messrs. R. Veitch & Son send us from their nursery at Exeter some specimens of a variety of the well-known hardy Passion flower, which seems to differ from the ordinary form in being more vigorous in growth, more floriferous, and different in colour. The flowers have white sepals and the fringe is blue. They have a pretty effect when expanded, particularly on the plant. It seems as if our familiar blue Passion flower has taken to sporting in these days, for not



long since we drew attention to a white-flowered form of it, named *Constance Elliotti*.

**Hippeastrum bulbulosum.**—A flowering specimen of this bulbous plant (also called *Amaryllis bulbulosa*) has been sent to us by the New Plant and Bulb Company, of Colchester. The bulbs were collected by Mr. E. Wallace during a recent visit to Columbia. It much resembles the well-known West Indian *H. equestre*, the flowers being similar in colour, and poised horizontally in much the same way. It is a very old garden plant, having been one of the earliest introduced, and during Dean Herbert's time, some fifty years ago, was used a good deal for hybridising with other kinds; indeed, the large number of hybrid *Hippeastrums* then existing in gardens seem to have been derived from *H. bulbulosum*. Of course the plant is not so attractive as the hybrid varieties which now exist in gardens, but it is interesting, especially to botanists. If it were to flower always during September it would be valuable, but probably this is not the case.

**Areca sapida in flower.**—A very fine plant of this handsome Palm is now in flower in Mr. Nasmyth's garden at Hammerfield. The spadix is some 18 inches in length, and much like that of *Dracæna australis*, but stouter, and the unopened flowers are pink. A curious feature of this plant is the spathe growing out of the old stem several inches below the leaves, which gives it a very singular appearance. Mr. Gower, the gardener, informed me that last year the same plant pushed out a spathe in a similar way, but owing to an accident it did not come to perfection. There is a pair of plants of this *Areca*, and very fine ones indeed they are, but up to the present time only one has flowered. I should like to know if the flowering of this Palm is a rare occurrence in this country. The fine conservatory at Hammerfield is always worth a visit, most of the plants being planted out, and grown in as natural a way as possible consistent with comfort in getting about. Palms, Aralias, Oranges, Camellias, Roses, Fuchsias, Ferns, &c., all in the best of health, combine to make an arrangement both pleasing and effective. A very fine lot of single Dahlias, most of them seedlings, are now making the beds quite gay here in front of the quaint old house.—W. H.

**Shrubby Mallow** (*Hibiscus syriacus*).—Of this familiar old autumn-flowering shrub, known also by the name of *Althæa frutex*, a number of varieties has been sent to us by Mr. A. Waterer from his nursery at Knap-hill. There are about a dozen distinct kinds in all, some double, some single, ranging from pure white in the variety *totus albus* to a rich purple, and one is even a purplish blue. The white sort is very charming, and at this season, when it has no rivals in the shrubbery, it stands out conspicuously. Placed in a proper and suitable position, this shrub is capable of producing beautiful effects in the autumn garden, but to do this it must not be smothered and starved, as it too often is in mixed and crowded shrubberies. Like most other shrubs, it repays liberal treatment—an open, sunny spot, and, above all, attention as regards watering during such summers as the past. In fact, the excessive heat and drought have told markedly on the present season's blooms, as they are not nearly so fine, as a rule, as they are during moister seasons. A selection of these Knap-hill varieties would include the single and double whites, the single lilac and deep purple, and the double purple and white.

**Erica Eweriana.**—This is an easily-grown, free-flowering Heath, very handsome when in full flower, and just the kind of plant to be grown along with such useful *Ericas* as *E. hyemalis*, *E. gracilis*, *E. melanthera*, &c., as it thrives with the treatment these require and is quite as beautiful as either of them. A good many Heaths are exceedingly handsome when in good health and well flowered, but unfortunately they are not easily brought to that condition in ordinary gardens. *E. Eweriana*, however, need not be despised on that score. It grows well out of doors all the summer, making in one season shoots a foot or more in length, which are well furnished with lateral branches and small, dark green leaves. Towards midsummer the flowers are developed, a cluster of them appearing about the upper portion of the stronger shoots; they are 1½ inches

long, funnel-shaped, curved, gradually widening from the base upwards, and are a bright deep pink colour, with the reflexed top coloured pale green, through which the cluster of brown anthers is just seen. After flowering, the shoots of this species should be well cut back, and the plant re-potted if necessary about November. There are several plants of it now in flower in the Cape house at Kew.

**Phaius bicolor.**—Last year we drew attention to this handsome Orchid, which we saw in fine flowering condition both at Kew and at one of the South Kensington meetings, shown in the latter case as *P. luridus*, which is, however, a very different and, as we understand, inferior species, and is also represented at Kew by plants recently imported from Ceylon. The well-known *P. grandifolius* and *P. Wallichii* and the *Thunias*, now placed in the genus *Phaius*, are very handsome when in flower, but unfortunately they are wanting in lasting powers, as the flowers are over in about a fortnight after they have started to bloom. In *P. bicolor*, however, we find an unusually long flowering period, the first flowers expanding about May, and from that time till September, or even later, flowers continue to appear. Such was the case last year at Kew, and the same plants have again proved their lasting capacity by continuing in bloom from May until the present. In general characters, as well as in cultural requirements, there is little or no difference between this and the above-mentioned species, *P. bicolor* being distinguished by its yellowish petals and sepals and the red and bright yellow of its long, funnel-shaped lip. So useful a plant ought to become widely known.

**Yucca gloriosa.**—There is a fine specimen of *Yucca gloriosa* growing in the gardens of Mr. Thomas Worthington, Wythenshawe Mount, Cheshire. It is now in flower, and has been so for several weeks past. The flower-spike measures 5 feet 3 inches in length, is many-branched, and has over 500 flowers upon it, many of them being open at once. The plant, which is about sixteen or seventeen years old, survived the severe winter of 1879, which proved disastrous to most of the *Yuccas* in this neighbourhood. Its preservation is probably due to its having been planted on a mound of rockwork that is properly drained. The rockwork in question, which was made with the object of providing suitable receptacles for various kinds of plants, rather than to produce a picturesque effect, is well furnished with good specimens of *Saxifraga Burseriana* and *oppositifolia splendens*, *Sedum Sieboldii*, *Ewersi* and *spectabilis*, various dwarf *Campanulas*, *Gentians*, *Androsace lanuginosa*, *Fuchsia procumbens*, and others. On the northern exposure, which is carpeted with *Lycopodium denticulatum*, is a choice selection of hardy Ferns, amongst them being a very fine plant of *Polystichum Lonchitis*, with fronds over 16 inches in length, and a good plant of *Adiantum pedatum*, that is evidently quite at home. On the same side of the rockery, but at the foot, there is a large plant of *Cypripedium spectabile*, together with several healthy patches of *Linnæa borealis*.—W. NEILD, Wythenshawe, Cheshire.

**Dendrobium Phalænopsis.**—A plant of this rare and beautiful Orchid is now in flower at Kew, where it flowered last year for the first time in Europe, Mr. Forbes having brought it from Timor-Laut, a small group of islands near Queensland, the species being a native of Northern Australia, New Guinea, and these islands. Fitzgerald calls this *Dendrobium* the "finest of Australian Orchids," and, judging by the excellent characters shown in the Kew plant, we should say he is right, notwithstanding the claims of such choice Orchids as *D. bigibbum*, *D. speciosum*, *D. superbiens*, and *Calanthe veratrifolia*, which are also natives of the Australian continent. As figured in a recently issued number of the *Botanical Magazine*, *D. Phalænopsis* is a very handsome flowered plant, but this figure is much surpassed by the flowers now open at Kew, which measure nearly 4 inches across from tip to tip of the broad rose-red petals, and almost the same from the tip of the dorsal sepal to the point of the tongue-like labellum. The colours are most vivid in every part of the flower and they become clearer and brighter with age. The sepals are pink, and the lip is blood-red with a large blotch

of deep maroon at the base; it has the two chins which are so conspicuous a character in *D. bigibbum*. As the Kew plant is small, there is every prospect of the flowers it now bears being surpassed on the bulbs becoming stronger.

**Crassula (Rochea) falcata.**—To see this old and now almost forgotten greenhouse plant is like meeting an old gardener who grew his plants in flue-heated houses glazed with bits of glass not much larger than dominoes. Half a century ago or less it was to be found in almost every greenhouse, but it does not often show its tall grey stem and big cluster of rosy red flowers now-a-days. At Kew it still finds a place along with the collection of succulents, and it is now represented there by several flowering specimens, one nearly 6 feet high, with a head of flowers quite a foot across. By the side of that useful old favourite *C. (Kalosantes) coccinea*, the single-stemmed species looks like a member of some other Order, being so very different both in leaf and flower characters as well as in habit. But the genus *Crassula* is a large and heterogeneous one, and contains species still less like each other than the above mentioned are. *C. falcata* has a stem as thick as a walking-stick and 8 feet high when full grown; the leaves are 5 inches by 2 inches, fleshy, and grey, and are arranged in two rows along the stem, their shape and curious twist being exactly like the propeller or screw of a screw steambot. The flowers are borne in a terminal erect corymb, hundreds of them being clustered thickly together almost as dense as a Cauliflower; they remain in perfection for about a month. As an easily managed and curious plant this *Crassula* may be recommended.

**Physianthus albens.**—Although not what one would call a very attractive plant, yet this once despised scandent *Asclepiad* has about it much that is pleasing, as, for instance, the fragrance of its pure white flowers, which are not unlike those of *Stephanotis*, but less numerous; its free-growing nature, healthy appearance, the profuseness of its flowers on the younger branches, and, most important of all, its thriving so well in a cool greenhouse. We heard lately of a large specimen growing against a south wall out-of-doors in England, and it is probable that in favoured localities this plant would prove as hardy as, for instance, the common *Passion flower*. For covering pillars, training along rafters, or other similar purposes, in greenhouses or conservatories we know that it is eminently useful, and as it flowers freely all summer it can hardly fail to prove satisfactory when thus grown. The flowers are produced in pairs on short stalks from the axils of the grey-green leaves, and are an inch long, with a short tube and five undulating spreading segments; the calyx is rather large and green, tinted with brown. The odour of the flowers is similar to that of *Orange blossom*, though not so powerful. There is a plant of this species now in healthy flowering condition in the T range at Kew.

**Venidium Wylei.**—This is a recent addition to the list of beautiful Composites introduced from the Cape, and a companion to the pretty annual which we have possessed for some time under the name of *V. calendulaceum*, but which is really a form of *V. decurrens*. Like a good many plants that are annuals when wild, but perennials when intelligently cultivated, the last-mentioned may be grown from year to year if cut back after flowering, as was proved by Miss Hope and Mr. Joad, both of whom grew this plant in a greenhouse and found it perennial. *V. Wylei* is probably very similar in nature to the above, although in the "Cape Flora" it is stated to be annual. There is a plant of it now in flower in the Cape house at Kew, where it has been gay with its bright orange-blossoms since April last. No doubt it will prove as useful for a sunny border out of doors as *V. calendulaceum* does, but it seems to possess good qualities as a greenhouse plant. The stems are straggling, numerous, clothed with silky hairs and sessile leaves from 1 inch to 2 inches long. Each branch is terminated by a long stalked flower which is nearly 3 inches wide, *Arctotis* or *Marigold*-like, and bright golden yellow with a ray of almost black bands all round the disc. Should the Kew plant bear seeds, we may expect to hear more of this beautiful Composite shortly.



## ROSES AND FRUIT TREES AT LLANDUDNO.

DURING a short holiday recently spent in Llandudno, on the Welsh coast, I had the pleasure of visiting the residence of Mr. Sam. Barlow, a good gardener, and also a lover of Nature. The mild climate and soil appear to be especially suitable for Roses, and nearly all kinds of fruit trees succeed admirably. Mr. Barlow drew my attention to the luxuriant condition of the common Bramble (*Rubus fruticosus*), a circumstance which led him several years ago to infer that Roses and fruit trees would succeed in the neighbourhood, and the result proves that he was not wrong in his conclusions. The collection of Roses, which comprises many species and all the best Teas and Hybrid Perpetuals, gave promise of an abundance of autumn bloom. I noticed a fine healthy plant of *Maréchal Niel* trained on a wall with an eastern aspect which I was informed had produced a large number of beautiful flowers from 5 inches to 6 inches in diameter. The mildness of the climate may be judged from the fact that Roses have been gathered from outdoor borders in this garden every month in the year.

With the fruit trees I was particularly pleased; many of them were only planted last autumn, so that they are not yet thoroughly established. Still, nearly all of them were bearing good crops. Apricots, which were nearly finished, had been plentiful and in every way excellent. Peaches were highly coloured and fast approaching maturity. Plums were fruiting remarkably well, notably some trees trained on walls. Such examples of fruitfulness I have never before seen; the fruit was clustered together closer than ropes of Onions, and it had attained a fair size considering the exceptionally dry season which we have had. There is a large number of varieties of Apples, mostly young bush and pyramid trees and cordons on walls; nearly all of them were bearing good crops of average sized fruits, which in the case of most of the varieties were very highly coloured and covered with a beautiful bloom. Where the end of a leaf happened to overlie the fruit its form was very clearly defined thereon. Pears were also well represented and doing equally well as the Apples. On *Marie Louise*, *Louise Bonne de Jersey*, *Beurré d'Amanlis* there are heavy crops, and there were also some grand specimens of *Pitmaston Duchess*. This district is very rich in native plants. The following genera were growing in abundance, viz., *Geraniums*, *Veronicas*, *Centaureas*, *Helianthemums*, *Heaths*, *Origanums*, *Scabious*, and wild *Roses*. *Primroses*, too, were innumerable, and as Mr. Barlow has had several hundreds of the best garden varieties planted amongst the native plants, he hopes to obtain some good sorts from cross-breeding.

W. NEILD,

*Wythenshawe, Northenden, Cheshire.*

**Flowers for dry seasons.**—After a protracted drought it is well to look back and make note of such flowers as withstood the trying ordeal best, so as to be prepared for similar seasons in future, for although some parts of the kingdom appear to more frequently

suffer from too much than from too little rain, we, on the south coast, are seldom overdone with it, as with good natural drainage and a light soil vegetation likes a good downpour frequently. First on the list of drought-proof plants are the *Marigolds*; these have not shown any signs of distress, but have, on the contrary, been more floriferous than in wet seasons. Then there are the *Tropeoliums*, or *Nasturtiums*, that have grown less, but have flowered most abundantly. *Sunflowers*, both annual and perennial, are effective plants in dry places. *Carnations*, too, have withstood the drought bravely, and have been more acceptable than usual, owing to other flowers failing. Summer *Chrysanthemums*, when divested of seed-pods, enjoyed the sunshine, as did also succulent plants, such as *Sedums*. *Antirrhinums* have likewise never failed us, and those showy August and September flowers, the *Gladioli*, did not seem to feel the drought, even when by their side herbaceous *Phloxes* were quite dried up. All the above are reliable fill-basket plants when the usual supply of moisture fails us. The second blooming of *Roses*, I may add, is late this

months ago; the consignment found its way to the factory of Messrs. H. Howell, of 180, Old-street, London, where they still remain unused.—JOHN R. JACKSON, *Museum, Royal Gardens, Kew.*

## ORCHIDS.

## MASDEVALLIA IGNEA.

THE accompanying illustration represents a specimen of *M. ignea*, grown by Mr. J. Buchanan, of Edinburgh, who evidently understands how *Masdevallias* should be treated to make them flower freely. Large specimens of this and other Orchids are too frequently bunches of small plants placed together in a pan and called specimen plants. It is so easy to grow many of these *Masdevallias* into a large size and make them flower profusely, that made-up specimens for exhibition purposes ought to be forbidden. Since the year 1871, when *M. ignea*

first flowered in England, it has become one of the most popular among a host of popular *Masdevallias*, having been from time to time imported in large quantities, and always finding a ready market. As in the case of many other Orchids introduced in plenty, this *Masdevallia* is represented in gardens by a good many varieties or forms, all more or less distinct from the type, and all at least as beautiful. It was in Mr. Day's collection that the plant named *M. ignea* by Professor Reichenbach first flowered, a larger variety appearing shortly afterwards in Mr. Bull's nursery, and which is represented in the *Botanical Magazine*. The colour of the flowers is a dazzling scarlet, mixed with orange



*Masdevallia ignea*; flowers orange-yellow flushed with crimson. Grown by Mr. Buchanan, Oswald-road, Edinburgh. Engraved from a photograph by Mr. W. T. Bashford, Portobello, N.B.

season, owing to growth being arrested by drought in July, but they are now showing well for a late supply of bloom.—J. G., *Hants.*

**The square Bamboo.**—May I be allowed to add a few words to those already given in *THE GARDEN* (p. 246) with reference to this Bamboo? The square stems are said to be used by the Chinese for walking-sticks as well as for opium and tobacco-pipes. For the manufacture of pipes they seem well adapted, and the Kew Museum contains both an opium and a tobacco-pipe made of the stems; but though the Chinese may use them for walking-sticks, they are quite unsuited for such a purpose in this country, as they have none of the points necessary to recommend them for walking-sticks. First, they do not taper, but are pretty much of the same diameter at each end, which gives them a clumsy appearance; secondly, and this is very important, they have no strength—they are hollow, and, moreover, thin and brittle, and break off short upon the slightest strain and without any warning. This Bamboo made its first appearance in commerce some eight or ten

scarlet, too dazzling to look at long, and they are about 2 inches in length. The varieties include several which are remarkable for the large size of their flowers, and others for their darker or paler colours. Amongst them are *Massangeana*, which has flowers  $2\frac{1}{2}$  inches long and wide, almost round in outline, and in colour a bright orange-scarlet, striped with deep crimson; *superba*, with flowers large and very brilliant in colour; *Boddaerti*, which is distinguished by its yellow on the under side of the flowers and the tint of rose colour running through the upper side; *pallida*, a very pale orange-flowered form; *Stobartiana*, with the most brilliant tints of mauve and purple; and *Marshalliana*, which bears large yellowish flowers. All these forms of *M. ignea* are exceptionally free-flowering, and as they are at their best in mid-winter, they are most valuable. The bent-down character of the upper division of the flower of *M. ignea* makes it easily recognisable among the large-flowered



section of the genus to which it belongs; by altering the position of this part of the flower so as to make it point upwards, we have at once the form of the flower of *M. Lindeni*, which in colour, however, is a deep red; and from this, by the addition of purple and yellow, we get to *M. Harryana*. But in matters of colour and form, it is difficult to define the characters of these three species, as there is so much variety in these points shown by cultivated plants of them.

For their cultivation protection only from frost, drought, and excessive light are the three great essentials, after them coming a sweet, well-drained compost for the roots, and attention to the leaves being kept clean. In a lean-to house with a northerly position, and heating arrangements sufficient to keep severe frosts from reducing the temperature in the house to freezing point, almost every one of the dozens, one might almost say hundreds, of introduced *Masdevallias* might be satisfactorily cultivated. From the large brilliantly coloured flowers of the species mentioned above, along with *M. Veitchi*, *M. Daviesi*, and *M. Chimæra*, to the tiny blossoms of the *triaristella* group, for which a pocket lens is necessary to see the beauty of their tints, we have a host of singularly beautiful and interesting plants, full of attractions for all tastes; and they may be enjoyed at such a small cost, that we wonder the genus has not found favour with many cultivators in search of a hobby. That the riches of the genus require the care and attention of an enthusiast to bring them under more prominent notice, has been stated again and again by botanists acquainted with the numerous gems included among herbarium specimens of *Masdevallias*. B. W.

**Deciduous *Calanthes*.**—I have for these last two or three years been very successful in the cultivation of deciduous *Calanthes*. I have had *C. Veitchi* 4 feet long with forty fine blooms on a spike. I consider the *Calanthes* the most showy and lasting winter-blooming Orchids in cultivation. Starting with dormant bulbs, I keep them in a temperature of 50°, and quite dry. When they show signs of starting in spring, I pot them, putting good strong bulbs in 5-in. or 6-in. pots in good rough fibrous loam; if good loam is scarce, I use rough peat with broken charcoal the size of marbles. I fill the pot or pan half full with crocks, and water very carefully until they are beginning to form bulbs; then when I see the roots begin to work on the surface, I top-dress them with about half an inch of fresh green Sphagnum and give plenty of water, keeping them in a good moist stove temperature. I never let my plants go dry or short of water until the spike is fully expanded. Some advocate keeping them rather dry after the bulb is formed, but that, I think, is a mistake—at least I have never seen the flowers open fully all up the spike under those conditions. The great cause of failure is giving too much water before the roots have begun to work in the new soil after repotting.—GEO. SAVAGE, *Bronson-avenue, Rochester, N. Y.*

***Aganisia cœrulea*.**—The re-introduction of this interesting Orchid will be hailed with satisfaction by those who were made acquainted with its existence in S. Brazil by means of Prof. Reichenbach's description of, and remarks upon, a living specimen of it which appeared at the Hamburg Botanic Gardens in 1876. Messrs. Sander & Co. have several times offered plants of it for sale at the auction rooms within the last month or so, and it was no doubt one of these plants which had been induced to flower by Mr. Buchan, which was exhibited in flower at South Kensington a fortnight ago. As the cultivation of this Orchid is considered to be not at all easy, I, and others no doubt also, will be thankful for information as to the conditions in which it grows naturally. Meanwhile, the following descriptive note respecting it may interest orchidists: "Its stem or rhizome is

lengthened out between the flattened ovoid pseudo-bulbs, similar to that in *Odontoglossum Lodesboroughianum* or *Bolbophyllum Careyannum*. Each bulb bears a solitary leaf, which is broad and shining, and resembles the leaf of a *Stanhopea*. The flowers, described from the Hamburg plant, are as large as those of *Epidendrum bicornutum*, and in colour like the flowers of *Vanda cœrulea* with a few blotches of a darker blue. The lip has two small teeth at its base and a bristly central lacinia, which is depressed in the middle or 'sacciform.'" Mr. Buchan's plant bore flowers of a bluish purple, so that it is probable the colour of the flowers of this Orchid are somewhat variable. Other species of *Aganisia* which have been in cultivation, but are now so no longer, are *A. Oliveriana*, which has flowers of a beautiful sky-blue with a yellowish brown claw to the lip, the margin of which is fimbriated; *A. pulchella* and *A. fimbriata*, which have white petals and a blue lip. Some of the plants known in gardens as *Warreas* are now referred to the genus *Aganisia*, and these have a tufted habit and their leaves narrower and more numerous on the pseudo-bulbs than in the above. In their nature as regards cultivation these *Warreas* are not one wit less troublesome than the long-rhizomed *Aganias* are said to be. Perhaps Mr. Buchan would kindly give us some information about the plant he flowered and the treatment he found to be most suitable for it.—B. W.

***Epidendrum Schomburghii*.**—Plants of this were sold at one of the London auction rooms a few days ago, and were described as "a most beautiful *Epidendrum*, the flowers of which are rich scarlet and very handsome," and that it was "now offered for the first time." If the words "this century" had been added, this might have been true, for *E. Schomburghii* was cultivated by Loddiges, was flowered in their nursery and elsewhere, and was figured in several periodicals, notably in *Maudslayi's Botanist* (t. 165). It belongs to the long-bulbed section, of which *E. Lindeni* and *E. evectum* are well-known examples, the bulbs of *E. Schomburghii* being 2 feet or 3 feet high, leafy below, the upper portion a long, leafless stalk, bearing at its apex a raceme, consisting of from six to eight flowers placed rather closely together, and forming a cluster about 3 inches long and wide. Each flower has sepals and petals, narrow, equal in size, three-quarters of an inch long, and rich scarlet; the lip forms a sort of tube with three spreading lobes, altogether about three-quarters of an inch long, the tube being yellow, the lobes scarlet. British Guiana is the home of this species, and it is said to grow in exposed positions along river banks. In the sale catalogue above referred to, the flowers of *E. Schomburghii* are described as being "scarlet on opening, changing to deep crimson as they get older, and they are said to last about two months in perfection."

#### DESTRUCTIVE INSECTS.

ONE of the results of the prize offered by Miss E. A. Ormerod, at the agricultural show at Frome last year, which was won by Mr. Haley, has been the preparation of a series of instructive mounts showing the ravages of some of our best known garden and field pests. The plan adopted in these very concise and handy illustrations is a development of that introduced by Mr. Haley, and since carried out under Miss Ormerod's directions by Mr. Mosley. Each object lesson—for they can scarcely be called diagrams—is contained in a glass-topped box 12 inches by 8 inches, and of depth according to the size of the object. On the upper part of the mount within the box is the name of the insect in English and Latin; beneath this is a specimen of the plant attacked, or, where it is not possible to show the real thing, a careful model is substituted, showing the devastation caused by the insect, and below this again the creature in its various stages is shown—first, the pupa, then the larva, and finally the perfect insect; and where it is very small, magnified drawings are given. The text accompanying these preparations is descriptive of the insects, their habits, and food plants, together with the best means for their prevention, and the remedies to be applied when the plants are attacked. All this is necessarily brief, but is, nevertheless, sufficiently detailed to be very useful

and valuable, as, indeed, the whole series cannot fail to be, especially in schools in agricultural districts.

The first set of twenty of these preparations has been secured for the museum of the Royal Gardens, Kew, where they are now exhibited. The following insects and plants are amongst those treated of in this set: Turnip and Cabbage gall weevil, Turnip moth and Turnip fly, all on Turnip, Cabbage aphid, large white Cabbage butterfly and Cabbage moth, all on Cabbage, Vine beetle on the Grape, Bean beetle on Bean, Pea and Bean weevil on the seeds of Peas and Beans, winter moth on Plum, American blight on Apple, magpie moth on Gooseberry, Celery leaf miner on Celery, silver Y moth on Lettuce, Beet or Mangold fly on Beet, click beetles and wireworms on Potato and Grass, daddy-longlegs on Wheat, Onion fly on Onion, and goat moth on Ash.

Museum, Kew.

JOHN R. JACKSON.

## FLOWER GARDEN.

### PERPETUAL CARNATIONS SEEDING.

MR. BAINES (p. 244) gives me credit for success in seeding these out of doors, but if I am successful, he must not think that this is attained by chance. I think I have read correctly what Mr. Baines wrote; not only did he say that "it was not an easy matter to secure seed of a really good strain, as it was not produced here in the way growers in the south of France manage to get it," but also, "that our summers were not long enough."

On taking exception to this statement (p. 228), I did not represent Mr. Baines as saying these Carnations would absolutely not seed in this country. I said that it took no longer time to perfect seed of perpetuals than it did border Carnations, and that we did not need to send to France for good strains of them. Mr. Baines seems to think that quantity and quality of seed ought to go hand in hand, and that until we can grow a larger percentage in a pod we will never have a really good strain. Now, I maintain that it is just as easy to secure seed from a good as from a bad strain.

There are great differences amongst Carnations, be they good or bad, perpetual or border kinds, as to the number of pollen-bearing stamens which they possess, and in the length or prominence of the pistils. For instance, some of the very best flowers are entirely devoid of pollen-bearing stamens, while the pistils are very prominent. Again, another equally good flower with the stamens as above may have its pistils so short or depressed, as to be entirely buried amongst the petals.

This condition of stamens and pistils may be entirely reversed in another equally good or bad flower, and may be found either way in good and bad strains. Now, it will be evident that only flowers having pollen-bearing stamens and pistils in the proper position can be self-fertilised, and only flowers with prominent pistils can be fertilised through insect agency; the latter always with pollen from those flowers only which freely expose it, be they good or bad. Now, if insects were the only fertilisers for, say, the next decade, I will venture to assert that the free pollen-bearers would be found at the end of that time to be tenfold in excess of the others. Now, this is just what the French have done, viz., depended wholly on insect fertilisation. Their greater amount of sunshine compared with ours matures pollen and makes insects more lively, and therefore fertilisation is carried on without artificial aid, and more rapidly than with us. But I contend that this sort of haphazard work will not insure a good strain, or keep one when obtained, and in this matter I think I may say that "we manage things better in England" than is done in France.

Mr. Baines has spoken of my failures with Continental seed, and ascribes it to my not having been to the right source. Now, I never even hinted that the seed was bad, but the strain, the produce of which turned out, in colour, to be very much alike, the flowers to be smallish and the petals ragged, with quite long cuts up the middle; the pistils were long and the stamens in great force, with pollen in



abundance. I have likewise had the selfsame sorts sent me in the form of plants, so that it is no conjecture of mine when I say that the French growers never resort to artificial fertilisation. Their strain seems to be fixed, and will perpetuate itself as easy as Charlock in a field, and with about as little variation.

Owing to the construction of many Carnation flowers, some of the best varieties would necessarily be lost if artificial fertilisation was not resorted to. Whatever may have been the success of Mr. Baines and others of his acquaintance with seeding perpetual Carnations and the quantities of seed produced, I just wish to state that I have taken as many as sixty-three seeds from one pod, and that usually the pods are as full of seeds as an egg is full of meat.

*The Oaks, Epsom.*

J. KNIGHT.

**Sowing Pentstemon seed.**—"Senex," if he purposes sowing seed of Pentstemons, will do well to sow at once, but either in shallow pans or boxes, or in a frame, so that by keeping the seedling plants as sown all winter he will have a fine lot to go out next April, and these will bloom in great beauty and profusion all the summer. This at least has been my experience of seed sown last autumn in a frame. I have now, and long have had, a fine display of these capital perennials, a display that would have been much finer had the season proved less dry. As Pentstemons pass fairly well through the winter, these established plants will bloom freely and profusely early in the summer, and the seedling batch, if sowing be continued every year, will continue the supply of bloom till winter sets in. Pentstemon seed germinates somewhat slowly under the best conditions, but my own experience of sowing in the open air of even own-saved seed well ripened has been always a failure; therefore I always now sow under glass, and thus ensure a good batch of plants. Such varied and beautiful forms come from any good strain now, that naming new kinds seems almost absurd. There seems to be only one direction in which selection may improve the Pentstemon appreciably, and that is evidently in the direction of more compact habited spikes of bloom, for as a rule these are not quite so densely set as may seem to be desirable. On the other hand, the present form of spike is much more pleasing if used for decorating vases than would be solid massive spikes. Pentstemons, like Antirrhinums, do not, however, as a rule make good cut flowers. As to producing dwarfier strains, I am not at all sure there is any great advantages to be looked for in that direction. Very close compact habit may be desirable in flowers for massing, but in the case of border flowers, varying heights add a charm and prevent flat monotony.—A. D.

**Mulleins.**—Your artist who has pictured *Verbascum Thapsus* in *THE GARDEN* (p. 148) should have seen some specimens I have seen grown quite 7 feet high, and 5 feet or 6 feet broad at the base, as straight as an arrow until we had a gale or high wind, when they got levelled more or less. Your crooked specimen may be more picturesque, but less stately and grand, with the leaves stretching out on all sides, forming a perfect huge rosette like an *Echeveria*, from the centre of which emerges the tall stem; the larger leaves are, to use a common phrase, "as thick as a board"—that is they have the substance of the very thickest broadcloth and surface-finish of the finest velvet, and, when removed from dust and dirt, as white as silver. It has seemed to me when I have cut off some of the huge leaves with so much substance and such silky surface, that they might be utilised in some way. The cultivator you allude to as having banished all the species from his garden except *V. Thapsus* has, I think, shown good taste, as I never found one to equal it. But among the thousands I have seen by the roadside, all dust and dirt, I never thought it deserving notice as a cultivated plant. It was not until I witnessed the clean, vigorous magnificent plant I have spoken of that it has become a very beautiful ornament of my garden.—C. M. HOVEY, *Boston, Mass.*

**Bedding Violas.**—Some do not take cuttings from these until the end of October, but much stronger and better plants are produced by taking

them about the end of September. They will root in any kind of garden soil, and they only require to be dibbled into a border along the bottom of a hedge or wall to insure their wintering well, but the earlier they are rooted and the better established they are before severe weather sets in the less will they suffer, and the better will they turn out in spring. To keep old plants on and divide them and use them again is not a good plan, as they grow straggly, do not flower freely, and are very liable to change colour.—CAMBRIAN.

#### EREMURUS ROBUSTUS.

It is one of the delights of gardening to watch the growth and development of the choicer plants of



*Eremurus robustus.* Photographed in Col. Stuart-Wortley's garden, Rosslyn House, Grove-end-road, London.

other lands, particularly when one has travelled much and seen many rare and lovely ones growing in their distant homes. The *Eremurus* here figured is one of these, and its stately beauty will attract many admirers. My plants of it came from Herr Max Leichtlin last year, and after having been kept in sand till the time of planting, were put into the ground in October. In early spring fine tufts of leaves pushed up, and then the massive flower-spike began to grow apace. The first buds at the bottom of the spike opened in the earliest days of June, and the plant remained in bloom for nearly six weeks, the flowers unfolding gradually from bottom to top. The colour, a pale pinkish salmon, was most effective, and the perfume very delicate and sweet. The stem when

growth was finished was over 6 feet in height, and the seed has matured well, so I shall be able to give some to friends. I have three plants of it in all, but the roots varied in size and the plants also. In its native habitat plants of it 8 feet and 9 feet in height are common, and many grow taller than that. It is very hardy and will grow best, I think, in full sunshine.

H. STUART-WORTLEY (Col.).

**Golden Ling, or Heather.**—Among golden-leaved plants must be included the golden variety of the Ling, or Heather, a low, compact growing plant, of a bright yellow tint, well suited for planting in exposed parts of the American garden. Hardy Heaths are but little seen in gardens, though there are a great many purposes for which they might be advantageously employed; for instance, some will do well on sloping banks, which are often bare and uninteresting, while all could be used as a carpet for Rhododendrons, Arbutuses, and similar shrubs, which, springing from a mass of Heath, would be more attractive than if the ground was bare. Besides, if a bed or two were planted with a good selection of hardy Heaths, they would be far more interesting than if filled with ordinary so-called bedding plants, which are at their best only about a couple of months, while the Heaths would be interesting at all seasons, and when in flower very showy. For general purposes, division can be resorted to in order to increase many of the low-growing kinds; but where needed in great quantities, they should be propagated in the same way as the greenhouse varieties are, *i.e.*, by means of cuttings made of the young shoots taken just when they are about half-ripe. They should be inserted firmly in well-drained pots of sandy peat and kept close till rooted. Many kinds seed freely enough, and plants can be raised in quantity therefrom; but this method cannot be employed for the perpetuation of any particular varieties, as seedlings are very variable, generally showing a great tendency to return to the normal type. On account of the minute character of the seeds and the vicissitudes to which they are exposed if sown in the open ground, the better way is to sow in pots or pans of sandy peat, and keep them in a cold frame. As soon as the young plants are large enough they must be pricked off into other pots, or a bed of soil may be formed in the frame and the seedlings planted therein.—T.

**Autumn-flowering Anemones.**—The best of these are *A. japonica* and its white variety, the latter a lovely white; the former produces very pretty pale rose-coloured flowers; both bloom most profusely, and I do not know of any hardy plants which blossom in September and October that are more showy or useful. They are plants which when once planted can take care of themselves. Their blooms when cut and arranged in glasses have a charming appearance. We have some of the white kind growing in front of an old-fashioned conservatory, and as the flowers are always sheltered, they retain their purity for a very long time. In the open air the rain is apt to tarnish the fully opened blooms, but the first little bit of brightness brings new ones out in abundance.—J. MUIR, *Margam, South Wales.*

**Hardy plants in Hyde Park.**—The *Field*, commenting on a letter from a correspondent on the bad state of the hardy plants in Hyde Park, says "it is due to persistence in the old system of sticking hardy flowers under trees and shrubs in poor starved borders which are dug every year, thus disturbing the poor things without adding to their nourishment. No improvement can be hoped for without a change of system. The mixed border along Kensington Gardens is as bad as it can be, fine as the site is. Plants there have always to struggle with the tree roots; but by a selection of things that thrive fairly well under trees, and the use of bold simple masses of them to cover the ground anywhere, such as the Woodruff and the broad-leaved Saxifrage, excellent effects might be obtained. For the other class of hardy flowers that do much better away from trees, such as Delphiniums, Carnations, and a host of plants that want good culture, not much can be done unless beds are formed away from the trees. There is plenty of room in the park to do this, and there is no reason whatever why a bed of Clove Carnations should not be brought near the eye along Park-lane, as well as beds of Fuchsias and Coleus; in fact, the reasons are rather the other way. But we have not much hope; the whole idea of the park decoration since it came into existence has been based on an expensive set of glasshouses for the propagation of tender plants. A great amount of attention is given to these, and little care given to the things that grow in our own climate. Trees take care of themselves, and hence they grow and flower beautifully when not crowded. Flowering shrubs occasionally, when these are not choked by their neighbours, are often very beautiful in our parks—another reason this, surely, for attending to such things."



**Anemone japonica.**—Among hardy herbaceous plants, this Japanese Windflower is now one of the best. It stands out most conspicuously in borders, with its tall, branching stems of fine, large, salver-shaped blooms and big, Vine-like foliage, which sets them off to advantage. There are two varieties of this fine Anemone, the one being rose-red and the other paler; and there is also a white, which is a very beautiful kind, having a conspicuous disc surrounded with bright golden anthers, which make it look like some gem richly set, and render the flower very choice in appearance. For cutting to mingle with single scarlet Dahlias, *Anemone japonica alba* is quite unique, and should be largely grown for this purpose, as the two associate well, and have a remarkably fine and telling appearance. The way to get fine plants is to trench or deeply stir the ground where they are to be planted, working in, when doing so, a good dressing of rotten manure, that the roots may ramify freely and have plenty to feed on. The right time to divide and transplant is just as the plants begin to move in spring; but except for the purpose of increase, they should never be disturbed, as the less they are interfered with, the finer and better they grow.—D.

**Iris reticulata.**—A gem amongst winter and early spring flowers (which are ever welcome) is this Iris, of which I saw some patches during the third week in March, that were indeed lovely, in a well-sheltered garden in the neighbourhood of Godalming. The flowers were produced in great profusion, and perfect in form, size, and colour. They were produced by well-established plants that were evidently growing in congenial soil. The latter was light in texture and well manured. An advantage which this plant possesses is that the flowers are partially protected by the foliage from March winds, and the sunny weather experienced no doubt added very materially to the excellence of the flowers. Another great advantage claimed for this Iris is that the unopened buds, if cut and placed in water, will open freely. It is in every way a most desirable plant in the herbaceous border, and highly to be recommended for earliness and the freedom with which its flowers are produced.—E. W.

**Popularity of the Carnation.**—If Mr. Douglas wishes his readers to disbelieve the statement made in THE GARDEN, viz., that the popularity of the Carnation is not due to the florists, he should bring evidence that Carnations were previously as popular as now. Florists' flower shows are visited by a fraction of the community absolutely insignificant as regards numbers. These exhibitions and competitions have been going on ever since I can recollect, my first lesson in skilled gardening, at seven years of age, being from a member of a local Carnation and Picotee Society, but I never either heard of or saw any influence which these societies had on the generality of gardens. The fact is that high class florists' floriculture is a thing apart from gardening, and has little more influence on general horticulture than the efforts of the pigeon fancier have on the wild pigeons in the woods. The methods of culture required to produce exhibition blooms are far too complicated for the great body of flower growers; and although the exhibitor does good in improving double flowers, his efforts in too many instances tend to narrow and curtail the general use of the flowers which he takes in hand.—J. D.

**The Dutch Honeysuckle.**—This Honeysuckle will be found to be an accommodating subject to deal with. It can be grown in the form of pyramids or low bushes, in either of which states it is attractive, and the freedom with which it flowers when so treated would surprise those who have not so grown it. When pruned annually, it sends out every spring innumerable young shoots, on the points of which are produced bunches of flowers, a single bush often carrying some 200 heads of bloom. A bush of this kind, associated with old-fashioned garden flowers, is a sight worth seeing. In viewing such subjects, people feel that they can bear with a little formality in some things when they can take in at the same glance well-grown examples of such plants as double Rockets, perennial Lupines, Brompton Stocks, and herbaceous Pæonies, and the particular garden in which this Honeysuckle grew was rich in well-grown clumps of these old-

fashioned flowers. This Honeysuckle does so well restricted, that I determined to see what could be done with it in the form of a pyramid. I therefore secured good strong plants of it and put them out, supported by strong iron stakes. As might have been expected, they grew away vigorously, but with a tendency to go upwards, which necessitated severe annual pruning in order to keep them down sufficiently to form growth near the bottom. As a matter of fact, they have not made handsome specimens, but the effort has resulted in getting plants fairly well furnished from the ground to a height of 5 feet. Seeing how little space the plants occupy and the variety which they afford, I consider that the time bestowed on them has been well spent. The only thing we do to them is sometimes, during the winter, to take a pair of shears and cut off all the young growths, having an eye to keeping them in the best form we can.—J. C. C.

**Herbaceous Pæonies.**—These are grand border flowers, especially the bright red kinds, which are so massive and showy, that they arrest attention from afar, and produce a fine effect in borders. To grow them well, they must have plenty of room for the spread of their foliage and great depth of soil for their roots; and to afford them this, the place where they are to be planted should be broken up and have some rotten manure worked in. The best time to plant is in the spring, just as the crowns are moving, when a division may be made by cutting them through, as their increase is effected in the same way as Dahlias, the Pæonies being very like them in the formation of tubers, which some of them produce in quantity, and grow to quite a large size. The most suitable situation for these herbaceous Pæonies is at the back of flower borders in front of shrubs, as there they get shelter and show off to the greatest advantage. They also look well as isolated plants on lawns; but wherever placed, they must have support by being staked and tied, as their big blooms are a great weight, and bear the shoots down to the ground. Instead of cutting these off when the plants have finished flowering, as is often done, they should be left to ripen and die away naturally, the foliage being necessary, as long as it remains green, to feed and finish the crowns.—S. D.

**The Peacock Iris.**—If the corms are of blooming size—which is but small—it is not difficult to flower them. One great point of culture is, as with all bulbs, to take due care of the foliage, both in its upward growth and in its after-ripening. The flowers, it may then almost be said, will take care of themselves. The leaves of Iris Pavonia are long and narrow, and they come up during the awkward months of the year. In this northern county I have not allowed this beautiful Cape Iris to feel our frosts, but grow it under pot culture in an unheated house, putting the plants under the stage on frosty nights. I allow them all possible air and light while the foliage is rising, and take them into the temperature of a cool Orchid house when the spikes begin to show. A flower lasts three days, but there is a succession of three or more on every stem. After blooming, I take the plants back to cooler quarters again, where they are kept supplied with water, air, and light until the foliage dies down. I then take up the corms, and separate the numerous offsets, replanting the whole at once for next season's growth. They are kept while dormant under a stage in a cool house, and not allowed to become dust dry. They bloom very well in the same compost as the Auriculas, in equal parts of strong yellow loam, leaf mould, and rough sand, no manure and well drained. Six full-sized corms are enough for a 6-inch pot. They will require the simple care they need, but no one will ever grow any plant well who has not the heart to care for it at what may be thought the less interesting stages of its growth.—F. D. HORNER, *Burton-in-Lonsdale, Westmoreland.*

—I cannot tell Mr. W. H. Tillett why he fails to bloom Iris Pavonia, but I have succeeded with it admirably in the open border, it being one of the few Irids with which I am thoroughly successful. I planted six bulbs four years ago in a warm sandy border, and this year I am sure I must have had from forty to fifty blooms. The foliage is never at all presentable, but each year the blossom has come all

the same. *Amaryllis Belladonna*, *Agapanthus umbellatus*, *Antholyzas*, *Ixias*, *Crinum capense* all do well in the same border. Is Mr. Tillett's soil and climate really hot enough? I know not whether he is south of London, but I am sure these things want summer heat.—W. WILKS.

## GARDEN FLORA.

### PLATE 510.

#### NEW ZEALAND SPEEDWELLS.

(WITH A PLATE OF VERONICA PINGUIFOLIA.)\*

THE New Zealand Veronics in one form or another are a class of plants that have long been cultivated in English gardens generally indoors, but few attempts having been made to grow them in the open air. It has, however, been found that all of them with one or two exceptions stand our winters well, and flower freely during the early summer and autumn months, adding quite a new feature to collections of hardy-flowering shrubs. The hybrids, the result of crosses, either in cultivation or in a wild state, prove to be the most useful for house decoration; among them may be named *V. Devoniana*, *Andersoni decussata*, *kermesina*, and many others remarkable both for their beauty and for the freedom with which they flower. *V. Traversi* makes a handsome shrub, but unfortunately it is liable to get killed in severe winters, unless well sheltered or in a genial climate. *V. elliptica*, sold as *formosa*, a large fine-foliaged species with handsome purple flowers, does well on a south border and makes a charming, well-formed shrub. *V. Forsteri*, *speciosa*, and some others are also well worth attention.

*V. PINGUIFOLIA*, of which a coloured illustration is here given, is one of the handsomest of the glaucous-leaved shrubby Speedwells. It is closely allied to *V. carnosula* on the one hand and *V. pimeleoides* on the other, partaking of the robust strong habit of the former, and furnished with the small leaves of the latter. It differs distinctly from *V. carnosula* in having smaller, rounder, and more glaucous leaves, and also in having a hairy capsule, while in the other the capsule is quite glabrous. It has been cultivated pretty generally in this country for several years, having first been raised from seed by the late Mr. Anderson-Henry, of Hay Lodge, Edinburgh. *V. pinguifolia* may be ranked amongst the hardiest of the New Zealand Speedwells, and may be planted in the open without fear of injury from frost, even during severe winters. Its neat habit renders it a good plant for rock-work, where it forms pretty little glaucous bushes, attractive alike in winter and in summer. It grows from 6 inches to 18 inches high, branches freely, and is densely clad with extremely thick, leathery, oval or obovate shaped leaves; the short flower-spikes occur at the ends of the branches, each carrying from fifty to a hundred blossoms, produced in June. It is common on the mountains of Nelson and Canterbury at elevations of from 3000 feet to 5000 feet.

*V. BUXIFOLIA*.—This has lately been distributed in gardens under the name of *lævis*, a name by which it is at present known in the trade. It is an extremely neat-habited Box-like plant, which inhabits the sub-alpine mountains of the lake districts of New Zealand. There it rarely reaches 2 feet in height, is shrubby and much branched, but with us in favourable positions it forms more leggy growths, and attains larger dimensions. The leaves are heart-shaped at the base, broad in the middle, and obtuse at the points, with prominent midribs on the under-

\* Drawn in Messrs. Backhouse's nursery, York, by the late Mr. Noel Humphreys.











sides. The flowers, which are whitish, are collected into dense capitate masses on short racemes, and are slightly odorous. The bracts are prominent, being nearly as large as the sepals. It flowers in June and July, and requires a partially shady spot, with a dry bottom. It is the *V. odora* of old authors.

*V. CARNOSULA*.—This is pretty common now in gardens, where it is often mistaken for its near ally, *V. pinguifolia*. In its native country it is said to form a small prostrate shrub, but with us it seems inclined to assume an upright habit, flowering in dense, broad heads at the ends of the branches. On rockwork, for which it is well suited, it is perfectly hardy, *i.e.*, provided the position is exposed and dry. It is also useful for pot culture, its handsome glaucous foliage seldom failing to attract attention. The pretty effect arising from the leaves standing out almost horizontally is unique; they are nearly oblong, broad, and rounded at the tip, thick and leathery to the touch, sessile or with extremely short, thick stalks. The flowers measure half an inch in diameter; they are pure white, and borne in profusion. It is found at elevations of upwards of 5000 feet on Morse's Mountains.

*V. CATARACTÆ*.—This appears to have got confused with the well-known *V. Lyalli*. There may doubtless be intermediate stages between the two, so as to almost link them together, but the type plant of *Cataractæ* is abundantly distinct from *Lyalli*. The whole plant is quite glabrous; the stems are erect, from a foot to 2 feet high, much branched and somewhat slender; the leaves, though variable in length, are always narrow lanceolate, pointed and deeply and evenly serrated; the flowers are white, handsome, and about an inch in diameter. They are produced in July. It is found on middle island on the east coast. It is the *V. Kirki* of gardens.

*V. COLENSOI*.—This is one of the freest flowering of New Zealand Speedwells. It is essentially a plant for the rock garden, and when seen in full flower overhanging ledges, it is truly handsome. The typical form is found in gardens under the name of *V. amplexicaulis*, but as it is extremely variable, it is difficult in some instances to distinguish it from the well-known *V. Traversi* or the rare *V. levis*, the most constant and best reliable characters being its subsessile flowers, collected in sub-corymbose heads, and its leathery bracts. The leaves are without stalks, narrow, oblong, entire, gradually narrowed to the base, slightly glaucous, and with a distinct midrib. The flowers, which terminate the stalks, are collected together in dense masses; they are pure white and very attractive. They are produced in June and July. This species is plentiful on the middle island, and also on the Ruahine Mountains. (Syn., *V. Menziesii*.)

*V. DIOSMÆFOLIA*.—This makes a graceful little bush on rockwork, where it is hardly only on dry sunny spots in sheltered nooks. Its free-flowering habit makes it a good subject for pot culture, and it might even bear a little forcing so as to induce it to flower early. It becomes a good-sized bush, with glabrous stems and a profusion of rather slender branches. The leaves, which are curiously arranged, are close set and spread horizontally, or nearly so. They are about an inch long, oblong, and taper sharply to both ends, margins entire and prominently keeled on the underside. The flowers, which are produced in terminal heads, are borne in profusion. They are half an inch in diameter, white, and harmonise prettily with the shining red anthers. It flowers in June, and is a native of the northern island.

*V. EPACRIDEA*.—This is well named, as nothing could be nearer than it is in appearance to an *Epacris*, whether in or out of flower. When small, it forms pretty little upright bushes, an edging of which has a singularly beautiful effect. When it becomes tall, the slender stems assume a prostrate habit, and become ragged. It makes a handsome rock plant, where it is perfectly happy on a western aspect, between two large boulders. It is a much-branched species, the branches being uniformly and thickly covered with small dark glossy green leaves; the latter are sessile, oval-shaped, and invariably curve upwards. The flowers, which are collected into leafy

heads, are set on short stalks in the axils of the leaves half-way down the stem. They are white and about half an inch in diameter. Very young plants bloom freely, and as they last a considerable time, this species will no doubt be useful in pots. It flowers in June and July, and comes from the middle island.

*V. HULKEANA*.—This, though grown generally as a greenhouse plant, proves to be perfectly hardy, having withstood the severe and memorable winter of 1882. It is one of the freest flowering and handsomest of all the Speedwells, and but for its flowering in long spikes it might be taken for a magnified *V. Lyalli*. It grows erect from 1 foot to 3 feet high and is sparingly branched and clothed with foliage; the leaves are in pairs, an inch long, nearly oval, and



Willow-leaved Veronica (*V. salicifolia*).

deeply serrated. They are yellowish green or bronzy, and often shining or varnished. The flowers, which are lilac, are over half an inch in diameter, set on opposite spikes about a foot long and 3 inches or 4 inches broad, rising from the base of the leaves; they curve gracefully and look well during the latter end of May and beginning of June. It is growing on a western aspect, although a sunny southern exposed situation would be safest in low-lying localities. It comes from rocky places on Macrae's Run, middle island, &c.

*V. LYALLI*.—This is a well-known garden plant, and a very useful one either for rockwork or the mixed border. In a small state it has an upright habit, but older plants are prostrate or procumbent, the branches rooting readily as they lengthen. The short petioled leaves are about an inch long, and vary from almost oval to oval-lanceolate with sharp or blunt points, sparingly serrated, and having a firm leathery feel. The flower-stalks, which are produced from the axils of the leaves, are usually about 3 inches long, and a dozen flowers are set on each spike; they are over half an inch in diameter, white with a broad pink band round the eye. It is variable in a wild state, probably hybridising with others, as

forms are found intermediate and passing into *V. Pidwilli* and others. It comes from rocky cliffs near Batea, &c., and flowers in May and June.

*V. PIMELEOIDES*.—This handsome species is nearly allied to *V. pinguifolia*, but differs from it in being much smaller in all its parts, if anything more glaucous, and with a distinct reddish tinted margin to the leaves. It is being distributed under the name of *V. glauco-cœrulea*, probably from the blue hazy tint which belongs to it. It is perfectly hardy, and makes a pretty rock plant. It grows about a foot high, is slender, and branched, the latter being covered with rough, close-set scars. The leaves are small, sessile, roundish or oval shaped. The flowers, which are on opposite spikes, vary from white to deep purple, the latter being very handsome. It is found on stony flats on the middle island and Hurumui Mountains at from 800 feet to 1000 feet above sea level, and up to 4000 feet. It flowers in June.

*V. SALICIFOLIA*.—This, or some form of it, is common in gardens, where it is generally grown in the greenhouse or conservatory. The forms of it include *Andersoni*, *linariæfolia*, *versicolor*, *kermesina*, *Lindleyana stricta*, and others, all hybrids between this and *V. parviflora*, *elliptica*, and others. It is very variable, passing into *parviflora* through *stricta*, and also into *macrocarpa*; both of these, therefore, may be taken as extreme forms of *V. salicifolia*. It makes a large, sparingly branched shrub furnished with narrow lance-shaped sessile leaves, entire and glossy on their upper surface. The flowers are variable in size and in colour, being white sometimes and at others bluish purple. It is found all over New Zealand, and flowers in June and July.

*V. SALICORNIOIDES*.—This is one of the most singular and interesting of Speedwells, reminding one very much of a dwarf prostrate *Cupressus*. In the Edinburgh Botanic Garden and also at Hay Lodge we saw beds of it, looking healthy, dense, and bushy. It has flowered only once in cultivation at Easter Duddingston Lodge, Edinburgh, in the garden of Mr. C. Jenner. It had been tried elsewhere in warm and cold houses, in the open, in sun and in shade, in peat and in loam, and, indeed, in every way, with the same result, *viz.*, no flowers. It grows strongest in a shady peaty spot. The leaves, which are closely adpressed to the branches, are in opposite pairs and very short and narrow. It is found on Nelson's Island, &c., at from 3000 feet to 5000 feet above sea level. (Syn., *V. cupressoides*.)

#### ANDROMEDA (CASSIOPE) FASTIGIATA.

*CASSIOPE* is a limited genus of Ericaceous plants generally grown in gardens under the name of *Andromeda*, but now separated from that genus, which contains only one species (*A. polifolia*), a native of our own moors. They are extremely pretty plants, and should find a place in all collections of hardy flowers, the chief requisites to their successful cultivation being peaty soil well drained, as they are all extremely impatient of stagnant moisture about their roots and absolute shade from the mid-day sun. The best plan is to raise small mounds of peat, and plant them on the top, taking care that they do not want for water, both at the roots and overhead. They are increased by division, rooting freely when pegged down.

*C. FASTIGIATA*, of which the annexed is a coloured illustration, is decidedly the handsomest of this small group of plants, few of which are in cultivation. As an alpine species *C. fastigiata* ranks amongst the best plants we possess; it may be grown without much trouble in company with the more common *C. tetragona*, a species much inferior, though oftener met with. Its range of altitude is pretty extensive. Sir J. D. Hooker, in his "Himalayan Journals," says: "I prepared to camp on the mountain top, a broad bare flat, elevated 13,080 feet, and fringed by a copse of Rose, Barberry, and alpine *Rhododendrons*. The Himalayan



Heather, *C. fastigiata*, grew abundantly here, affording us good fuel."

THE CULTIVATION of these shrubs is comparatively easy where space to fully develop themselves can be devoted to them. The majority of them grow well in ordinary garden soil, the only really essential provision being free drainage and a fully exposed situation. If shaded, so that their wood does not get ripened, they are sure to be killed. Those belonging to the smaller or alpine section may be grown with advantage on rockwork, where they are valued, not only for their flowers, but also for their evergreen foliage and neat habit. On bleak spots they furnish a good illustration of lofty mountain vegetation. Most of the species in our gardens ripen seed freely, by means of which they are easily propagated; but perhaps the quicker way is striking cuttings. These, taken off now or later, form good little plants by the following spring; they root readily in a cool frame—indeed, 99 per cent. may be guaranteed to succeed, and they may also be propagated by layers simply notched and pegged down.

D. K.

#### ORNAMENTAL-LEAVED KNAPWEEDS.

THE value of this class of *Centaureas* as ornamental-foliaged plants has not yet been fully recognised; indeed, we have yet to see a phase of bedding intermediate between the sub-tropical and the present carpet system. The latter, it is said, requires a cultivated mind to be able to properly appreciate its good points, but mental cultivation is so slow, that the system will, we think, be superseded before its merits are recognised. Many of the *Centaureas*, as used in public gardens, mixed with sub-tropical plants, form attractive features. A row of *C. ragusina*, with plenty of room between the plants, is in itself quite a sight; its graceful, silky white, Fern-like foliage, in contrast with that of other plants in front, lighten up the border with striking effect. A point in their favour, too, is that most of them prove hardy in ordinary winters, *i.e.*, provided the situation is warm, free from stagnant moisture, and the soil sandy. Under such conditions they will stand a dozen degrees of frost without much harm. *C. rutifolia* grows from 2 feet to 3 feet high, and carries large corymbose heads of fine white and red flowers; the leaves are woolly, bipinnate, and very ornamental. Others equally useful for such purposes, too, are *C. Clementei*, a kind with very fine foliage; *C. Cineraria*, *C. ragusina*, *C. compacta*, *C. gymnocarpa*, *alpina*, &c. They may be increased by means of cuttings or seed, which they ripen in warm summers.

K.

**Vitality of Tobacco seed.**—"J. C. C.'s" remarks remind me of an instance corroborative of his statement which happened a year ago. Growing among Mulleins, of which I sent you seed at the time, on the site of a conservatory was a species of Tobacco, with very large roundish leaves and large elegant heads of good-sized tubular yellow flowers. As the conservatory was erected in 1840, when the soil was practically designed to make a Grape border, and the house was only taken down the year before, I was at a loss to account for the appearance of this Tobacco, for the whole surface of the conservatory was floored over, except the pathways, from the time of its erection, forty-five years ago, and I have not had any kind of Tobacco growing near the place for a great many years. At first I came to the conclusion that seeds which I may have had in the office might have accidentally been scattered on the floor and swept down into the fire-hole, near which the plants were growing among the old *débris* of bricks and mortar, as I am positively certain I had not used the office for fully twenty years. But on looking up the species, I find it what I believe to be the *Nicotiana rustica*, described by Gray as wild Tobacco naturalised "near dwellings and old fields in New York and westward." If so, how should it appear here in Massachusetts, in a place which had not seen the light for forty-five years? Nothing has been done to the spot since the conservatory was removed, and the whole space is now nearly covered with *Verbascum Thapsus* and *Phytolacca decandra* from 4 feet to 8 feet high. Curiously

enough, not a single plant of these appear outside of the old walls of the house, the border of which on the lawn front and ends 15 feet wide was prepared for Grapes, and was annually planted with flowers for the forty-five years. It is only on the surface of the old gravelly subsoil when the earth was removed that they have grown up with unusual vigour, as if the exclusion of the light for so long a period had enriched and invigorated the soil, evading even the highly manured and constantly cultivated Grape border. It shows that not only Tobacco seed has great vitality, but Mullein and Poke root have the same quality. After all, the vitality of seeds under certain conditions is a thing we know but little about. Packed away in bags or boxes, exposed to the dry air, many kinds we know lose their vegetative power. But buried deep in the soil where neither light nor air reaches them, they retain their vitality for an indefinite period. We see this continually when soil a foot or more deep is dug up and exposed to the light, which soon becomes covered with what we call weeds. I have *Lilium canadense* appear in my grounds where none had been seen for twenty-five years, though it was then common; and Golden Rods and Asters where none had been growing for thirty or forty years.—C. M. HOVEY, *Boston, Mass.*

#### MICHAELMAS DAISIES.

WITH the view of becoming better acquainted with the less-known forms of these plants, as well as with that of furnishing our borders with a greater variety of autumn flowers, in spring last year I secured a good collection of them, and as the plants came to hand well established in pots, I saw that, with careful management, they were capable of being grown into fair-sized specimens during the summer, and that there was every chance of their producing a good few flowers in the autumn. I was not disappointed. Most of them sent up two, and in some cases four, strong stems; but no doubt we helped them to do this to some extent, for I provided them with good soil, and had the places dug up deeply before the fresh soil was added. After the plants were turned out of their pots the roots were disentangled, and carefully spread out and covered with fine soil; then they were well watered. For the first few weeks after planting they had an occasional watering whenever the soil appeared dry; but they soon began to grow, and were able to take care of themselves, with the exception of giving them some neat stakes to support the stems of the tallest growers. As regards the suitability of these Asters for mixed borders, few plants are so accommodating, for the different varieties vary in height from a foot to 5 feet. Some of them grow into neat, compact bushes, while others are vigorous and produce large compact heads of blossoms. But the most charming varieties are those with mauve coloured flowers, and which grow to a height of nearly 5 feet; the feathery growth is so light and elegant, and yet so capable of enduring the rains and winds of autumn, that they are indispensable where many cut flowers are required, as well as for making the outdoor gardens attractive. Nor do their merits end there, for they are almost indifferent as to quality of soil. They may not grow very high in poor soil, but they are wonderfully free-flowering in positions in which few other plants would thrive. As regards increasing the stock, I find that, although my plants only came in 5-inch pots not many months ago, some of the varieties have formed large stools—so large, in fact, that I find it necessary to reduce them, or they will send up such a number of flower-stems, that much of the beauty of the individual plants will be lost. Such varieties as *Chapmani*, *ericoides*, *grandiflorus*, and *turbinellus* have a more graceful habit when only two or three stems are allowed to rise from each plant than where more are encouraged. I have, therefore, gone over our stock, and carefully removed a good number of young offsets that were shooting up round the old plants, and, as we want to increase the number of plants, this operation will do away with the necessity of cutting out the stems when the season is further advanced. The offsets which we have taken off have been carefully planted in a reserve border, where, no doubt, after one year's growth, they will make fine plants. The variety of colours amongst these Asters is much greater than I

expected. None of them can be described as brilliant, but all who can appreciate the softer tones of blue, magenta, white, and rose, will find in them a combination so pleasing that they cannot be disappointed, especially when it is remembered that they are produced by the hardiest of all hardy plants, which anyone can grow who may care to do so. The following is a list of the best twelve varieties known to me, *viz.*, *Amellus*, *Amellus bessarabicus*, *Chapmani*, *ericoides*, *formosus*, *lævis*, *Novæ-Angliæ* and its variety *ruber*, *grandiflorus*, *pilosus*, *paniculatus*, and *turbinellus*.

J. C. C.

#### ASTERS AND THEIR CULTURE.

IT need not be a subject for wonder that the Aster has become such a popular flower. It would be very difficult to find a garden that, during the summer months, would be destitute of this very pretty half-hardy annual, which is as useful as it is pretty. When we think that not a great many years ago the fine forms of flat-petalled Asters now cultivated were unknown, and indeed undreamed of, and when we remember the valuable additions that have been made to our stock of types, it is difficult to praise too highly so much that is charming and largely utilitarian. There is scarcely a flower show that is held, when Asters are in bloom, that does not have classes for them in its schedule of prizes, and in many parts of the country they are wonderfully well grown for show purposes. In the west of England, and especially in the neighbourhood of Bath and Bristol, marvellous Asters are staged at flower shows, large in size, and so double, that the wonder is how such large broad florets have been gathered together to form the flowers.

From the original China Aster has been obtained all the fine types we now cultivate. It would appear that the Germans took the lead in improving the varieties, but it is to the French florists we owe the fine incurved type known as Truffaut's *Pæony-flowered*. This is a majestic Aster of tall growth, which, when the strain is good and the culture suitable, produces very large and full incurved flowers, like the *Chrysanthemum*. The colours of some of these are very striking; the flowers, of blue, purple, violet, crimson, carmine, and rose, are particularly attractive because so dense and distinctive. This and the *Victoria Aster*, a fine tall selection from the dwarf *Chrysanthemum-flowered*, are the two most popular of the flat-petalled Asters, the former with incurved, the latter with reflexed petals. The last-named type is gradually taking the place of the incurved flowers for exhibition purposes, and it has been found necessary to make classes for both, which is a wise and necessary step. Add to these the dwarf *Chrysanthemum-flowered Aster*, which is a remarkably free-blooming type, and we have the most useful forms in the section.

The quilled German Aster has been largely improved of late years. In addition to what the German and French florists have done in the way of bettering the strains, certain English raisers have done their part, and done it remarkably well. They have obtained large and extraordinarily full flowers, characterised by many shades of colour—some deep and striking, and others delicate and pleasing; and when with these qualities there is associated rare purity and exquisite symmetry, perfection is as nearly attained as it seems possible to be. It is worthy of remark that those who grow Asters for exhibition do not sow their seed so early in the year as do those who employ the Aster simply for the decoration of their gardens. Perhaps one reason is that they do not want their flowers for exhibition purposes much before the middle of August, while the ordinary grower desires to have his in bloom as early as possible. The end of February and the beginning of March are good times for sowing Asters where there is good convenience for raising and preserving the plants; those who are not so favourably circumstanced need to sow later. A leading exhibitor of the quilled German Aster sows his seed about the middle of April, putting it into pans of rich soil, and scattering it as thinly as possible. Leaf-mould and a liberal allowance of sand form parts of his compost for seed raising. When sown, the pans are placed in a cold frame, and the



lights kept closed till the seedling plants appear above the soil. Watering has to be carefully done at this stage, and an abundance of air is necessary, or the plants will damp off. When they show what is termed the rough leaf, which is in about a fortnight after sowing in favourable weather, the plants are pricked off into boxes, or into a bed prepared in a cold frame, which can be uncovered by day, but carefully covered by night when spring frosts threaten, or the plants will get injured. If there is not a frame to spare, the boxes into which the plants are pricked off can be placed on some bricks, &c., in the open, and covered by night by means of some boards stood on their sides and a mat thrown over them. At this stage all the exposure that can be given to the plants by day is necessary, to prevent them from becoming drawn; the dwarfier and more bushy plants are, compatible with vigour, the more likely are they to do well when planted out. The next step is to plant out in what the cultivators term their blooming quarters. Those who grow for exhibition make up a bed by digging it deeply and thoroughly well manuring it, and when the plants are fit, they put them out in rows about 20 inches apart, and the plants 12 inches apart in the rows. One successful exhibitor employs pig manure, and thinks it the most successful fertilising agent he can employ; in addition, when he plants out, he takes care to use some specially prepared rich soil, of a fine and light texture, so as to cause the plants to strike root as quickly as possible. As the plants increase in size they are carefully staked, and in the case of the taller-growing quilled Asters and Truffaut's Pæony-flowered types, they require to be 3 feet or so in length at least. It is necessary to tie the plants to stakes, in order to have fine and clean blooms for show purposes; and if a bed is grown merely for cutting purposes, some support is necessary, as all attempts to improve the finer types of quilled Asters have not got rid of the tendency to a straggling growth. One cultivator, at the time of staking his plants, gives to each a tablespoonful of some good manure, such as Amies' or Clay's, which is carefully pricked into the soil with a light fork or a pronged trowel, but not sufficiently deep to injure the roots, which lie very near the surface. As the beauty of the quilled Aster lies in its fine size and symmetry of shape and in its purity, some shading is necessary in the case of flowers intended for exhibition. A covering of light canvas is employed, so that the blooms should develop gradually; while some growers place an inverted flower-pot or a cover of some kind over them, though this is apt to impart a dull and washed-out appearance to the blooms. Disbudding is necessary; the extent to which it has to be done depends in some measure on the variety, and on the knowledge and foresight of the cultivator.

There are several beautiful forms of the quilled Aster which have been named. These are of varying shades of colour, from snowy white to deep rose, and on to violet, rose, and nearly crimson. I may name the following as being self-coloured: Snowball, Purple Prince, Princess Alice, and Duke of Connaught. Of fancy varieties—i.e., flowers bi-coloured or tri-coloured—there are Princess Alexandra, Princess Royal, Oxonian, and Unique. As seed of these fine varieties is expensive, and beyond the limited means of some lovers of Asters, these may be assured that a half-crown packet of good seed will be certain to yield some very pleasing varieties. The foregoing directions apply to the cultivation of all the types of Asters. The better they are grown, the finer and more serviceable are the blossoms. No grower who has to maintain a supply of cut flowers should be without beds of Asters, the quilled varieties being included. The cultivator who grows them for cutting should plant out in rich soil, under whatever circumstances the plants may be grown. The more highly they are cultivated, the more plentiful will be the flowers. A posy of good Asters comes very near in value to one of Roses; they yield many fine and striking hues of colour, and last for a considerable time in a cut state.

R. D.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by

sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.

#### CLEAN DRIVES AND WALKS.

THE character of a walk must always depend a good deal on the nature of the traffic it is likely to bear. The worst thing about all soft gravel walks is the labour they involve in keeping them clean. The condition of the walks and drives in many indifferently kept parks and gardens is very bad. It is impossible to tell sometimes whether they are meant to be gravel or Grass, so full of weeds are they. In woods gravel walks are worse to keep clean than in the garden and open park, and hence it is wise to consider at the outset whether any walk or road in such places should be Grass or gravel. Grass drives require cutting with the scythe two or three times during the summer, but the use of the scythe depends upon the traffic and how the road is made at first.

On Grass drives laid down on the natural soil, whatever its character, if it be a soil at all, the Grass always grows more or less rankly, wants frequent cutting, and is soft under the wheels of vehicles, however light, which leave a deep rut. This is not satisfactory, and the only plan of preventing the evil is to partially metal the surface of the road with rough cinders, or some other material of the same kind. There is nothing better than cinders or broken furnace clinkers sifted free of the small ash, and they are generally plentiful about most places. The small black ash procured in colliery districts is of no use. The clinkers or cinders may be smashed up before spreading on, and should be laid several inches deep on the surface of the drive, and thoroughly rammed or rolled, with a thin scattering of soil spread over them, just to fill up the interstices, and no more. This will make the surface even, and, if a few hay seeds are scattered on it, it will soon grow green, and will remain green and fine for years, while the Grass will not grow rank and seldom need cutting. This is the best way to make a Grass drive for light carriage traffic or walking upon. If the ground be wet, a drain at the side of the drive will be desirable; but the main point is to keep up a surface of clinkers moderately rounded up to the centre. Drives that we have here of this kind are by far the best and most comfortable, and cost least in keeping, for what with the poor soil and the traffic, the surface seldom grows rougher than a well-shaven lawn, except at the margins, which may occasionally need going over with the scythe.

**CLEANING GRAVEL WALKS.**—For pleasure grounds it is unlikely that these walks will ever be superseded, but they are costly to keep clean. Small Grass weeds are the most troublesome, and in a single season will turn a walk green if not eradicated. Where do such weeds come from in such abundance? is a question often asked, and it is easily answered. Seeds from the Grass lawn near, and especially from untrimmed walk margins, are cast on the gravel and grow immediately. The weeds also seed themselves on the walk where they grow if not removed in time, and they soon mature their seed on such places. A crop of Grass weeds left in spring for a few weeks will produce a crop of seed before June, which in turn will produce a crop of weeds soon after, and by autumn the walks will be green with them. When weeds get bad, it is a common plan to hoe and rake, which gives the surface a clean appearance for a short time; but the weeds are still there, or a portion of them, and the hoeing simply accelerates the ripening and vegetation of the seed, and after a few showers the weeds are more numerous than ever. These are the sources of weeds on walks, and the gardener will understand that if he wants to

prevent their growing he must begin at the beginning, and prevent the seeds being sown, by keeping his garden lawns from seeding by constant cutting, and especially by trimming the Grass edges of his walks; these are too often left uncut till long after the seed has been scattered, and the result is a mass of small weeds, covering the gravel on both sides and inwards to the centre of the walk. Secondly, he should hand-weed his walks in spring. Walks are seldom dry enough then to hoe, and the sun is not strong enough to kill the weeds when they are hoed up. Hand-weeding then will do more to make clean walks all through the summer than anything else, and it need not be expensive. A woman or a boy will clean much surface in a week or two; and the first weeding is the most effective, the second is much easier. In spring the weeds are pushing and can be seen, but they are not in flower, and any weed removed means hundreds prevented from growing. Good garden walks are never, of course, allowed to become overgrown, and under such circumstances hand-weeding in spring is the best plan.

Salting and applying mixtures to kill the weeds answer for a time, but they do not kill the seeds, and the worst crops of weeds we have ever seen came up in autumn after the salt was spent. Sometimes, in taking to new places where the gravel has been neglected, the weeds have got the mastery, quite overgrowing the gravel. In such cases it is a good plan to trim the edges with a cutter and scrape the weedy skin clean off with a draw-hoe, putting on a thin coat of fresh gravel afterwards. S. W.

#### PROFITABLE EXHIBITIONS.

SHREWSBURY stands pre-eminent in this respect. Going back to 1876, the gate money amounted to £82. 4s. 6d. on the first day, and £189. 5s. 2d. on the second day. Coming to the summer show of 1885, which was held on the 19th and 20th ult., £218. 9s. 7d. was taken at the gates the first day, and no less than £1074. 19s. on the second day. Apart from this 1s. tickets were sold at 9d. each to the amount of £350 previous to the show, those investing in this way saving 3d. and the society securing the amount just indicated, let the weather be what it might. This is evidently a good plan, and one which other societies might do well to adopt. Besides gate and ticket money, about £500 were this year collected in the shape of subscriptions. Attractions, it is true, not horticultural are added, but the greatest amount of money is spent on garden produce; it is this which heads the list, and on which success chiefly depends. In 1883 the gate money for the two days amounted to £1211. 8s., and liberal though the expenditure has been, as everything is got up and conducted in first-class style, the money has accumulated in favour of the society until it now possesses a handsome balance in its favour. Shrewsbury has, however, probably benefited most by this wonderful success, as the society has given away over £1000 during recent years in benefits to the town. The exhibition itself is now one of the most important in the country. The money taken at the gate serves to show that the attractions inside must be both numerous and substantial. That they are so is well known throughout the midlands, and the show on the 19th and 20th ult. was regarded as the best which the society ever held, both plant and fruit classes being well filled. The handsome plant prizes of £25, £20, and £15 never fail to produce keen competition. I cannot refer to all the details that bring about the unprecedented success of this society, but part of them is easily understood, and that is the harmonious and energetic way in which the officials work together. The committee possess the advantage of being amongst the principal and most influential inhabitants of Shrewsbury, and the principal gardeners of the district well support them. Much of the success of all societies depends on the manner in which their shows are organised. Many like to have their names on the committee of a society, but never stir hand nor foot in order to advance its interests; in such cases one may look in vain for such excellent results as those just recorded at Shrewsbury. J. MUIR.

Margam Park, S. Wales.



## TREES AND SHRUBS.

## A USEFUL OLD BORDER SHRUB.

SUCH is *Althæa frutex* or *Hibiscus syriacus*. Imagine a dwarf and twiggy shrub, not unlike the common hedge Maple in habit as well as in shape of leaf, bearing flowers for two months or more in shape like a single Hollyhock, 4 inches or 5 inches across, and some idea may be formed of this showy shrub. It is a very old shrub, for it was cultivated by Parkinson in 1629. It may also be termed a forgotten shrub, as it has long been neglected; but to things with sterling qualities we often return with the "old love" intensified. So it would appear to be as regards this quaint, but beautiful border tree. "Where is the good old *Althæa frutex*?" is now often asked; it should be planted as isolated specimens, in groups and in hedges, as it is grown in Japan. It is a fine subject to introduce into borders with the stronger herbaceous things, and there are few, if any, that will outshine it during the latter end of summer. Large bowl-shaped purple and white flowers, mixed with shining foliage, are no mean things in August and September. It is a native of Syria, and in the open air of our climate grows 5 feet high, but it flowers freely when only 18 inches in size, or two years old. Gerard describes it for us: "The shrubbe Mallowe riseth vp like vnto a hedge bush, and of a woodie substance, diuiding it selfe into diuers tough and limber branches, couered with a barke of the colour of ashes, whereupon doe growe rounde pointed leaues, somewhat nickt about the edges, very soft, not vnlike to those of the common Marsh Mallowe, and of an ouerworne hoarie colour; the flowers do growe at the top of the stalkes, of a purple colour," &c. The flowers, 4 inches or more across, are produced from the axils of the leaves of the new wood. Like the Hollyhock, to which it is nearly allied, there are varieties of it, with purple, red, white, yellow, and tricoloured flowers, and some of these are repeated in double forms. All are characterised by having dark spots at the bases of the petals. In this range of colour in big flowers there is offered a fine opportunity of making a good display. Its culture is as easy as that of the commonest shrubs; but it should be borne in mind in planting that this native of Syria should get every possible ray of sunshine, in order to have it flowering well; and if the soil is made warm by a liberal mixture of sand and slightly raising it above the ordinary level, all the better. There is no tenderness about it; this treatment is only such as has been found in practice to be needful, in order to induce a somewhat late-blooming exotic to flower well in a very opposite climate to its own. It is readily propagated; the young side shoots may be slipped off in July, and if set in sand, well watered, and a hand-glass placed over them for two or three weeks, they will be ready for potting. Plunge the pots in ashes in a cold frame and there leave them until spring. In April they may be set in their permanent quarters. Older plants may be transplanted in the autumn as soon as the flowers are over, even if many leaves remain unfallen. J. W.

## CONIFERS OF THE ROCKY MOUNTAINS.

WE have the two hardy Pines (*Pinus ponderosa* and *P. flexilis*) in the northern part of this State, and I am also familiar with them in the mountains of Colorado. For the past ten years I have been bringing these trees to the plains with good success. As you say, the same varieties are hardier grown on the eastern slope of the Rocky Mountains than in California, and seed from the former is to be preferred. At a large number of stations of the Union Pacific Railway I have small enclosures well grassed, sometimes a fountain with a selection of these beautiful mountain trees growing finely. *Picea pungens*, the beautiful Silver Fir, predominates, then Douglasi, *Abies subalpina*, *Picea concolor* and *Engelmanni*—a few *Pinus contorta*. All these I have transplanted from the mountain-sides when 2 feet to 3 feet in height. The mountains are 600 miles west of Omaha. I have a man in Denver, at the foot of the mountains, who has promised to give me some seed from this year's collection. I have never been fortunate enough to be

earlier, but they must get considerable attention in the matter of watering, and if the weather is very hot and dry, they ought, to ensure them against leaf-shedding, to be sprinkled overhead once or twice a day. When we get into September we have showers and cool nights, with diminishing sun heat in our favour, whilst root action is thereby quickened and the ground has lost none of its summer warmth. Take care that the roots do not get dry. Give one good watering if the soil is at all dry, with a mulch over the roots, and good success may be counted upon. April and May are good months for transplanting Hollies, but, independent of the fact that they constitute one of the busiest periods in gardens, the ever-increasing heat of the sun has to be reckoned, as well as those parching easterly winds which so often accompany it. I have known Hollies to be moved in May the greater part of which died owing to the demands on the time of the planter being too great to admit of the necessary amount of water being given. In September there is always more time at command, and this, coupled with the comparative absence of unfavourable climatic conditions, renders transplanting a more easy and satisfactory affair than, perhaps, at any other time of the year.—BYFLEET.

**Pyracantha berries.**—Where the *Pyracantha* is required to bear berries freely in a small state the best way is to raise it by means of cuttings; plants obtained in this manner will often fruit when but a few inches high, while seedlings take some time, and must be allowed to attain considerable size before they are seen at their best. Another advantage of propagating by cuttings or layers is that only the

best forms should be used for that purpose; whereas in the case of seedlings there is sure to be a certain amount of variation, and in all probability some inferior to the type. August and September are the best months for putting in cuttings, which should be formed of the current year's growth, and they should be about 6 inches long. They may then either be inserted in sandy soil in pots and placed in a frame, or some of the same compost may be put in the frame, and when well pressed down the cuttings inserted therein. Whichever time propagation is done the same after treatment is needed, viz., to shade the lights during hot sunshine in the case of the earlier cuttings, but all the lights must be kept quite close at whatever time they are put in, except for a little while in the morning, to enable one to remove any

dead leaves and to give water if required. With the return of spring the cuttings will root freely, and when sufficiently established, air must be given by degrees, till the lights can be removed altogether. A good way then is to pot off the cuttings into 3-inch or 4-inch pots, and when established therein they can be planted out, for if put into the open ground direct from the cutting pots, a good many are apt to be lost unless in a particularly favourable situation. Cuttings of the *Pyracantha* may also be struck in the open border, but the most satisfactory way is to root them under glass. Of the different forms the showiest, though all are beautiful, is *Lelandi*.—ALPHA.

**Camellias at Glen Eyre.**—If I were to write of any place as the "home of the Camellia," I certainly should give that designation to Mrs. Eyre Crabbe's beautiful gardens at Bassett, Southampton. Something has been said from time to time in THE GARDEN with respect to the remarkably fine Camellias growing there out-of-doors as ordinary hardy shrubs, but not very recently. Since I was at Glen Eyre some four or five years ago, very great extensions



Group of Yuccas. From a photograph sent by Mr. T. B. Terry, Shrubs Hill, Sunningdale.

there at the right time when the cones open, for the seed drops out and flies away on their wing and are gone. Douglas, of Wankegan, Ill., has 50 acres devoted mainly to growing seedlings of the mountain sylvia, and ships by mail large numbers to Europe. The great plain you pass over going west from Omaha has now a great extent of timber plantations. Every farmer has his grove and timber belts. Fuel, timber for farm purposes, and sawing into boards is produced at home.

The Catalpa, though not a native with us, promises to be the most valuable tree for the plains, and I have great confidence that the Larch will prove most valuable on our poorer hilly soils. Our great Pine forests are fast failing, but by the time that supply is exhausted, Nebraska will have an abundance of timber from trees of her own planting.

Omaha, Nebraska.

J. T. ALLAN.

**Transplanting Hollies.**—I doubt if there is any time so good as the early part of September for moving Hollies. They do well moved a month



of Camellia planting and growth have been made, so that now one meets with them in shrubberies, borders, beds, and in the shape of single specimens in all directions, and all thriving most luxuriantly. It may be that the natural soil of the Glen Eyre gardens specially suits Camellias, but if so, equally well will the soils in thousands of other gardens suit them. It is somewhat peaty in texture, but has good depth, having from time to time, as extensions and plantings have gone on, been worked deeply. On the other hand, I should say that in any garden where Rhododendrons, Azaleas, Kalmias, and Conifers thrive, there would the Camellia succeed. It would be a mistake to assume that this fine Japan Evergreen needed special warmth and shelter. The plants at Glen Eyre may be found in thoroughly exposed positions as well as in sheltered ones, and clearly show that they can hold their own when soil conditions are favourable with the hardiest of hardy Evergreen shrubs. As to damage to blooms, they are not in more danger from rain and wind than are those of Rhododendrons or similar spring-blooming shrubs. Those who purpose planting Camellias as hardy shrubs should hardly begin the experiment by turning out a number of old, pot-bound, root-starved plants; they should rather obtain some good young plants and have them well seasoned, and plant out in deeply-moved, but not necessarily rich, soil either in autumn after the summer growth is matured, or early in the spring before the bloom-buds, if any, expand. I cannot, however, offer intending planters better advice than to go to Glen Eyre and see for themselves how Camellias grow there.—A. D.

#### Forsythia suspensa and other wall shrubs.

—This Forsythia trained against a wall makes shoots 5 feet long in one season, and hence a plant with two or three shoots to begin with will make a fan-shaped specimen 10 feet across the first year. The shoots break and flower in the most regular manner along their whole length—i.e., if the pruner does not cut them back at the annual pruning, which he too frequently does. We have one young tree here trained on the fan system that is about 30 feet across and 12 feet high, and a perfect fan in shape, showing no bare spaces above or below, and a most striking object it is when in flower over its entire surface. There may be finer specimens, but it is the largest with which I am acquainted. The pretty *Pyrus japonica*, *P. Malus floribunda*, *Pyracantha*, *Cotoneaster*, the *Ribes* family, and, indeed, nearly all plants capable of being trained against a wall, make astonishing progress in good soil when their terminal shoots are allowed to extend as fast as they will; and those who wish to have walls covered quickly with ornamental shrubs should bear this fact in mind—that is to say, let the shoots be laid in their full length wherever there is a vacancy on the wall or on the older or barer branches, pinching those shoots only that grow straight out and from the older wood. We have a collection of such plants here trained in this way that are faultless as regards shape and general appearance.—S. W.

**Abelia rupestris.**—In reference to the article in THE GARDEN of August 22 last concerning autumn-flowering shrubs, I venture to point out one which is a great favourite with visitors to the gardens here, and not mentioned among those recommended in THE GARDEN. I mean the *Abelia rupestris*, now finely in bloom. Its flowers are whitish with a touch of pink inside. It is a very hardy shrub, and not being affected by the most intense frost, though quite unprotected, I am surprised at not meeting it more frequently in cottage gardens, as it needs no care.—THE GARDENER, *Villa Taverna, Lake of Como.*

#### Berberis trifoliata and Mutisia decurrens.

—Observing in THE GARDEN of last week mention made of the former of these two plants, I have connected them together because, under similar circumstances, they have both for many years been growing in the open air in the gardens at Bayfordbury. It is now nearly twenty years since I removed *Berberis trifoliata* out of the conservatory, where it had never flourished, to its present position on a south-east wall of the house, in which it has continued to grow well and flower ever since. It is now very healthy, and about 12 feet high on the wall; its

beautiful blue foliage attracts general observation from many who have never before seen it in the open air, and rarely, perhaps, elsewhere, for it is far from common even in nurseries. I have been trying hitherto to propagate it on its own roots, for it is a grafted plant and its berries do not seem to ripen, but as yet without success. With respect to *Mutisia decurrens*, I should feel glad of anyone's experience who may have grown this plant more successfully than myself. It also formerly occupied a place in the same house with *Berberis trifoliata*, but the ragged and unsightly appearance of its scanty branches made me discard it to a part of my rock garden, where it has been growing and flowering for some years, and appears to be quite hardy, but it still retains the same half-dead appearance of its pendent branches, and annually puts out new leaves and flowers, which latter are most beautiful and interesting, compensating fully for its otherwise most ugly habit of growth. Can this be the nature of the plant, or will any other treatment improve it?—W. R. BAKER.

#### MENZIES' SPRUCE.

(ABIES MENZIESI.)

I HAVE here a magnificent, perfectly-grown plant of this Conifer, measuring 70 feet in height, with a last year's leader, from 2 feet to 3 feet in length, at its summit. It is branched so densely, even down to the green sward, that it is impossible to get a sight of its bole without pulling aside its branches or creeping underneath. Its bole or trunk is nearly 9 feet in circumference, and the spread of its branches upwards of 40 feet in diameter. It grows freely, its thick foliage being of a lovely silver colour underneath, and rich, vivid blue green above, and very distinct from that of every other Conifer with which I am acquainted. Cones began to show themselves in April; they are of a delicate pale green, changing when nearly full grown to a rusty blue or greyish colour; when ripe they become a rusty brown. The seed ripens at the end of September and beginning of October, and the cones soon open their scales on windy, sunny days, and allow it to fly away and get distributed a long way off. The male catkins are pendulous, and very abundant in March and April; so plentiful, indeed, that I have seen on a windy, drying, sunny day the pollen wafting about in the atmosphere like a cloud of dust. By the time the cones, which are at first on the upper sides of the branches, are full grown, the little branches on which they are produced have themselves generally made their growth; therefore, the weight of the cones renders them pendulous, and a very splendid sight it is to behold so beautiful a shaped tree with silver-white bluish shining green leaves and brown cones waving in the breeze; it is, in short, a sight when once seen not easily forgotten. Even at a long distance this tree shows to great advantage. We hear so little about this handsome Conifer, that I fancy it is not common. J. B.

#### A GROUP OF YUCCAS.

THE common Adam's Needle, as *Yucca gloriosa* is generally called, has been flowering more abundantly than usual this season, and, therefore, we have received numerous notes in reference to it, and also not a few photographs of it. One of these, showing a group in Mr. Terry's garden, at Sunningdale, we have thought well to reproduce, as it shows *Yuccas* as a picturesque group. We often see single *Yuccas* on lawns so isolated from everything else, as to look out of place; it is therefore a pleasure to see an attempt made to form pretty groups of them by planting specimens of various sizes, all of which would not flower at one time, or at any season have a monotonous appearance. There is probably no hardy plant in this country that is so misused as *Yucca gloriosa*, and yet with no other plant can a skilful landscape gardener produce such pleasing effects in a variety of ways as with this. Its noble appearance, particularly when in bloom, its perfect hardiness, the little attention which it requires as regards culture, all tend to make it invaluable; and of not less importance are the other kinds, such as *Y. recurva*, whose gracefully reflexed foliage renders it peculiarly suitable for planting singly or in

groups in connection with vases or stonework, and *Y. filamentosa* and *flaccida*, which rarely fail to give us an abundant crop of ivory-white flowers every autumn. Not half enough use is made of the *Yuccas*; for, numerous as are the varieties, it is seldom indeed that one sees in gardens any but the common *Y. gloriosa*. There are dozens of varieties, all more or less distinct, which, if one could purchase at a reasonable rate in nurseries, would give to gardens a different aspect to what they now possess.

## GARDEN IN THE HOUSE.

### HARDY PLANTS FOR HANGING BASKETS.

FOR cool rooms, corridors, and similar places, I doubt if there is anything better for filling hanging baskets with than certain kinds of hardy Ferns. They resist cold currents of air well, and with the protection they thus get remain fresh and green all the winter through. *Lastrea dilatata* and *spinulosa*, the Welsh Polypody, *Asplenium Adiantum-nigrum*, some varieties of the Hart's-tongue, and others are well adapted for this purpose. A friend of mine used to make up some very pretty baskets for a little cold glasshouse with Ferns and a few other hardy plants. They looked very bright and cheerful through the winter, and gave but little trouble. *Periwinkles*, both green and variegated, are excellent for the purpose; indeed, I know of nothing better for a hanging basket than the golden variegated kind, which, if it required much cultural care, would be considered one of the most valuable of decorative plants. *Sedum carneum variegatum* is a pretty little plant, the variegation being clear and constant. In the open it generally gets cut down in winter, but under glass it remains in good condition. Variegated *Ivies*, when well established, look very pretty, and the old *Wandering Jew Saxifrage* is still one of the best basket plants in cultivation, requiring nothing more than the shelter of a glass roof to keep it in good condition, even in a time of very inclement weather. Another hardy plant which may be turned to good use in this way is the golden variegated *Honeysuckle*, as when sheltered it retains its beautiful markings; whereas in the open air the foliage often gets very much disfigured. The true *Maiden-hair Fern* (*Adiantum Capillus-Veneris*) makes a fine basket plant, being especially effective if the basket is turned upside down when the plant has been established a year or two, as then the creeping rhizomes run up round the outside of the basket, throwing out fronds as they go, so that in time it forms a round ball of foliage, and has a very interesting appearance. If to be treated in this way, only very light material should be used in potting, *Sphagnum Moss* and fibrous peat being the best compost. Of course, after the basket is inverted the plant cannot be watered; it must be dipped now and then. This and the vigorous-habited *Woodwardia radicans* are not sufficiently hardy to pass the winter in the open with safety, except in very favoured districts; but they remain fresh and green in an unheated glasshouse. The common *Moneywort* and its yellow-leaved variety look better grown in baskets than in any other way, but they prefer a shady situation when growing. Amongst flowering plants, *Campanula garganica* and *fragilis* are worthy of mention; well grown, they have a very graceful appearance. The above, being all hardy, should, with the exception of the *Maiden-hair* and *Woodwardia*, be grown entirely in the open air from June to November. Where tender things are unsuitable, they will be found very serviceable. By giving plenty of water during the growing season, they will need no change of soil for years. J. C. B.

**Campanula Barrelieri.**—I met with this plant not long since in a country town, and I was pleased to see it was the occupant of not a few cottage windows. It was in July when the plants were full of blossom, and they were generally trained over trellises, and so formed charming masses of flower. One occasionally meets with it in a greenhouse, but generally in a starved condition; and it is only when grown in a window that its beauty and freedom of bloom are seen to the best advantage. The flowers are produced from the axils of the leaves on a pendulous



leafy stalk, or in clusters of three or four flowers at the extremity of the stem. This *Campanula* makes a very pretty and effective basket plant. It remains for a long time in flower when properly cared for, and it can be easily propagated by division of the root or by cuttings.—R. D.

#### A FEW GOOD ROOM PLANTS.

"WHAT kind of plants will live in dwelling rooms lighted with gas or lamps for any reasonable length of time?" is a question often asked. During the winter months, when outdoor vegetation is comparatively dormant, and flowers are at their lowest ebb, anything that will give rooms a fresh, green aspect is highly prized. Flowering plants are but transient at any time. I find, indeed, that plants with good, healthy foliage that can be readily cleansed from dust by washing, sponging, or syringing are the greatest favourites with those who buy plants for rooms. Foremost amongst those that really do defy any amount of adverse conditions may be mentioned *Aralia Sieboldi*. This has a noble look even in comparatively small pots, and the leaves, being smooth, are readily cleaned from dust. The variegated form of this plant is effective in a vase. *Dracena indivisa* is one of the best of the highly ornamental family to which it belongs. It is harder than the coloured leaved kinds, and for large apartments more useful, as it will withstand currents of dry air that would prove fatal to most plants. *Aspidistra lurida* and its variegated variety are too well known to need description. Their ornamental foliage and the length of time during which they remain in perfect health in confined dwelling-rooms mark them as the very ideal of indoor decoration plants; in fact, they have few equals. *Ficus elastica*, or India-rubber plant, is, in its younger stages of growth, remarkably handsome; young specimens of it in 6-inch pots, clothed with very large, leathery leaves down to the base, are the most popular of single-stemmed plants. *Grevillea robusta* is also a handsome foliaged plant, its leaves equalling in beauty those of a Fern and much more lasting. Young plants of it in 6-inch pots, grown with single stems and well clothed with leaves, are perfection as regards graceful vase plants. *Phormium tenax* and *P. tenax variegatum*, with their long sword-like leaves, form very beautiful room plants; large specimens of them have few equals for entrance halls and other lofty apartments, and they keep healthy in dimly-lighted positions in which few plants would live. *Acanthus latifolius* and *A. mollis* have highly ornamental foliage, and may with advantage be utilised for indoor gardening during the summer months. They are plants of the easiest culture, and are readily increased by means of seed in spring. Ferns of several kinds are most valuable for indoor decoration, for, although many varieties with tender foliage last but a short time in the dry atmosphere of rooms, there are many with comparatively hard leaves that are both lasting and effective—such, for instance, as the different kinds of *Pteris*. Palms in great variety are amongst the best of room plants; such graceful kinds as *Seaforthia elegans*, that make good specimens in small pots, only need their foliage sponged in order to render them lasting ornaments to the garden in the house. Dwarf Conifers, such as *Retinosporas*, *Cyprresses*, *Junipers*, and *Euonymus japonicus* in several varieties, both plain and variegated, are well suited for indoor decoration, and with a few other plants make effective combinations. J. G. H.

**Floral decorations.**—I notice on p. 229 of THE GARDEN that Lime branches in blossom are among the things recommended by "W. N." as useful in floral decorations. It may be due to my own faulty arrangements, but I have never been able to use them successfully. I have tried these branches in almost every kind of bowl and vase, but have never succeeded in producing a good effect. The chief beauty of the Lime when growing consists in its drooping habit, the pale green flowers and leafy bracts falling with such exquisite grace on the dark glossy leaves of the branch below. These natural conditions it seems impossible to imitate successfully in a vase or bowl, for directly we place the branch in

an upright position its beauty is lost, and whichever side of it we may determine on showing the effect is not good. If we show the under side, that on which the flowers and bracts grow, we find that the blossoms and their appendages look stiff and graceless in their unnatural upright position. Further, the under sides of the leaves are much lighter than the other, and quite dull; consequently, the contrast is not nearly so good when the pale flowers are seen against them as when they fall on the dark glossy upper sides of the leaves. If the other side of the branch is shown, then the flowers and the leafy bracts—so beautiful and so characteristic of the *Tiliaceæ*—are hidden altogether. Leaves that I have not seen recommended, but which we have found most useful for arranging, are those of the common *Aquilegia* when they have changed colour; they are in themselves very graceful, and they assume a beautiful tint which it is difficult to describe, but which harmonises particularly well with pale pink flowers. Some of our most successful arrangements this year have consisted of pale pink Canterbury Bells mixed with these leaves.—H. M. W.

#### KITCHEN GARDEN.

##### EXHIBITION AND TABLE POTATOES.

THESE might well be divided into two sections, the first, the largest and best looking; the second, not particularly handsome in appearance, but thoroughly good and satisfactory on the table. That a wide distinction exists between the two no one who has had any experience amongst Potatoes will deny, and I know that many would feel grateful for the names of kinds which have turned out thoroughly good on the table. An acquaintance of mine a year or two ago engaged a new gardener. The latter, being young, thought to make his mark by showing. He obtained all the best show Potatoes he could get, and cultivated them exclusively the first season. He managed to take certain prizes at a county show, a circumstance at which his employer was pleased, as he naturally thought prize Potatoes must be of the highest table quality, and he looked forward to a satisfactory supply in the autumn and winter. I saw him six months afterwards, and asked him how his show Potatoes had stood the table test, and I was not surprised to hear him say that they were "the worst, emphatically the worst, lot of Potatoes" he had ever had. The gardener had orders to grow no more show sorts, but to secure kinds of a usable character, which I hope he has done. Judges at exhibitions have much to answer for as regards bringing about this state of matters. I venture to assert that out of every hundred first prizes offered for kidney Potatoes throughout the country, International wins 80 per cent. of them, and every one capable of judging the quality of a Potato on the table knows that this variety stands at the very top of the list of Potatoes of inferior quality. The most perfect cook in existence could not boil it to come out dry, floury, and well flavoured, its wet, sticky indigestible character adhering to it under all conditions. Woodstock Kidney, another pretty, but deceptive kind, is close up to International in inferior quality, and I expect anyone who began with International gave it up in hopes of gaining a better in Woodstock, and was finally driven to try Porter's Excelsior, Wiltshire Giant, Vermont Champion, Red Emperor, Grampian, Radstock Beauty, and some others of attractive exterior. These having been tried, I think he would gladly fall back on those good old Potatoes of twenty and thirty years ago, which are still highly valued on the majority of tables. I must own that I have grown, shown, and taken prizes with all the kinds named, but I could not send them to my employer's table. Their use being so limited, I gave them up. The culture of these fancy Potatoes is expensive; as some of them weigh 20 ozs. or more, they are thought wonderful, but if the same care was taken with the old Lapstone, Sanday's Seedling, Mona's Pride, Rivers' Royal, St. Patrick, Regent, Schoolmaster, Reading Russet, Dalmahoy, Victoria, and others, I have no doubt that they would improve in size and still retain their valuable table qualities. Probably those who have been winning with large, fancy sorts of late will not feel inclined to say anything against them, nor will those who have seed of

them to dispose of, but all who prize thoroughly good Potatoes would, I feel sure, be glad to have inferior sorts exterminated, and quality set before mere appearance, however good the latter may be.

Margam.

J. MUIR.

##### SURFACE-PLANTED CELERY.

ONE of your correspondents says it seems probable that if Celery were planted on the surface instead of in trenches, much finer results would be obtained. The most successful exhibitor of early Celery I ever knew always planted his Celery on the surface, and as the system which he pursued may be useful, I will briefly describe it: The seed was sown on February 1 in a deep pan filled with thoroughly rich soil. As but a few plants were wanted, the seeds were sown thinly, and as soon as sown they were taken to a greenhouse to germinate. In about six weeks the plants were large enough to be pricked out into a box 6 inches deep. On the bottom was placed a layer of manure, and over that about an inch of fine sandy soil. Early in May this box of plants was taken to a cold frame to remain there for a fortnight, with the view of hardening them off previous to planting them out. In the meantime ground out-of-doors was being prepared for them on the north side of a close wooden fence. The latter was about 4 feet high, and the width of the border about the same. The ground was first deeply dug over, and then a layer of manure was spread on the surface and forked in, mixing it well with the soil. Two lines of plants were put in the border lengthwise, the lines being a foot apart, and the plants 9 inches asunder in the rows. For some weeks after they were put out, which was generally about the middle of May, they had no other attention than liberally supplying them with water when the weather was dry. As soon as the leaves had grown about 9 inches long they were gathered up, and a piece of matting was tied loosely round them to keep them erect. The grower knew, as a matter of course, the dates on which he would require the plants in fit condition for exhibition and he acted accordingly; he always allowed a month in which to blanch his plants, and instead of putting earth between them, he used refuse hay from the stables, spread out and made thoroughly moist before being applied. To effect this it was necessary to pull it well to pieces, and to frequently turn and sprinkle it with water. Thus treated, it pressed round the plants in a compact mass. The whole width of the border was covered with this damp hay, well trodden between the plants to a depth of 10 inches or 12 inches, and as only a few plants at a time were wanted, it did not take so much hay as one might suppose. The first lot of plants taken up at the end of July released sufficient for a later lot. As regards results, I may say that I have never seen so good Celery grown and shown in the months of August and September as that grown on this system. But it was not so much on the character of the material used for blanching that its excellence depended as the facilities which it offered for supplying water to the roots; with a strong stake we used to lift the damp hay by running the stake on the surface of the soil, and lifting the material the width of the border; while one man held up the hay, another with a long-spouted watering-can poured in the manure water, and when sufficient had been given, they had only to withdraw the stake and the hay went down into its old position; a little treading with the feet settled it down again quite firm. This treatment was continued once a week whether little or much rain had fallen. I am quite satisfied that this is the best as well as the simplest way of growing early Celery for exhibition. J. C. C.

**Transplanting Lettuces.**—I presume that in the south, whence "J. G." writes (p. 195), Lettuce-seed is so cheap, that a grower of several acres can afford to drill it in and then go along later with hoes and cut out all surplus plants. London market growers cannot afford such extravagance, and therefore sow to transplant. When "J. G." contends that transplanting will not answer in such dry seasons as the present, he forgets that the very drought which would be detrimental to plants newly put out would be equally detrimental to the germinating seed. Around



London the chief efforts of the growers are directed to the securing supplies of Lettuces in the early spring and summer—that is, up to the middle of July. After that time the demand for Lettuces falls off and the supply is limited to those who are specially favoured with good soils. Still, it is always found that with the advent of summer vegetables and fruits the call for Lettuce is immensely reduced. Thus it is found to be far more profitable to sow in beds in the autumn and in frames in the winter for winter and spring supplies, the plants going out with entire safety at the proper seasons. "J. G." is dubious as to the merits of the White Chavigné Cabbage Lettuce, of which I have previously written. My advice to him is to get seed and try it. Its long-standing qualities make it a late bloomer and far from being a free seeder, but still these very properties constitute its great excellence, as of rare kinds we seldom find one that does not bolt off to bloom very rapidly, especially in such a hot dry season as the present one has been. When "J. G." has this Lettuce and gives it a fair trial next summer in dry soil, he can then test for himself how far my statement as to its solidity was exaggerated when I said that I could walk on the heads without doing them injury.—A. D.

**Transplanting summer Lettuces.**—"P. G." (p. 270) states that he cannot quite agree with some former remarks of mine, in which I advocate sowing Lettuces where they are to mature in preference to transplanting, and after detailing how he used with much labour and a daily use of the watering-pot to keep up a good supply of Lettuce, he goes on to state that transplanted Lettuces were in every respect better than those that were not transplanted, but a week or two later. "P. G." says the transplanting was carefully done in showery weather, and that the plants were lifted with a trowel; but supposing showery weather did not occur, as was the case this year, and that the lifting cut the roots off the plants left, thus crippling them worse than those taken up, what then? No; transplanting is not the best way. We sow thinly, and when the plants are large enough to handle we draw out the surplus plants carefully, not from fear of injuring them, but of injuring those left for a crop, for the drawn out ones are cast away. Anyone giving the two systems a trial will, I think, soon be convinced which is the best and cheapest. I know what can be done in gardens in which expenditure is no object, but I stated that the plan which I advocated is that followed in market gardens in this part of the country, and I am convinced that if we get such spells of drought every year as we have had this season, the plan which I recommended will come into general use.—J. G., *Hants.*

**Potatoes supertuberating.**—This though of but occasional occurrence, yet when it does occur, is generally very injurious to the crop. It will invariably be found that, whilst some kinds show a tendency to produce tubers removed from the stem and upon root cords, others produce their tubers in solid clusters close at home. These latter, as a rule, are less liable to grow out than are others which send their tubers out nearer to the surface, and consequently more immediately in contact with moisture when the result of moderate showers. Some kinds also naturally bury their tubers deeper than others; hence are less subject to growing out. To discover these, it is wise to test kinds from time to time, and especially in difficult seasons, such as the present one, and as a result to discard those which show persistent tendency to go wrong. At one time I anticipated a grave outbreak of supertuberating, as did many growers in this district, but the small amount of moisture which fell early soon dried up, and it failed to effect any change in the Potato crop either way. In some other districts, perhaps, the moisture was greater, and the Potato was adversely affected. Whilst we cannot congratulate ourselves upon having an abundant Potato crop, at least we have a clean, healthy one, and never in any season have we been so free from disease as now. What would have happened had more moisture prevailed, it is not easy to say, as the haulm generally in mid-season withered up under the influences of heat and drought, but it is remarkable that with recent heavy rains and a lowered temperature, such as in some seasons would have made the disease rampant amongst our late stocks, not a spot or evidence of its

presence is to be found. This fact points to the hopeful conclusion that, under the influences of drier summers and improved sorts, the *Peronospora* is gradually being worn down.—A. D.

#### HARVESTING POTATOES.

WHEN Potatoes are harvested for seed or for the market, it is perhaps not of much importance how they are stored so long as they can be kept sound while they have to be kept, but it is different in the case of Potatoes stored in gardens for cooking purposes. Putting aside the danger from disease, I believe it is almost universally admitted that a Potato never either eats or cooks better than when fresh out of the ground, and it is the same with most root crops. The way in which Potatoes are stored on farms for home use is in most cases extremely bad. It is quite common to see Potatoes stored in some shed in heaps, perhaps 2 feet or 3 feet deep, and covered with straw. In this state they ferment, and the smell from the heap is often in itself offensive. Later on the tubers begin to sprout, and matters get worse, most of the Potatoes becoming unfit for food. Yet in many establishments where the house is supplied from the home farm after the limited garden supply comes to an end, all the Potatoes come from heaps of this kind. Of course, it is well known that Potatoes intended for food should not be exposed to light an hour longer than can be helped, because such exposure renders the tubers unfit for food and makes them unwholesome; but I go further than this, and would not have the tubers so much as exposed to the air so far as an earthy covering could prevent it. The old Potato "pie" or pit, although perhaps originally suggested as much on account of its convenience as anything else, is still one of the best means of storing Potatoes in large quantities, provided the pits are not too deep, but for small quantities for the table a covering of dryish soil in direct contact with the tubers, which should really be mixed amongst it, beats everything else, provided the heap is made up in a quite cool shed or outdoors, and protected from wet and frost. There is an unexplained virtue in a covering of fresh soil that seems to preserve the quality of roots as nothing else does, and it is more noticeable in the Potato than almost anything else. Few can have failed to notice how soon early Potatoes of the shops deteriorate when long out of the ground in sacks or store rooms, but if the same Potatoes are put in soil, they will retain all their good qualities for a long time. S. W.

**5386.—Preserving French Beans.**—First let there be a layer of salt and then a layer of Beans, and so continue until the vessel is full. Place a board and a weight on the top to prevent the Beans floating on the top of the brine. In this way they will keep until the following May or June. When taking them out for use, wash them and let them stand in cold water overnight, and also let them stand an hour or so in the water after they are cut up before boiling them. Thus treated they are equal to fresh-gathered Beans.—T. C. A.

—Put them in a copper vessel with salt and water to simmer until partly cooked; take them off the fire and let them remain in the copper until nearly cold; then fill bottles with them and pour the water out of the copper over them and tie them down, airtight; store them in a cool place and they will then keep for any length of time, and, if done properly, will be as green when cooked as when growing.—W. A. E.

**Drying Tomatoes.**—In Italy an extensive business is carried on in drying Tomatoes to use during those portions of the year when fresh fruit cannot be obtained. According to the *Rural Record*, Tomatoes are grown, for the most part, between rows of Grape Vines. Sometimes the Tomatoes are trained on the lower bars of the trellis to which the Vines are attached. The Tomatoes are allowed to remain on the branches until they are quite ripe; they are then picked and pressed in bags made of coarse cloth, which allows the pulp to pass through, but which retains the seeds and skins. The pulp is then thinly spread out on cloth, boards, or in shallow dishes, and exposed to the sun

to dry. When it has become quite dry, it is broken up fine, or ground, and put into boxes or bags and sent to market. A large part of it is used for making soups, but a considerable portion is employed as we do Tomatoes that are preserved in tin or other cans. It is soaked for a few hours in warm water, and then cooked in the ordinary manner. There is a great prejudice against canned Tomatoes, many being unwholesome. The acid juice which they contain unites with the solder of the tin cans and forms a disagreeable compound.

#### WORK DONE IN WEEK ENDING SEPT. 15.

SEPTEMBER 9.

SHOWERS, alternating with sunshine, are working wonders on the Apple, Pear, and vegetable crops. Their changed appearance during the last few days is simply marvellous. Scarlet Runner Beans and late Peas we are now getting in plenty, and to the latter we have given fresh manurial mulching to keep them in bearing as long as possible, for the dwarf Beans are now at an end, black fly having destroyed them, but Runner Beans are perfectly clean. Planted out more winter greens and Bath Cos Lettuce; netted over Pears to prevent injury by birds. Just now wasps are most troublesome; they defy every kind of netting except thick canvas, and this we do not use, as it excludes both light and air from the trees; the wood cannot ripen, and consequently the crop of the following year is jeopardised; we, therefore, seek out their nests and destroy them with coal tar. Propagation of flower garden plants is still the principal work of indoor hands, other jobs being staking and tying out bush Chrysanthemums, weeding and keeping runners picked off Strawberries, Vine laterals closely pinched back, and Fuchsias, Pelargoniums, Bouvardias, and Tree Carnations that are still growing outside are regularly looked over to remove bad flowers, and to keep the soil free from weeds and Moss.

SEPTEMBER 10.

Heavy and oft-repeated showers, therefore, beyond the daily cleaning up, little other outside work has been possible, but plenty of indoor work for all hands has been found in the preparation of pots, pans, and boxes for propagating bedding plants, covering up Potatoes, arranging Apples and Pears on the fruit room shelves, making labels, and cleaning up sheds. Other hands watered inside borders of early and second Peach houses, and well washed the trees by syringing. The foliage of the earliest trees now begins to drop off naturally, but the washing will help to plump up the buds and dislodge any spider that may still be sheltering under them.

SEPTEMBER 11.

Torrents of rain—2 inches during last night and early this morning, and which finished up between two and three a.m. with a cyclone wind that has done serious damage to many fine trees in the park and brought down Apples and Pears by the bushel. Injury to flower garden plants is but small, as the garden is well protected from the south-west wind. Dahlias and tall sub-tropical plants are most injured, and our time has been wholly occupied in tying up these and with cleaning up walks and lawn, which throughout were a mass of small sticks and leaves, and in picking up Apples and Pears and gathering such as were ripe as soon as the fruit was dry. Cut back laterals in latest vineries, and looked over the fruit of earlier houses for the removal of bad berries. Fire-heat is constantly kept on when the weather is damp to keep the air of the house lighter than the outside air, and thus moisture has no chance of condensing on the fruit. As a matter of course, when fire-heat is thus applied it is indispensable that the ventilators be continuously kept more or less open.

SEPTEMBER 12.

Weather still windy, showery, and unsettled, and after cleaning up and rolling of walks all Apples and Pears sufficiently ripe were gathered, Plums the same, and the remainder of Apricots. Tied up Michaelmas Daisies, tall Pyrethrums and perennial Sunflowers. All these are now coming into fine blossom, and their effectiveness will be much enhanced by neat



tying up—not bunched. We generally use three sticks to a moderate-sized clump and only one string or matting round the whole, and which is secured to the sticks by a simple twist round each one, the sticks being at such a distance apart as to admit of the plants having plenty of space for development. There has been no time to do any other indoor work, except cleaning up, shifting and rearrangement of plants, watering Pines, and tying up and rebudding Chrysanthemums.

## SEPTEMBER 14.

Finer, but sunless. Recommended machine mowing, planted out Strawberries, mulched with clean straw, and netted over a plot that is fruiting, and which was planted for that purpose at end of April, after having been forced in the houses. The variety is Vicomtesse Héricart de Thury, by far the best forcing Strawberry we have ever grown. Gathered Pears—Beurré Hardy, a few Beurré d'Amanlis, Chaumontel, and Beurré Superfin; also gathered Green Gage Plums. Transparent Gage is an extra good variety, but hardly of such fine quality as the old Green Gage. Autumn Compote and Belgian Purple are two of our best kitchen Plums, and these, too, were gathered to-day. Earthing up Celery, and began to thin winter Spinach. Earthed up Broccoli and latest lot of Brussels Sprouts. Picked off the foliage that shaded the fruit of Tomatoes to expose them to full sunlight. They will need all the help possible to get them to ripen should the present sunless weather continue. Propagation of flower garden plants still monopolises the time of indoor hands, and the season for such work is getting so advanced that there is no help for it.

## SEPTEMBER 15.

Much milder and return of sunshine. Fruit gathering, and continued the jobs in kitchen garden that were commenced yesterday; mowing and clipping verges and edgings in pleasure grounds. Cut out surplus shoots from Peach trees on walls that have been cleared of their fruit. It is difficult to screw up one's courage to thin out the wood as severely as it should be to ensure the wood that is left being well ripened through having plenty of room for air and sunshine playing full on it. The trees will still be occasionally syringed to keep spider in check, and this we do daily to indoor trees, and the borders we keep as regularly watered as they were before the fruit was gathered. Partially pruned early Vines, Hamburgs and Muscats, and pinched out—for the last time this year—the points of young Figs. At present there is an abundance of fruit, and a somewhat dry atmosphere is continued so long as fruit is ripening and the weather is damp. HANTS.

## FRUITS UNDER GLASS.

## FIGS.

Early forced trees from which the second crop has been gathered will now derive great benefit from a month's exposure to the elements, particularly if the weather continues showery. If not already removed, rub off all half-swelled fruits down to the size of a small Pea, as they will not swell to maturity in the best-managed forcing houses. Remove all old mulchings and lift, root-prune or make additions to the borders where necessary, always bearing in mind that plenty of bright well-ripened roots within a limited space will feed and finish good crops of fruit, while those of unrestricted growth, although they may carry it through the first swelling, will in all probability prevent fructification, and cause it to fall when it ought to be commencing the last swelling. Pot trees that were overhauled last month are now making fresh roots in the new soil, and will soon be in a satisfactory condition for starting again in November. It is not really necessary to place these trees out of doors, as we have often proved by keeping extra large ones constantly under glass, but their removal, if only for three or four weeks, affords facilities for painting, cleansing, and putting everything in the best possible order, no small matter in the successful management of the Fig. Moreover, removal to the open air favours that complete rest which trees do not always get when they are kept in close proximity to hot-water pipes. We are now gathering the remains of the

second crop from our succession house, and most delicious the fruit has been. There are many Figs left that would ripen, but Brown Turkey and Brunswick are now ripening on walls, and although these small fruits form nuggets of sugar, we look upon their timely removal as an unimportant sacrifice compared with the loss of rest to which the trees are now justly entitled. One of our best trees, a Brown Turkey, has thoroughly established its roots, Orchid fashion, against a rough limestone wall 4 feet high, and running the length of the pit in which it is trained—first up to the ridge, thence downwards to the eaves on the south front. A few pieces of turf are packed in amongst the roots to hold moisture; diluted liquid is poured in at the top as often as may be thought necessary, and the tree evidently enjoys the food the roots catch up on its way downwards, as it is a perpetual bearer from the middle of May until the end of September. It is trained on the extension principle, and is never pinched or shortened back, a number of the oldest branches which have reached the extremity of the trellis being pruned out annually to make room for others following in their wake. Some might suppose that this treatment would in course of time transform a gross-feeding tree like the Fig into a mass of short spurwood. This, it is true, is plentiful enough, and requires thinning out near the apex, but all the principal shoots grow vigorously, and having a downward course to pursue, they show fruit at every joint. About the end of September the superfluous wood is cut out, the inert soil is picked out with a pointed stick, all the strongest roots are shortened back, and well washed with the syringe. Fresh packing is then introduced and syringed occasionally until the leaves fall, when the tree is allowed to remain cool and dry till the end of the year. We have yet another tree of the same kind planted against the back wall of a lean-to vinery, and trained to wires 2 inches from the wall. This has already turned the top wire of the Vine trellis, and the shoots have descended some 4 feet or 5 feet towards the front. This autumn the Vine, a Madresfield Court, will be removed, wall packing will be commenced, and next autumn the roots in the border will be greatly reduced, but not entirely destroyed until the branch roots are thoroughly established on the wall. Fig growers who have reason to complain of large trees becoming unmanageable may safely try this plan where practicable as roots as well as branches get thoroughly ripe, and judicious thinning does away with the vexatious tendency to dropping.

## CUCUMBERS.

If the stock of young plants intended for winter fruiting is not sufficient for the demand, a few more seeds of Telegraph may now be sown in single pots, and plunged in a sweet, steady bottom-heat of 80°, where the young plants will have the benefit of full exposure to sun heat and light as soon as they emerge from the soil. Clean healthy cuttings from an extra fine strain may also be put into 3-inch pots filled with light sandy loam and plunged in a sharp moist heat, where they can be covered with bell-glasses and shaded from bright sun until they are furnished with roots and start into growth. When well rooted gradually inure them to the air of the pit or frame, which should range from 70° at night to 80° or 85° by day, with sufficient atmospheric moisture to favour the development of stout foliage and short-jointed leaders preparatory to a shift into larger pots or their winter quarters. In either case let them have generous treatment to draw them out of the hard wiry condition which plants from cuttings sometimes assume, particularly when they are struck late in the season, and dark, cold weather overtakes them before they are thoroughly established. The better to secure this freedom of growth train to neat sticks, but do not pinch the points. Keep them clear of flowers and laterals from the base up to the trellis, and let fermenting and decaying material play the leading part in the maintenance of top and bottom-heat, using fires only when this is found inadequate to the requirements of the plants. Young plants raised in August, and intended to carry fruit through the last three months of the year, will now be pushing their way up the trellis; pinch out the points when within 2 feet of the top, stop all laterals at the first leaf, and unless fruit is immediately wanted, divest them of all male

and female blossoms, so long as their produce can be dispensed with. Ply the syringe freely on fine days where there is a chance of the foliage becoming dry before nightfall, and water liberally when this element is required, but avoid the use of stimulants until the plants begin to bear fruit, otherwise they will become gross and sappy, a condition on the edge of winter quite as objectionable and often more fatal than having them too weak.

Plants that have been in full bearing all the summer will now begin to show signs of exhaustion; moreover, they will look untidy, if they are not infested with spider and mildew. Where August-sown plants, of which I have been treating, have been provided, the best mode of dealing with the old ones is removal to the refuse yard fire, while there is yet time, to clear and thoroughly cleanse the structure preparatory to making a fresh start with young plants. It is not here necessary to advise this or that mode of culture as being the best, for the simple reason that a pit well adapted to pot culture may not answer for planting out on hills or ridges. One thing, however, is certain; a good plant grower who has command of top and bottom heat generally succeeds in keeping his plants healthy and fruitful under the pot system, as he can always neutralise the effect of dry fire-heat by the frequent renovation of the plunging bed with well-worked fermenting leaves, the soft genial warmth from which is of more importance than a high and dry temperature. Indeed, it often happens that a profusion of hot-water pipes do more harm than good; while plants in snug pits that require covering in winter produce an abundance of good fruit, and remain fresh and healthy until the time comes round for planting again. W. COLEMAN.

Eastnor Castle, Ledbury.

## LATE NOTES.

**Camellia insects** (*W. F.*).—When your box reached me there was no Camellia shoot in it. Please send some more of the insects, and I will gladly tell you what I can about them. The Vine leaf excrescences do no harm.—G. S. S.

**Conservatory bed plants** (*A. C. B.*).—*Luculia gratisima*, *Cestrum aurantiacum*, *Fuchsia boliviensis*, *Acacia armata*, *Brugmansia Knightii*, *Hedychium Gardnerianum*, *Camellias*, *Bougainvillea glabra*, and *Clinanthus puniceus*. For climbers, plant *Lapageria rosea* and *alba*, *Clematis indivisa*, *Solanum jasminoides*, *Mandevilla suaveolens*, *Lonicera sempervirens* minor, and *Begonia fuchsoides*. For edging plants to hide the brick border, try *Rhynchospermum jasminoides*.

**Californian seeds** (*E. B.*).—You had better wait until the spring before you sow the seeds you collected. Sow about the end of March in pots or pans placed in an unheated frame. As soon as the seedlings appear, well ventilate the frame, so as to prevent the plants from becoming drawn up weakly. Plant them out in a warm sunny border in light soil about the middle of May. The specimen you send is *Abronia fragrans*, which is not an uncommon plant in cultivation in this country, seeds of it being readily procurable. It grows well in light sandy soil, warm and dry.

**Naming plants**.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs**.—*J. W. K.*—*Monanthes murale*, *Cassiope fastigiata*, *Blechnum occidentale*, *Grevillea Thelleanianana*.—*H. P. Blackmore*.—1, *Stapelia Bufonia* var. 2, *Bufonia* (true); 3 and 4, vars. of *S. Bufonia*. The flowers of this species vary much—sometimes in different years, sometimes during the same season—on the same plant. —*Xenia*.—*Cunninghamia sinensis*.—*Lady B.*—Next week. —*W. F.*.—1, *Physianthus albens*; 2, *Centaurea nigra*. —*H. H. Merriman*.—*Lastrea thelypteris*. —*G. S. S.*—*Diplacus glutinosus*. —*G. Meakin*.—1, *Maxillaria grandiflora*; 2, *Miltonia spectabilis*; 3, *Odontoglossum Uro-Skinneri*. —*J. W.*—Apparently *Sedum album*, *Andromeda tetragona*, *Blechnum occidentale* and *Grevillea Thelleanianana*. —*J. A. P. H.*.—1, *Lobelia fulgens*; 2, *Skimmia oblata*. —*J. Turner*.—Next week.

**Naming fruit**.—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruit**.—*J. McClelland*.—1, Pond's Seedling; 2, not known; 3, Kirke's. —*T. R.*.—1, Kerry Pippin; 2, Devonshire Quarrenden; 3, Norfolk Beaufin. —*West Sussex*.—Jargonelle (good sample). —*R. Tribe*.—Williams' Bon Chrétien. —Other names of fruits next week.

## BOOKS RECEIVED.

"Plant Life in Canada," by Mrs. C. P. Traill, Larkfield, Ontario.  
"Dictionary of British Plant Names," by H. P. Fitzgerald. Balliere, Tindall, & Cox  
"Formation and Management of Plantations" (Essay), by R. Edmond Hodson. Hodges Figgis, & Co., Dublin.



## WOODS & FORESTS.

### TIMBER AS A PAYING CROP.

THE great question in forestry, as in agriculture, undoubtedly is what crops will pay best. There is, however, the important difference between the two, that in deciding upon a crop of timber the die is cast for a number of years; whereas in the sister science of agriculture the crops are mostly from year to year only, and therefore an error is more readily corrected. Another difference of scarcely less importance is that whilst one may forecast with a tolerable degree of accuracy the demand for a certain root or cereal in a twelvemonth's time, it is impossible for the planter of to-day to estimate with any reasonable hope of correctness the price or demand for the trees he plants after the lapse of from fifty to a hundred years. In any case the planting is for posterity, and, so far as the staple crops of timber on these islands are concerned, it must ever be so. There is nothing unreasonable in this, as the crop of timber now being reaped is in the most part the legacy of our predecessors. That we in turn should provide for the succeeding generation is only returning the benefit bestowed.

Planting is a serious business, and an undertaking which should not be embarked on without careful consideration. Even when most carefully thought out, some errors must be committed, but, speaking generally, the broadest ground is the safest. By this we mean that greatest hope of profit lies in not confining ourselves too much to any one tree, and on the other hand planting for profit trees only of well known value. Planting largely any of the more recently introduced trees may, by a mere chance, result in some extra return, but the risk of loss will be infinitely greater. For general cultivation, therefore, and to obtain the fairest ground for expecting an ultimate return on his outlay, the planter will never do better than to plant as great a variety of our best known common British trees as the situation and nature of his planting ground will admit. We do not from this advocate the indiscriminate mixing up of woods, as this is to be deprecated. Our meaning rather is that if a hundred acres has to be stocked with trees, it would be much more reasonable, if conditions admitted of it, to plant a proportion to Oak, Ash, Beech, Elm, or other well-known woods than to devote the whole to one of the trees, or, on the other hand, to plant any of the more recently introduced Firs for which when grown there is no certainty of a market. The slow-growing Oak, it may be argued, is not such a paying tree as some to plant. Perhaps so. Consols are not such paying investments as many ephemeral companies, yet the cool-headed investor will pass the latter by in favour of the slower, but more certain, return obtainable from the former. On the face of it there does not appear to be much analogy between investing on the Stock Exchange and investing in tree planting, as too more opposite movements it is almost impossible to conceive, yet relatively the danger of being led away by the promises of profit to be derived from planting trees, of which nothing is really known, is as great as in the other instance. As a case in point, some half a century ago a dazzling meteor called the Locust (*Acacia*) flashed across the planter's sky. Yet who now hears of the *Acacia* except as an ornamental tree. Instances may be multiplied where the error of rushing upon untried species has led to disaster, but except to show where the danger exists recapitulation would do no good. The Oak, on the contrary, has a history longer than that of the country in

which we live, and although, as at the present moment, the demand may temporarily slacken, it is a tree which will be as much in request a hundred years hence as it was a century ago.

Framing estimates of what crops of timber will become is generally a useless business, as after they are made in most cases they are valueless, or, what is worse, misleading. Up to a certain point, however, the data as to the growth of the Oak recently given in THE GARDEN, although for another purpose, may be profitably studied. It would appear from these figures that in the Forest of Dean, which may be taken as a typical Oak-growing soil, that it takes a century from the planting of the Acorn for a tree to attain an average measurement of 35 feet. Beyond this, unfortunately, our information does not go; but assuming that 100 trees grow to the acre, we have in a hundred years a crop of 3500 cubic feet, which at 1s. 6d. per foot works out at £262. 10s. 0d. per acre. This apparently is a low, or at any rate a safe, calculation, and on land of little value for other than timber crops is not a bad return.

Taking these figures as representing the average return in a century from an acre of timber (as if some of the other woods are of less value they grow faster), the problem resolves itself into the question of whether in round figures the estate owner considers that, with the probability of a nett return of £200 per acre a century hence, tree planting is or is not a profitable investment. This we do not further argue now, as our remarks are given tentatively, and we await what others have to say upon the subject. The whole success or failure of the movement in favour of planting is wrapped up in this, and it is a matter which cannot be too well ventilated.

### MEASUREMENT AND PRICES OF SAWING.

As I have occasionally to employ sawyers to cut up a few trees of home-grown timber and am not well acquainted with the systems of measurement of the work and prices paid, I should be glad of a little information on the subject.—C. J. S.

\* \* This is rather a difficult question to answer satisfactorily, as systems and prices vary in different parts of the country. Here, in Wiltshire, there are two methods generally employed, viz., what is known as sawyer's measure and market measure. The first of these ways of measuring is very ill defined, and is puzzling to all who have not been educated into it. It is, in fact, in most cases merely an imaginary quantity, and the price paid is about two-thirds of that paid for actual or market measure. For sawing 1-inch boards or boards of any less thickness by the sawyer's measure, the price paid would be from 3s. to 3s. 6d. per 100 feet; by market measure the price would be from 4s. 6d. to 5s. By the former method, account is taken of the actual number of saw cuts, and, what is the extraordinary part of it, the average depths of the cuts are not taken, but the deepest is measured and all the others calculated at the same measurement. In this way it often happens that the centre cuts in a tree are, say, 20 inches, and the narrowest 8 inches or 9 inches, yet by this system the whole would be chargeable at 20 inches. The same thing would apply to boards or planks of more than 1 inch in thickness, except that the men having to prepare and place on the saw-pit the same amount of timber for a less amount of sawing, a somewhat higher price per 100 feet is paid. By market measure the actual number of feet chargeable if the sawn timber was sold is, of course, implied, but this would not follow entirely, as where the timber turns out of inferior quality the sawyers are entitled to the measurement all the same if allowance has to be made to the buyer. The easiest and most correct way of ascertaining this measurement is by placing the boards in horizontal stacks in the same order they come off the saw-pit, and by means of tape or string take the aggregate width in feet and inches and multiply this by the length of the boards, in the same

way as one would find the contents of any superficial area. Taken altogether, the market measure system is the fairer of the two. In cutting up gate posts the practice is to measure the whole length sawn and unsawn and estimate the contents from the size to which it is sawn. Thus, a post 7 feet long sawn to 9 inches by 8 inches, although only cut through some 4 feet of its length would be reckoned as 42 feet, but if sawn parallel from end to end it would be no more and be paid for at the same rate as sawyer's measure for boards. In cutting through poles the general practice is to charge by the running measure irrespective of size if under 12 inches diameter, but the fairer way is if 6 inches or over, at running measure, and when considerably under, at one half. I can give more details if necessary, but probably these will be sufficient for the purpose.—D. J. Y.

### SOIL FOR THE LARCH.

MR. YEO (p. 558) says "the note in THE GARDEN (p. 434) reminds me that Mr. Michie, in his book on the Larch, states: 'If any general term can express the quality of Larch-producing soil, it is that adapted for growing Barley. The soil adapted to Larch, minus the manure and cultivation, is that which Larch delights to grow in.'" Another writer reviewing the book does not think this practical, and quotes as an instance chalk downs, where Barley will grow, but Larch will not. Which of these two writers is right? The former definition may be too wide, but the latter is wrong in saying Larch will not grow on chalk, as I could point to instances in my immediate neighbourhood where quantities of Larch are growing on the chalk formation. I have not seen Mr. Michie's book, but as Barley thrives best on moderately loose sandy loam, and as such a soil produces fine Larch timber, I consider Mr. Michie's definition correct as far as it goes, although, at the same time, I have known ground produce fine crops of Barley, while the Larch in the immediate vicinity, growing in the shelter-belts around the fields where the former was produced, was a failure. The soil here was of an argillaceous or clayey nature, mixed with gravel and small stones, resting upon a thin crust of till some 16 inches to 18 inches below the surface. Larch here was generally affected with ground-rot after a growth of about twenty years, and consequently was all but a failure. On the other hand, the fields produced excellent crops of Barley, the average weight of which was from 51 lb. to 52 lb. per bushel. Barley likes a dry climate, and when soil and climate are suitable the crop is matured in a shorter space of time than any other summer grains. Larch, on the other hand, thrives best in a damp atmosphere; and I have grown excellent Larch upon vegetable mould, as well as thoroughly decomposed peat bog, all of which are unsuitable for the culture of Barley. On the latter class of soils I have seen Larch about 80 feet in height, with fine clean proportional stems, quite a treat to look at; free of blemish of any kind, and as sound as a bell. I have, however, never seen a really fine crop of sound healthy Larch upon calcareous soils resting upon limestone or chalk.

Mr. Yeo tells us that in his neighbourhood quantities of Larch are growing on the chalk formation, which I have no doubt is correct; but the question is, Are they a full healthy crop of sound trees at maturity? Larch will grow to a certain size on a great variety of soils, but soils that cannot maintain the tree in health and vigour until it attains its full development cannot be called Larch soils, and such may be the reviewer's meaning when he says: "Barley will grow on chalk downs, but Larch will not."

In the Highlands of Scotland I have grown excellent Barley on loose gravelly soil in good condition resting upon shingle; while Larch in the same locality, and planted upon the same class of soil, was often affected with pumping, ulceration, and blister. Soil which contains about 20 per cent. of organic matter produces fine sound Larch timber, and Barley will also grow upon the same class of soil, but as it does not strike its roots to any great depth, and as the straw produced upon such a soil is of a softer texture than such as grow upon sharp hard soil, the



consequence is, when the plant produces the ear, the stem cannot support it, and the crop is lodged and lost, so that, although the soil is suitable for Larch, yet it is unsuitable for Barley.

J. B. WEBSTER.

### SELLING TIMBER.

"YORKSHIREMAN" makes rather a strong statement when he says that no fewer than thirty pianos were disposed of to railway and other officials connected with the disposal of home-grown timber. It would be interesting to know what special service was required from these men in order to qualify them as the recipients of such valuable gifts. I do not think that foresters as a rule would be likely to lend themselves to such practices. At the same time I do not see why any person should be hindered from receiving presents, otherwise it comes to be an open question if all the acknowledgments which are made daily everywhere are nothing but a species of fraud practised in order to extract some future advantage from the recipients. If such were the case in regard to foresters (which I think not), it would be well for proprietors to take into consideration whether their foresters should not be more liberally dealt with when disposing of home-grown timbers. In most cases it matters not how well the arrangements may be made and carried out, it does not put an extra penny in the forester's pocket. I do not think this is right, and the forester ought to participate in the advantages to be derived in having timber disposed of to the best advantage. If a percentage were given on the sum realised, it would act as a stimulus.

In regard to the best mode of measuring and selling timber, as far as the forester is concerned it matters little, as sellers are generally glad to get an offer of any kind. Indeed, to speak of measuring timber to a timber merchant would be quite sufficient for him to turn his back upon you. However, the forester should always use his own judgment, and I believe the most satisfactory way is to have timber sold by the cubic foot.

There is another thing which always seems strange to me—viz., that timber merchants do not want to know the exact quantity of timber, and expect everyone equally ignorant on the matter. Of course, when the timber once gets home to the merchant's depot the scene becomes completely changed, and the foot-rule and packthread are used with the utmost exactness. In order to show the vagueness with which timber merchants sometimes offer for timber I subjoin the following memoranda of a sale which came lately under my notice :—

	Value as offered per foot.	Stump sum.
A ...	£815 ... ..	—
B ...	836 ... ..	£650
C ...	929 ... ..	—
D ...	1119 ... ..	720
E ...	1184 ... ..	—

It will be seen from the foregoing figures that the difference between the highest and lowest by cubic foot amounted to £369. It will also be observed that B's offer by the foot amounted to £186 more than his stump sum, while D's offer by the foot amounted to £399 as compared with his stump sum, and shows very clearly the advantage of having timber disposed of by the cubic foot.

OLD PLANE TREE.

**The Silver Fir.**—Whilst upon Conifers, just a word about this tree, which "Yorkshireman" condemns in such unqualified terms, more, it seems, from the fact that it does not just now command a market than from any bad quality in the wood itself. Indeed,

in this respect there is scarcely a tree grown in this country which is more uniform in the quality of its wood than a good Spruce, and it is perhaps mainly from this fact that Mr. Webster would place it in the position he does. With regard to the price, if it is not the glut, of which so much is said, which at the present keeps the price down, how is "Yorkshireman" able to explain that a journal which he quotes as an authority gives the prices of Scotch and Spruce at pretty much the same figures? I do not mean just the current number, but looking back for a year or two, as "Yorkshireman" says that the ratio of prices which he quotes have been "pretty constant for many years back." Speaking for this district, the difference in value between Scotch and Spruce is not great, as neither is much sought after, but with Larch it is different, as it is rare for a plantation of the latter to remain long begging for a customer.—Y.

### THE BEECH.

THE common Beech is not planted so extensively in many parts of this country as it was a century ago, a circumstance arising principally from its unsuitability for building and mining purposes, although of late years considerable quantities of it have been used for such a purpose, cut into pieces from 3 feet to 20 inches long and from 4 inches to 8 inches square. Straight, clean-grown poles are often in demand for piles, sluices, keels for boats and vessels, as it is found to be very durable under water when cut and used for such purposes at the time it is loaded with natural sap. Large quantities of Beech were formerly used by the turner for a variety of purposes, but is now almost supplanted by metal in connection with machinery, but is still used for wringing and mangling machines, &c. It is likewise pretty extensively used for making carpenters' planes, lasts, scutching handles for flax mills, and beetling beams, which require to be 11 feet long by 22 inches in diameter, and generally sell at 50s. each, provided they are of good quality. In a time of scarcity I have sometimes sold Beech thinnings for pit wood, but it is not liked for that purpose, as the miner always prefers Larch, Spruce, or Scotch Fir for that purpose, even at a higher rate of price.

AS REGARDS ITS CULTURE, I have planted it with success on a great variety of soils and situations, from the seaboard up to some 900 feet above the sea level, and upwards of forty miles inland from the same; it is, however, impatient of wet, so that ground of a naturally damp nature should be thoroughly drained. It thrives best on siliceous and calcareous soils of a loose, open texture, although at the same time I have planted it with success upon ground of a very opposite nature, that is, decomposed peat bog mixed with clay. From its accommodating habit of growth it is well adapted for the formation of screen fences, and in all cases where the ground is dry and well prepared it not only forms a strong lasting fence, but also, from its habit of retaining its foliage during winter, it affords excellent shelter for cattle, and on that account is invaluable in exposed, inhospitable situations.

As an ornamental tree planted in parks or on lawns it is an object of great beauty, and attains large, massive dimensions—in fact, it yields to none in this respect, providing the soil is naturally dry and equal to its requirements. When in full leaf the branches are fantastically wreathed, slightly pendent, and the foliage of a pleasant green colour. In winter, when divested of its foliage, the ramification, bends, and shapes of its massive limbs and branches can be seen to advantage, and in a fine old specimen are produced in endless variety, so that the tree even as seen in winter is not merely interesting, but actually a pleasant

study. There are likewise some interesting varieties of the Beech, which may be planted as ornamental trees for contrast and variety with happy effect—such as the silver-edged, Fern-leaved, purple, and copper-coloured Beech. The tree is generally at its best when about a century old, although instances are recorded of it continuing in a vigorous state for a much longer period. In May it produces male and female flowers, and the seeds are ripe and mature in autumn, and consist of a pair of nuts joined at the base, covered with a thin coating of a silky texture and silvery colour, enclosed in a hard shell, and is known as the Beech-mast.

**PROPAGATION.**—Although the tree propagates itself by natural reproduction, yet this cannot be depended upon for its extension, so that the fruit should be gathered in autumn when it falls to the ground, and placed on a floor and kept dry till spring, when it should then be sown in rich, dry, friable ground, well worked, and formed into beds about 4 feet wide. The seeds should be sown broadcast evenly over the surface and not too thick. After sowing it will be an advantage to press the seeds slightly down to fix them in their place, which can readily be done by passing a light roller over the surface, when the work can then be finished by covering the seeds with about three-quarters of an inch of fine soil.

J. B.

### TIMBER OF SEEDLING AND TRANSPLANTED TREES.

THIS is a subject of considerable importance in tree culture, and I am glad to see that some of your correspondents are taking an interest in its solution. "Glendye" (p. 236) says, "It does not appear to me that Mr. Webster's comparison on this subject is so just or so cautious as most of the opinions he communicates to us." I can, however, assure him that I am not in the least biassed for or against the quality of the timber as produced by the two kinds under discussion, but merely giving the results of my own experience and observation; and, on the whole, I do not think there is a wide difference of opinion between us, seeing that he admits that "naturally sown trees, having had too much room to grow, run away, in fact, to strong lateral branches with dumpy trunks, yielding at once a coarse, soft, lax quality of timber, which quality of inferiority is particularly apparent during the earlier years of growth." Now, this is something similar to the descriptive particulars as given by me in my first communication, and if he had planted trees to make up deficiencies among his self-sown trees that had too much room, I have not the least doubt that his men could tell the two classes of trees in the course of thinning as already described by me. But that transplanting not only hardens and firms the wood of the stem, but also gives a denser and more fibrous mass of roots there cannot be a doubt, and in illustration of which I shall give another example.

In planting trees on high exposed situations it is a matter of the utmost importance in the attainment of success to use plants that have been transplanted, as the tops are hard and firm and stand frost and cold with impunity, while others of the same species and age that had never been transplanted were in many places killed, and others cut down to the ground level. Now, I have seen this happen over and over again, and what can we attribute this difference in hardness to but the effects produced in the hardness and texture of the wood in the stem by transplanting?



I am decidedly not against the extension of our woodlands by natural reproduction under certain conditions as regards soil, exposure, and species of trees; but in following Nature we must not forget that we sometimes can assist her, and the great aim of tree culture is to know when, where, and how this assistance is to be applied, and when this is attained we will then, and not till then, be in possession of a key to unlock the whole cabinet of practical tree culture. In discussing this subject we must throw all our crotchets overboard, and give a simple exposition of facts, as recorded by the trees themselves. I have heard this question discussed by men cutting and converting both kinds of timber, *i.e.*, seedling and transplanted, upwards of forty years ago, and the whole evidence brought to bear upon the subject was decidedly in favour of the timber produced by transplanted trees. The produce of foreign self-sown trees is sometimes pointed out as proof of its superiority; but although we sow tree seeds on the best land in these islands, owing to our geographical position the trees raised never can compete with the produce of America and California. Trees raised on the spot, however, have this advantage—that they produce a number of strong thong-like roots which fix them securely in the soil and render them almost proof against wind attacks, and the progeny is weeded by the strong killing the weak, which is Nature's mode of selection. J. B. W.

#### SPRUCE FIR TIMBER.

At p. 280, "Yorkshireman" asks me to tell him "in what part of Yorkshire is it customary to sell timber at 52 feet to the ton?" If he would look at his own statement (p. 14), he will find the answer as recorded by himself. I said I had sold Spruce timber at 13s. per ton, and he adds or about 3d. per foot, so that, according to his own finding, that would give 52 feet per ton. I said I had been in the way of selling ladder poles (Spruce and Larch) at the rate of 1d. per lineal foot. "Yorkshireman," in the same article, tells us that "Spruce is not the only timber used for ladders, and when it is used for that purpose, in ninety-nine cases out of a hundred it is Norwegian poles that are used. These run from 30 feet to 40 feet in length, are from 4½ inches to 6 inches in girth . . . and are delivered in England at 1d. per foot or less." Again, at p. 189, the same writer says, in reference to these poles: "If that was the case, all I have to say is, that he received much too low a price for his Larch, for 1d. per lineal foot is too little even at present prices." Again, at p. 280 he gives the price of Larch in North Yorkshire and the midlands at from 6d. to 8d., and for better quality 9d. per foot. Now, in giving these statements one would naturally be led to suppose that the prices quoted would show an approximate value for the timber, whether sold by the ton, cubic foot, or the girth of the trees; but such is not the case. It would be useful to know where we may realise a higher price than 1d. per lineal foot for Larch that will girth from 4½ inches to 6 inches.

"Yorkshireman" says: "Descanting on the qualities of the Spruce, Mr. Webster says that a tree capable of attaining to the dimensions of 400 cubic feet of timber in our wind-swept island is justly entitled to rank in the first class, and further on he asserts that the tree is unsuitable for planting in wind-swept positions." In my article in question I was not speaking of the Spruce at all, but of the Silver Fir (*Picea pectinata*), and the following is the original: "In my remarks upon the Silver Fir (*Picea pectinata*) (p. 189) I stated that I considered it ranked in the first class as a timber tree, and on all soils and situations suitable for its requirements I have not only found it attain a large size, but also a grand tree from an ornamental point of view. It is a tree that often attains a height of upwards of 100 feet, and in many cases contains upwards of 400 cubic feet of timber, that will last for a period of upwards of twenty years when cut up as flooring. I think these are no mean

recommendations to any tree. A tree capable of attaining such dimensions in our wind-swept island is justly entitled to rank in the first class." This is rather a different complexion from "Yorkshireman's" quotation, and, as I have said before, although the tree is unsuitable for hill planting, yet on all soils and situations suitable for its requirements . . . it is well worthy of being introduced for ornament, shelter, and utility.

"Yorkshireman" further says: "The isolated experience of single individuals here and there is of no use in determining the value of any kind of timber for general market purposes." As he is, to all appearance, the only isolated person in this controversy, according to his own finding, we shall know the proper value to attach to his statements. A great deal has been said about blown timber and the "English Timber Trade Report," and although prices at present are small, a circumstance which we all regret, yet we must go on planting trees that will attain useful dimensions in the faith that by the time they reach maturity prices and demand will have improved, otherwise things would soon come to a standstill.

J. B. WEBSTER.

**Evergreen shelter.**—In exposed places where many Evergreens would fail, *Thuja Lobbi* and the common *Cherry Laurel* are especially valuable. The former may not grow to such large trees in such places, but even where the soil is thin and poor, both trees appear to retain perfect health, and in a reasonable time grow and become both ornamental and effective screens.

**A large Poplar.**—In the Botanical Garden at Dijon there is a Poplar of colossal dimensions (species not stated) to which M. Joly devotes a note in the *Journal de la Société Nationale d'Horticulture*. The height of this tree is 130 feet. Its circumference near the ground is 46 feet, and at 16 feet above the ground is 21 feet. Its bulk is now 1590 cubic feet, but six years ago, before the fall of one of the large branches, it was 1940 cubic feet. It has been ascertained that this Poplar is at least 500 years old.

**Trees by roadsides.**—Although I am in favour of encouraging to a reasonable extent trees in hedgerows and fields, especially pasture, too many trees by the roadsides are not desirable. The principal reason against this, I consider, is the constant drip from the branches in the winter to the damage of the road, and also the exclusion of sun and air. In addition to this, where covered drains exist, the roots often cause serious trouble. Some writers argue for roadside trees on the score of ornament, but where trees are tolerably abundant in the field, the absence by the roadside is not noticeable. In any case, they should not be allowed to overhang the road to any great extent. This is true of private as well as public roads, and is a matter which should be taken into consideration in planting avenues. An avenue should not be made like a tunnel.—D. J. Y.

**Ivy and trees.**—This is relatively a question of much less importance than many others, yet it is one worth attention, both in the practical and ornamental sense. Even on this matter all are not agreed, but the great majority are probably prepared to admit that too much Ivy is detrimental to tree growth. When we see a large tree with a moderate amount of Ivy twining round it, the effect is rather pleasing than the reverse, and no harm can ensue so long as it is not allowed to overgrow the tree. When, however, we see a tree so enveloped in this plant that nothing of the bole is to be seen, and not much else except the extremities of the branches, a kind of suffocating feeling creeps over us, and we wish to get the victim out of the clutch of the octopus which is slowly but surely destroying its vitality. An instance that attracted my attention only a day or two since was that of a Fir which is so enveloped in Ivy, that its appearance is very sickly, and such of the branches as can be seen are mere skeletons, where they should be covered with foliage. At a short distance from this was a *Laburnum*, of rather loose growth, and round this sufficient Ivy had twined to hide the looseness of its habit and make it an effective object. In another instance I noticed an old Yew where the Ivy had grown to the extreme top of the tree, but did not

spread over any considerable bulk of its surface. Whether trees with poisonous foliage are inimical to the spread of the Ivy, I do not know, but in most cases where the plant had such a hold as it had here its tendency would be to cover the tree to a greater extent.—D.

#### VALUE OF HEDGEROW TIMBER.

We have just finished setting out and valuing a fall of hedgerow timber on ten of our farms, undertaken mainly at the representations of the tenants themselves, and a very tedious task it has been, the fields being many of them small and the fences numerous. After going carefully over the trees, classifying and valuing them as accurately as standing timber of that description can be, I am able to state that the value of the fall will be little more than half that of plantation timber of the same age and kind, and in order to sell it advantageously a good deal of superior plantation timber has had to be thrown in with it.

The reason of this inferior value is that the whole of the trees consist mainly of top wood, the trunks not being much taller than the hedgerows themselves, and these are the only portion that can be readily sold. The expense of cutting and ranking the top wood over such a wide area being much more than in a wood, buyers do not care to be troubled with it. Had the same number of trees been planted and grown in a plantation, they would have been good stuff at their age, and worth a great deal of more money to the planter, and the tenants would have been in pocket the value of the trees many times over. The tales we have had to listen to concerning the damage to crops by the spreading roots and tops and the trouble to the ploughshare from roots would satisfy anyone that, from the farmer's point of view, hedgerow timber is regarded as an unmitigated nuisance, and nothing else. In cornfields the poor yield everywhere near the trees, especially spreading Oaks and Ashes, might strike the most casual observer, and in pasture and hayfields the damage one way and another is only a little less. One tenant, who is also a butcher and pastures most of his fields, complained the worst of any, and seemed to think that trees were worse for cattle than for crops. Wherever the fields are small, as they are in many parts of England, hedgerow trees are, of course, far more troublesome, but they are no good anywhere; and trees standing in the middle of fields, as they often do, being remnants of old divisional fences that have been removed, are much worse, being more in the way of the plough. YORKSHIREMAN.

**Coniferous trees.**—I am rather conservative in my views as to the planting to any extent of the less known Conifers, as the probability is that when they are grown there will be no demand for them for timber, or at any rate not at a price which would pay for the outlay incurred in producing them. Notwithstanding, some of them deserve a good word, and I think "T. B.," on p. 258, is rather arbitrary in his selection, as he holds up *Abies Nordmanniana* at the expense of *Abies Douglasi*. I have nothing to say for or against the former, but with respect to the latter, it scarcely deserves to be dismissed in the summary manner your correspondent implies it should be. Grown as single specimens, under which conditions I know it only, it seems to possess the qualities necessary to become a good timber tree. What its behaviour would be in plantations where its tendency to throw out such long side branches would be checked by its being closely planted, I do not know. Perhaps some correspondent could give information on this point.—Y.

**Mining timber.**—No good purpose will be served by prolonging this discussion. When "Yorkshireman" speaks of conditions existing in his own district and under his own notice, he can do so with some authority, but when he argues about matters as to which his information is admittedly derived at second-hand, and of which he directly knows nothing, he has no right to assume that my remarks, so far as they refer to actual facts, are incorrect. I am probably as well acquainted with affairs in my own district as your correspondent is in that from which he writes, and can substantiate what



I have said. I expressly stated that the present season, as everyone knows who understands anything about it, is not the one for making bargains in this class of wood, and I repeat what "Yorkshireman" takes exception to—that the real reason, that is, in the district to which I referred, why more Larch is not used is that it is not to be obtained in sufficient quantities, or at "competing prices." "Yorkshireman" was careful not to quote the last part of the sentence, as that would have spoilt his arguments.—D. J. YEO.

### PRUNING FOREST TREES.

ALTHOUGH from the forester's point of view who is a believer in pruning most of what "Glendye" says on the subject is sensible and temperate, when he speaks (p. 259) of blemishes in timber being mainly caused through the want of timely and judicious pruning, he goes a little too far. I do not assert that the fact is thus entirely accounted for, but I am quite certain that on an estate where some of the best timber in this district is produced the pruning knife or saw is seldom, if ever, used. On others, where it is used both early and late in the tree's history, the timber is sadly damaged.

It may be argued that this is not judicious pruning, and this is just where the pinch comes, and the question presents itself of what judicious pruning is. This is a thing which has been so much written about, that it may be almost considered as worn threadbare; yet opinions apparently are quite as much at variance now as they were in the first instance. This may arise from the different writers' observations being unconsciously influenced by their previous views, or one would think something like unanimity must prevail. Some argue that trees should be left untouched, or nearly so, whilst others go in for extensive trimming and pruning. The truth probably lies between the two extremes, but nearer the former than the latter. Into this, in this connection, it is not my purpose at present to enter.

What, however, I must take exception to is the statement that timber is in any sense improved in quality by chopping and lopping. My experience and that of those who have to use up the wood leads to just the opposite conclusion. If when a young tree was pruned the growth up the stem was entirely checked and the growth of the tree directed upwards, there may be something in it; but this, if so, is only partially the case, as in most instances where a branch is removed the growth of an infinity of small ones is induced, and consequently what would have been the evil of one branch only is aggravated by the growth of perhaps a dozen. These in their turn become a prey to the knife, and then a still further growth is the result. The end of the matter is, that when the tree is felled the bole of it is full of small knots and defects. When the timber is required in large dimensions, this is not so detrimental; but when it has to be used for more particular purposes and in smaller sizes, it has to be discarded altogether. If I recollect rightly, attention has been directed to this in the case of the Elm. On reference, I see this was at page 460, in the last volume, and the manufacture referred to was that of chair-making in Buckinghamshire. The Elm is largely used there for the Windsor chair, and, as we all know, the Elm is essentially a field and hedgerow tree.

In Bucks and Berks a large proportion of the land is arable, so the trees are generally followed by the pruner from their earlier years until the time they come to be felled. Here this is not so much the case, as pastures predominate and the timber is comparatively free from the pruner's attentions. The sequel is, that although Elm is grown in Bucks and Berks, the consumers of the wood have to come here and to other places for it where the trees are practically left unpruned. This is no mere theory, as it has repeatedly come under the writer's notice, and once in a correspondence with a firm respecting the sale of some Elm the buyer made the candid admission: "We would rather have Wilts Elm if we can get it, as Bucks Elm is so knotty." The italics are my own, but the sentence is very expressive, and this one fact is sufficient to convince me that blemishes are not nearly so often caused by the want of pruning as is the case by the adoption of the practice. Common

sense would tell us that if a limb from any cause is fractured, it would be imperative that it should be pruned off closely to the tree in order that the wound may readily heal, but to cut off branches in the hope of making better timber, or merely for the sake of giving the tree a balanced appearance (I do not now speak of ornamental trees) is, to put it mildly, a mistake.

J. N. BLUNT.

### HEDGEROW AND FIELD TREES.

FROM the standpoint "T. B." takes (p. 280), it would seem that my views are so utterly behind the times, that it is useless to express them. This may be; but as your correspondent has gone into the why and the wherefore at some length, I will say another word upon the subject. What "T. B." says about the mutilated objects we so often see being more a disfigurement than an advantage, I cordially endorse. Indeed, whatever can be said about them will not be enough. Both useless for timber and for ornament, they resemble nothing in nature or in art. The figure of huge brooms which "T. B." uses is as near the truth as anything, but even this fails to completely picture them, unless one adds that the bristles of the broom are sprouting out throughout the stem, and with the further addition of sundry ugly excrescences, these specimens are not fairly depicted.

Trees that are growing closely in plantations, I do not dispute, will put on more timber and less branches, but in the face of this a perfect tree is the one which has entire freedom of growth laterally as well as vertically, and such trees as these now exist in our hedgerows and fields, and I would see their number increased. It must not be overlooked that all timber is not wanted to grow in straight lines or to be used in long lengths. For very many purposes a good hedgerow or field tree is as useful as a plantation-grown one. In fact, closely grown trees will not supply such curves and other forms as timber is often required in. "T. B." must not forget that wood is not, like iron, a thing which can be welded into any shape suggested by necessity or fancy. The use of iron for ship-building may dispose of this to a great extent in this connection, but there are yet numerous wants which perfectly straight-grown timber will not supply, and for which, if for no other reason, it is necessary to grow field timber.

Half the hedgerow trees, as they now exist, says "T. B.," could not, by any possible treatment, ever be grown into timber that would fetch a fourth of what they have taken from the land. If this is so, let continual warfare be waged with them until they are exterminated. What, however, qualifies the force of the argument, as against the growth of hedgerow or field trees at all, is the words "as they now exist." This directly implies that a better state of things is possible. As the present generation of dwarfs and otherwise unprofitable trees becomes a prey to the axe, a race of successors more intelligently treated may be made to take their place. Why not? If forestry, or what is termed such, refers only to the treatment or management of trees growing in woods or plantations, and means the indiscriminate destruction of timber wherever else found, it is a subject at once deprived of half its interest.

With regard to the value of an estate on which such trees as those with which we are now dealing exist, if "T. B.'s" argument is worth anything, he must prove that year by year as the trees are growing the land is of a smaller letting value than it would have been had the trees been absent. It is very well to theorise, but can he point to instances where this has occurred, or lay it down as a general rule? Before he does so, he must clearly understand the point at issue, and this he will find in my original note (p. 133). Unless he can prove that the judicious encouragement of field and hedgerow trees in and around pasture fields lessens their value and to some appreciable extent, my contention holds good. With regard to shelter, "T. B." writes as though one would post themselves under any particular tree, and expect some magic protection from its overhanging branches. Everyone knows that it is not in immediate proximity to a tree that the benefit of its presence is observable. If one stood amongst the trees themselves in a narrow belt or plantation of wood, the wind would probably be more felt than it would be in the open; yet I

suppose "T. B." will not go so far as to say that its existence would afford no shelter to the land lying to leeward. If so, what is the use of planting trees for windbreaks at all? Finally, I have throughout referred to field as well as hedgerow trees, as the two are intimately connected; but your correspondents seem to ignore this, and write as though I was advocating the latter only.

D. J. YEO.

Lynchem, Wilts.

**The best timber marker.**—The implement for which "W. W." asks is that described on p. 257 in the article on "Valuing Plantations." The hatchet hammer there spoken of fulfils the required conditions, and is, in addition to being effective as a marker, a formidable weapon of offence and defence if the occasion should arise. It is altogether the handiest thing of the kind I have ever come across, and I have marked some thousands of trees with a similar tool.—D. J. Y.

—In reply to "W. W.'s" inquiry as to "an efficient timber marker," the best I ever saw (and from which I had one made for myself) was one shown me many years ago by the late Colonel Wildman, of Newstead Abbey. It was somewhat in the shape of a short-handled hammer, one end being a hollow iron hoop (say about 2 inches diameter) with the lower edge sharpened so as to score off the bark; the other end is like the blunt end of a hammer, and has one's initials or monogram cut on it, so that when struck against the barked place it leaves the initials indented. The advantage of this plan is that in case you score and initial a tree to be felled, and afterwards change your mind and wish the tree to stand, you have simply to score out your initials, as no tree is to be doomed unless the initials are visible.

—C. J. W.

**The durability of timber** is not wholly dependent upon the fibres of the wood, but is partly owing to the quality of the sap, which in some trees is of a highly preservative nature; thus, the Oak has an astringent or tanning principle, as well as a ferruginous quality in its juices, and it is from a combination of these qualities that its durability in situations of exposure is obtained. The quality of Oak timber is never better than when the tree is grown in a good loam or loamy clay, resting upon a subsoil of blue clay, from which it obtains the oxide of iron with which the wood becomes impregnated.

**Firs in a northern aspect.**—So much does a cold situation influence the growth of the Fir, that trees grown on the northern side of a hill are superior to those grown on the southern side, as those on a northern aspect grow less rapidly than those on the sunny side of a hill. The timber on the northern side will therefore be, as a rule, more durable than that grown on the southern, and the trees would not be so liable to injury from frosts; indeed, many diseases are induced, perhaps aggravated, by the sap being checked during early spring on a south or south-eastern aspect.—B.

**The hardness of wood** depends upon the closeness of its woody structure, while its toughness is due to the strength of the longitudinal fibres and the elasticity of the intermediate cellular matter. Durability of timber exposed to much wear or friction is proportioned to the size, strength, and compactness of its fibre. Most of the hard and durable wood used for manufacturing purposes is the produce of small and comparatively slow-growing trees, such as Yew, Box, and Ebony. It is found that Norwegian Hop poles of small diameter, but the growth of from forty to fifty years, are much more lasting than our native Ash, Sweet Chestnut, Maple, and Oak, which are used for the same purposes, and which—though of larger size—are the growth of from nine to thirteen years only.

**The soundness of timber** may be ascertained by placing the ear close to one end of the log, while another person delivers a succession of smart blows with a hammer or mallet upon the opposite end, when the continuance of the vibrations will indicate to an experienced ear even the degree of soundness. If only a dull thud meets the ear, the listener may be certain that unsoundness exists.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## ROSE GARDEN.

### JOTTINGS ABOUT ROSES.

THE demand for good Roses is said to be increasing annually. Besides the supply required for home wants, some of our large growers send quantities to America and the colonies, and English Roses are even finding their way to India and other distant places. No one has too many Roses; the love for them grows upon what it feeds. Success in growing Roses is very largely based upon preparatory work. They will not thrive in shallow hungry soil, but poor soil can be enriched, and shallow soil can be deepened, and the light soil can have its texture altered by adding clay and marl. Where the land is deep and rich it matters little where Roses are planted, but where it is poor and has to be made good by additions, the larger the beds the better. Small beds are unsuitable, because, being surrounded on all sides by poor soil, it is difficult to keep the roots in good condition. Roses do not take kindly to any formal system of gardening. Large beds of pegged-down Roses with a few standards of varying heights dotted about to give elevation are striking features on a lawn and fit in anywhere, but somehow they do not associate well with beds of Pelargoniums, Verbenas, or Calceolarias.

THE SOIL for Roses should be at least 2 feet deep; 3 feet would even be better, especially in dry seasons. A large and excellent bed for Roses I once saw made in the following manner: The natural soil was shallow, poor, and light. This was first trenched up, the good soil being kept on the top; then 12 inches in depth of soil from an old pasture was laid on that. This was obtained by running a plough at intervals of a few feet through the surface of a Grass field, and bringing away what the plough turned up. During next summer the Grass grew and filled up the furrows made by the plough, and the pasture was none the worse for the loss of the narrow strips removed. In course of time clay placed on the surface finds its way to the bottom of the moved soil, and it is very useful there in storing up moisture. Indeed, 1 inch or 2 inches of clay where the subsoil is very porous placed at the bottom of Rose beds or borders would be a benefit rather than an evil, inasmuch as it checks the too rapid descent of water. In applying clay to the surface as a top-dressing, it should be done in winter and left to pulverise by exposure, so that it may afterwards easily mix and blend with the soil.

In manuring Roses the character of the soil should be studied. For light porous soils, that from the cowhouse and piggery is best, stable manure being better adapted for heavy soils. Though Roses like deep heavy loams overlying clays, they will not succeed well where the clays come up near the surface. Clay is very well when covered with a good depth of loam, but Roses will not thrive successfully in heavy cold clays, but even this class of soils can be fitted for Roses or anything else if one goes the right way about matters. The first thing to do is to

remove some of it now, and when partly dried return it, mixing ashes with it to break it up and adding plenty of manure; then plant before Christmas.

FOR STOCKS, the Brier is best for heavy land, and the Manetti for that of a lighter character. In both cases the stock should be buried, and for dwarf Roses the bud should be inserted close to the roots. Time is consumed in scraping away the soil from the base of the stems and placing the bud there, but it is a great advantage, as the buds take more freely especially if the weather be hot and dry. For dwarf Roses in private gardens, where only a few hundred plants are required, I like grafting early in spring on Brier roots. The Brier is best for this purpose, as it is more fibrous-rooted than the Manetti. The latter strikes deeply into the ground, and the roots are almost bare of fibres. We can always get plenty of Briers in the hedges in our neighbourhood, and, therefore, have no occasion to cultivate seedlings. But little trouble is experienced from suckers when Brier roots are employed, and with care in selecting the pieces of root there need be no suckers at all. The grafting should be done just when the Brier roots are starting into growth in March, using scions with dormant buds. I always pot them as soon as grafted, and plunge the pots in a hotbed of 75° or so and keep the frame close, shading when very bright. I have cut flowers the same season from plants grafted in spring which had been planted out in a prepared bed in July. If the beds occupy a prominent position, and the best has to be done to brighten up every spot, something besides Roses must be planted round the edges of the beds at least. I have used Pansies for this purpose, as they do not take much out of the beds, and the deep rich loam and the mulching seem to suit them. Mignonette and Musk may also be used for the sake of variety; but whatever is employed in this way, the Roses should not be crowded, and we must always bear in mind that, for the most part, Roses will do best unaccompanied by anything else. There are, however, exceptions. For instance, Gloire de Dijon is able to take care of itself. I have a large old plant of this Rose growing in a mixed border, the stem of which, budded sixteen years ago, measures now 6 inches in circumference, and the head is at least 8 feet through. Jules Margottin is another variety able to hold its own in a crowd, and others might be named. Budded or grafted plants, if planted deep enough to cover the stock, soon get a set of roots of their own—a great advantage, inasmuch as the plants give greater satisfaction. But whatever may be said to the contrary, it takes longer to get up strong plants from cuttings than from placing buds on vigorous-growing stocks or by grafting in spring on the Brier roots in the way already described. I have followed this plan for a good many years, and see no reason to alter my opinion concerning it. At the same time everybody should

STRIKE ROSES FROM CUTTINGS, especially vigorous growers and Teas, which on warm soils do so well on their own roots. For all Roses, except Teas, the first week in October is a good time to put in cuttings. Make up a bed of loam, 10 inches deep, in a frame, tread it firmly, and plant the cuttings (which should be about 8 inches long) in rows; make a niche 6 inches deep with the spade; into this put the cuttings, and make the soil about them firm; a little rough leaf-mould may be scattered over them before frost sets in to keep them snug and undisturbed. If there is space in a pit or house in March, the cuttings may be lifted and potted

singly in small pots and placed in a mild heat. By that time all those which intend rooting will either have formed roots or be callused ready for their emission. I have always found Teas to root with more certainty in spring than at any other time. Select well ripened wood just before growth begins and plant the cuttings (which, so long as the base is moderately firm, may be of any size or length) in a bed of moist sawdust, resting on a bed of warm leaves or Cocoa fibre. The cuttings may be dibbled in, or, if firm enough, may be thrust in thickly and no water, beyond a very light dewing over, will be required till roots appear, when they will be fit for potting off. This will probably be in about six weeks; it is not advisable to permit the roots to extend beyond half an inch. When potted, as soon as the young roots are visible is best, as then no check is experienced. Where there is a propagating house constantly at work Tea Roses may be rooted at any time when good suitable wood can be obtained. They will root from single eyes if the wood from which they are cut possesses just the right condition of ripeness. Soft young shoots are liable to damp off; consequently they are useless. Cuttings put in during March will make excellent flowering plants if well cared for by August. The best way of treating them is to plant them out as soon as well established in their pots and the weather has become warm.

TRANSPLANTING.—Where the blooms are grown for cutting, the ground between the plants gets trampled very hard, and in course of time the plants appear to dwindle and become weak, especially in the case of dwarf Roses; and then transplanting to a new bed or lifting the plants, laying them in temporarily, and giving the old bed a thorough preparation by trenching in manure and fresh loam, or whatever else the soil may require to add new vigour to the plants becomes necessary. This work should be done as soon as the plants can be moved with safety early in November. A dressing of wood ashes or charred refuse has a purifying effect on the soil. In replanting many of the strongest specimens may be divided with advantage. This is a good way of increasing stock. Roses with striped flowers, I have no doubt, will become common by-and-by; indeed, the wonder is that someone has not worked more in this direction than has been done. Pride of Reigate is in this way, and though apart from its stripes it has no great merit as a flower, at least such is the opinion I have formed of the specimens I have seen, it will doubtless be followed by others in the same way possessing points of greater excellence.

E. HOBDAY.

### GLADIOLI AND ROSES.

As one who is not unacquainted with these beautiful flowers, I should like to say something concerning them, as I do not at all agree with the observations made by "A. D." and "J. C. C." To me it seems a strange thing that anyone should throw any doubt on the desirableness of the Gladiolus as a decorative flower. Well do I recollect on my first visit to Mons. Souchet being struck with a vase in his saloon in which were four or five Gladiolus spikes and a few pieces of Palms or Bamboos, I forget which, and I have never since omitted to follow his example. The vase need not be anything special, but if possible not trumpet-shaped, as it is difficult to get the stems into it so as to give them a firm position. There is another advantage which the Gladiolus possesses—the length of time the spike lasts. If after a few days the lower and faded blooms are taken away and the stems shortened, they look as fresh as ever, for the flower-buds open as well in the house as in the garden, although, perhaps, not quite so brilliant in colour. The season



has been with me very favourable for this grand flower, and certainly the spikes have been finer and fuller than I have ever had them before. The reason why the *Gladiolus* is not popular is that its cultivation, although comparatively easy, is almost sure to result in more or less of disappointment; the bulbs persist in going off in an unaccountable manner, and I have seen this tendency in *brenchleyensis* as well as in the more refined and highly-bred flowers. No cause for it has been assigned, but I believe this lies at the root of, I will not say its unpopularity, but its not being more frequently grown than it is.

As to your correspondent's remarks on the selecting of Roses, surely they are misleading to a degree. He warns people against selecting Roses from winning stands because extraordinary care has been bestowed upon them, and unless care is taken the same results cannot be expected; but is not this true of everything as well as Roses? If anyone thinks that they can attain such results as exhibitors of Grapes and vegetables attain without bestowing special pains on them they will be very much mistaken. Exhibitors always give special care to those productions which they venture to submit to public gaze and criticism. As to not selecting those which are exhibited, I am quite sure that is a mistake, but at the same time let it be done with caution. There has been made, more than once, a selection of Roses from lists sent in by all the leading amateur and professional growers. Amongst the leading varieties which have attained the highest number of awards are A. K. Williams and La France, and yet I venture to say that there are no two Roses to which a possessor of a garden may more confidently look for a succession of blooms; while for giving forth their beauties later in the autumn, there are no two Roses more to be depended upon than they are. And what shall be said of the Tea Roses? Where these can be grown, will not those flowers which have charmed the visitor at the shows, such as Marie Van Houtte, Madame Lambard, Madame Cusin, Rubens, Bouquet d'Or and others, be delighting the owner of the garden up to chill November, and even later? Instead, then, of advising anyone who wishes to select Roses to go to a garden and pick out those which have stood the best for some years, I would advise anyone to select what pleases them most at the exhibitions, and then compare their list with the National Rose Society's catalogue, and should they find it marked vigorous, they may safely order them for ordinary garden work. I say this is preferable to selecting from a garden, for it is well known how soil, situation, and climate influence Roses, and if the selector has not the same, he may be woefully disappointed. There is very much fallacy, too, about the difference between the method of cultivation adopted by the exhibitor and the ordinary cultivator, for I think that probably the chief difference is in the disbudding. Roses will in each case be equally well manured, and they must be pruned; it maybe the exhibitor will prune harder, but not necessarily so; but he carefully disbuds all his Roses, leaving only one on each shoot. The ordinary cultivator does not, and yet it is just possible that it would be wiser for him to do so. Is not one good Rose better than three or four indifferent ones? And, moreover, where a shoot has only one Rose to give its strength to there is more likelihood that when this is over the tree will be more apt to push out a vigorous growth for a second bloom than where it has to support three or four.

That Roses under the ordinary treatment, close pruning every year, even although they be Bourbons, may attain a respectable old age, I have abundant evidence of from my own garden. I have two bushes of *Souvenir de la Malmaison* which are thirty-five years old; they are not more than 3 feet high and about 4 feet through. This year one of them had 150 blooms upon it. I did not disbud any, but had I done so, I am quite sure that I might have had as large and as good blooms as from the youngest plant in my garden. With regard to the cry about garden Roses, I am not at all sure that people know what they want. A sort of mania has arisen to run down double and to uphold single flowers, and the Rose has shared in the depreciation. Now, I am quite ready to admit the beauty of many of our single Roses. I even think that a spray of the common Dog Brier tossing itself in the wind is a "thing of

beauty," but I have also eyes to admire the lovely tints of a Marie Van Houtte or Comtesse de Nadaillac, or the glowing richness of a General Jacqueminot or Marie Baumann, and I have also to recollect how very soon the beauties of these single Roses fade, how they shatter their petals, and how the most elaborately made bouquet with these single Roses will soon be worthless. There is room for both. Some growers have not space, it may be, and, looking for the greatest results from a limited space, they hesitate not to prefer the many beautiful forms of the double Roses.

It may not be out of place to mention here that the National Rose Society—which has done so much for the encouragement of the Rose—has carefully compiled a list of the best garden Roses, and those who are anxious to grow them cannot do better than consult it, as it is the joint production of some of the most experienced growers in the kingdom; but I would repeat that great caution must be observed by the owners of small gardens. I have some single Roses in my own garden, and at the present time, when I have a large number of blooms of the show varieties, I have not a single flower to show; there are, indeed, the fine hips of *Rosa rugosa*, but no blooms. DELTA.

**Rose La France.**—I have a plant of this Rose on its own roots that is producing a second crop of well-formed flowers; it is doing this without any attention in the way of watering, as it receives the same treatment as our other Roses. But, amongst the large number of varieties which we grow, La France is the only one that is likely to give us any large number of flowers. We have it budded on the Brier as well as on the Manetti stock, and although it does very well on both, it does equally well on its own roots, and it certainly flowers more freely than when on foster roots. Not the least of the merits of this Rose is, that it strikes readily from cuttings—in fact, much more freely than some others. I have for the past six years been much interested in the behaviour of this Rose when planted out in a good border under glass, as we never fail to secure three crops of flowers from it, and in the month of April they come so freely, and the individual flowers of such grand form and delicacy of colouring, that one feels it would be impossible to have too many; but although so good under glass early in the year, the heat and the dry temperature of a glass structure soon spoil its beauty after the middle of May is past. —J. C. C.

**A prolific Rose tree.**—There is now growing at the New Gardens, Whitby, a remarkable *Maréchal Niel* Rose tree. It was planted, or rather budded, on a good stock by the late Mr. Willison in 1865, so that it is now twenty years old. For many years it produced regularly large quantities of Roses, but it was not till the year 1882 that the full number of blooms was accurately counted, when no fewer than 2500 were recorded. This is believed to be the largest number ever grown on the tree during one season. In 1883 there was a falling off in the number gathered of about 1000, the actual number gathered being a few less than 1500. Last year (1884) there was a still further diminution, as only 850 blooms were gathered. It was then thought that the tree had seen its best days, and that, considering its age, its vitality was on the wane, and that its powers of production would lessen every succeeding year. There is, however, abundant life in the old tree yet. It is believed to be the largest and most prolific tree of its kind in the country.—W. G.

**New plants for figuring.**—Our readers will greatly help us by informing us of the flowering of any new or rare plant of garden value, or by sending us specimens for our artists to draw in colour or in black or white. In this case the specimens should be cut during the afternoon and placed in water for an hour or so and posted so as to reach us the following morning. A tin box fully large enough to hold the specimens without crushing is the best, and the best packing material is slightly damped clean Moss. It is a good plan to tie a little wet Moss round the end of the cut stems, and in the case of very delicate flowers a layer of tissue paper

between the Moss and the flowers is advisable. Packed in this way, specimens reach us in good order.

## FLOWER GARDEN.

### NOTES ON HARDY PLANTS.

**VERONICA LONGIFOLIA SUBSESSILIS.**—Than this we have no finer border plant or richer flowers in the whole genus to which it belongs; and, more, it may be questioned if we have a more showy plant or a better blue flower in any genus to adorn our borders from September to the close of the floral season. It will be well known to many that from the manner in which it produces its lateral spikes the plant would seem capable of pushing flowers for months, did the season permit, but it is a somewhat late kind, a fact not without its advantages in a Speedwell. There is one little dodge, however, by which those fond of fanciful culture may get an extra gain out of this vigorous plant. In July or August it will do a strong border specimen of it no harm to cut out some of the stems with plenty of side shoots. At that period the bloom-spikes will be forming; nevertheless the side shoots may be cut with heels to them, and if inserted in small pots of sandy loam they will soon root in a close frame without the loss or even discoloration of a leaf. They should be gradually hardened off, and by the latter end of September they will be neat plants 6 inches or 9 inches high. When frosts threaten it will be but a question of moving them under frame or greenhouse shelter, in order to not only prolong a crop of rich blue flowers, but to possess valuable dwarf pot plants up to nearly Christmas. Such is the vigour of this plant, that unless it is divided annually, in some soil it dies from surfeit. The crowns lift themselves out of the earth, and rudimentary or abnormal sprouts form such a mass of wart-like substance about the natural sprouts, that when such malformations begin to rot they fill the whole stool. As soon as the best bloom is past the plants should be lifted and severely divided; at the same time all the warty parts should be rubbed off. If replanted into next year's blooming quarters in clean sweet soil they grow big enough for the following year's effect, or for any purpose, and they give no further trouble.

**TRILLIUMS.**—I have just been going over several kinds in pots, and from what I observed I thought I should like also to see how roots behaved in the open ground. All the roots were imported four years ago, when, with the exception of *grandiflorum*, they were larger than they are now, though they have begun to improve. *Trilliums*, like some other imported roots that could be named, have a funny habit of dwindling for the first year or two, as if under the new, and possibly inferior, set of conditions like water, they first of all would find their level; this, at any rate, is my experience of them, but I have not grown many, *grandiflorum*, *erythrocarpum*, *erectum*, and *recurvatum* being about all. The first named is the most vigorous, as well as a vastly superior decorative plant to the others. It sooner gets through its probationary process, and the bulky tubers, which in their season had sent up fine leaves and big flowers, were found to be plentifully beset with small offshoots. Doubtless all love shade, as their popular name of Wood Lily would indicate, and from trying sorts of the same size and kind in various conditions, I am inclined to believe that we arrest the deterioration of newly imported tubers by setting them in a deep, well decayed leaf-mould, 4 inches under the surface, and where they will always be moist and cool under shade. It would appear that the first week in September is none too soon to do any repotting or transplanting, for the young roots are well developed, and their spare numbers and spongy consistence require gentle handling. Perhaps a month earlier would be a better time to operate on them.

**STERNBERGIA LUTEA**, as some of us still prefer to call it rather than *Amaryllis*, is now the most golden of all the yellows in the garden; its big, pear-shaped cups afford a lovely contrast to the earlier purple *Culcicums*, and the scent of each flower reminds one of that of a handful of Buttercups, and they last quite a fortnight. "Can you get the field Lily to flower?" is a question often asked, and until



of late the same query I used to put to gardening friends. I have grown it many years and in many ways, but the bulbs neither seemed to flower nor increase in size. Whether it is that I cannot make them happy or that the climate is against them, I cannot say. One other thing is certain, and it is that bulbs, to flower well, should be much bigger than I have generally met with them. My present flowering ones must be from 1½ inches to 2 inches in diameter; whereas trade samples are often little more than half that size. I do not say that, with a view to establishing them, full-sized ones are the better, probably just the reverse; but it may be well to only expect flowers from, and to know when we have, mature bulbs.

*ERYNGIUMS* somehow do not get into general cultivation, and it would be hard to say why, unless it is that they cannot often be seen, and that all written descriptions must fall very short of giving an idea of their beauty and unique effect. In the strong soil of the herbaceous beds in the Hull Botanic Gardens they seem to do well, and in August they certainly constitute one of our best border subjects. I noticed in the gardens just named *amethystinum* and its variety *Villarsi*, *Bourgati*, *alpinum* and one or two others, all in the best possible form, though they had not been cared for in the way of watering or mulching. They happened, however, to be where they could have full sunshine and plenty of room, and they had not been disturbed for a long time, for in the midst of the old stools I found the well-written labels of the late curator just as he might have placed them to the newly set plants. I mention this because the fact denotes what I take to be an important part of the treatment of *Eryngos*—leaving them alone. *E. yuccæfolium* I never could keep, not even in a mild winter, and I have practised with both young and old plants; I am aware that many of these tap-rooted plants are not easy to establish, unless one begins with young material. To set old roots in a bed of sand for one year, to furnish fibres so as to lift entire, is safer than planting fibreless old tap-roots in the natural soil. With the last-named variety this case has not, however, availed me much, so that I have come to think it is wanting in hardiness. This *Yucca*-leaved species is so distinct and handsome, that many rush at it for their first trial of the Sea Hollies, and I know many besides myself who have failed to grow it. It would be a welcome lesson if anyone would tell us how to grow it in the open in the Yorkshire climate, as well as helping to bring a fine plant into more general cultivation; it might be the means of removing what had been the stumbling-block to the planting of other *Eryngos*.

*EPILOBIUM OBCORDATUM*, of which a coloured figure was recently given in *THE GARDEN* (Sept. 5, 1885), is indeed an acquisition for rockwork; my experience of it extends over but a week or two. Mr. Wolley Dod sent me a nice plant of it in flower, and it continued to bloom a little while after I potted it, having previously taken base shoots as cuttings, as recommended by "D. K." What I imagine may be useful in this note is to state the fact that the cuttings put into a pot of road-scrappings and placed in a close frame have already become well rooted. The light green foliage, now getting prettily tinted on the exposed plant, is no mean feature, and if it proves able to withstand our variable climate, it will doubtless soon become a general favourite.

*ANDROSACE CORONOPHOLIA* is often found in lists of perennial plants, and, being but a biennial, the fact is somewhat misleading. It would not matter so much if we could assume that all growers of alpine plants took the trouble to inquire into the characters of their new introductions, but such is not the case, and as already the genus *Androsace* has a sad character for fickleness, a lovely family of alpine plants should not suffer reproach because a member of it died a natural death after flowering once, and was wrongly expected to be of perennial duration. This is a beautiful species and worth growing, and my only object is to caution those who would take it in hand, and to answer others who have said in reference to this kind: "The *Androsaces* are ticklish subjects. A fine healthy plant of it flowered well with me and then went off unaccountably." I am sure there is now skill enough among a vast number of alpine plant growers to

successfully cultivate many, perhaps most, of the finer species of *Androsace*.

*ACIPHYLLA SQUARROSA*, OR THE SPEAR-GRASS.—What is to be done with this? It has outgrown its place; it is a half globe, 4 feet in diameter, densely beset with spear-like points as sharp as needles, and crowned with a dark brown spike of seed, which I scarcely think is good, and which we should like to remove, but handle it we cannot. It has overrun nearly a foot of a small walk. Were this plant devoid of decorative qualities, a good spade and a pitchfork would soon enable us to place it on the rubbish heap, but it is a beautiful object; the glaucous foliage with chestnut-brown and black-tipped points is symmetrically and beautifully arranged and offsets forming, all fall in with the general arrangement of the bush as a whole. We, therefore, should like to move it if possible, but it offers one of the most trying puzzles of many a long day as regards transplanting, apart from the difficulty of handling it. I fear it will be a bad mover, as most evergreen and profuse foliaged plants are; it is lucky, however, that this worthy umbrella-like can be raised readily from seed, though seedlings are a year or two before they give an idea of the character of the plant.

*EPIGÆA REPENS*, or the Ground Laurel, is not likely to soon become plentiful, and so far as I have been able to learn its propagation has offered the greatest hindrance to its cultivation. Even imported plants, presumably had from a plentiful source, have to be sent with special care, and then the percentage of loss is considerable. In newly struck offsets for a couple of years the new roots, if so they can be called, are as fine as silk and most sensitive if disturbed. After several efforts, a fairly successful batch of cuttings has been obtained, and one or two observations made during their lifting and potting may be of use. It was found that only the previous year's wood, at the time of taking the cuttings, made roots during their twelvemonth's insertion. Those set firmly in sand and decayed Cocoa fibre and kept in a moderate shade have not only done better than the others, but, what is of equal importance from the texture of the material, they have lifted better, bringing some of the light loose stuff with them, thus saving the tender and not too plentiful fibre. The stiff leaves are liable during the application of water to shake the newly-inserted and fine-wooded cuttings; the old leaves, therefore, which are very persistent were left on, and if they were not otherwise useful when covered with the cutting they then held it firmly in the compost. I believe there is more in this with other large or rigid-leaved cuttings than we are apt to think. To pot fickle young stock is not so risky when the new roots lift in the way just mentioned, for scarcely a morsel need be sacrificed. The *Epigæa*, however, will need care in the matter of pressing into the pots, by which the stems may soon be stripped of the roots. Having prepared some fine peaty soil mixed with a little wood charcoal dust, I would lightly fill up the pots, and water them liberally and repeatedly until the soil had become moderately firm, and so leave it, rather than risk hurting the new roots. If plunged in old Cocoa fibre, the pots will be cool and moist enough during the autumn, but powerful sunshine should not reach the young plants. When frosts set in, some stiff leaves, like those of the Oak or Beech, may be placed over them, and probably by the following April the plants may safely be set permanently.

*VIOLETS*.—Everybody does not succeed well in getting these to flower, and I believe those who in getting adopt special means in the way of getting new stock from runners and giving rich soil and shade; in short, to get the best results, Violet plants have to be treated with more care than is commonly bestowed on hardy herbaceous plants. The other day, however, a pleasing and successful way of cultivating Violets came under my notice. It is soon told, and its simplicity is for the most part its charm. A carpet of Violets running over and between the rhizomes of *Iris germanica*, where, screened from the powerful summer sunshine by the broad, sword-shaped *Iris* foliage, the Violet plants flourished and spread all the summer. In winter the reduced quantity of *Iris* leaves afford more light when it is needed, but do not totally withdraw their protection at that season from

the wintry blast. On the chance that these plants would do well together in other gardens than that of Mr. A. R. White, of Nuttall, the plan is worth a trial, and the idea of associating *Viola* with *Iris* is not otherwise incompatible. J. W.

**Perpetual Carnations seeding.**—There are few, I think, who read what I wrote on this subject who could misunderstand the meaning of what was said, and which is fully borne out by the results obtained with French-grown seed when good as compared with that produced in this country. The indifferent French seed which, according to Mr. Knight's showing, he has had, and on which it seems his adverse opinion is formed, is like a good deal more that finds its way into the hands of the public from divers sources of home as well as of foreign growth. But it was not this kind of material to which my remarks were directed.—T. B.

**Michaelmas Daisies in hedgerows.**—Passing last autumn through a country district where old hedgerows, with their concomitant deep ditches, old Elms, and a miscellaneous growth of Whitethorn, &c., abound, my eye was arrested by a mass of colour on the opposite side of a large field. On examination I found that this was produced by some quite patriarchal-looking plants of Michaelmas Daisies, which, growing amongst the rank Grass and other strong-growing plants which constitute the vegetation of old hedgerows, looked just as much at home as if they formed a portion of its indigenous growth. How these plants got there is a mystery, but they had evidently been there a number of years, were quite happy, and evidently increasing in size. This shows how well fitted Michaelmas Daisies are for association with a coarse-growing vegetation, and that if they become well established, the rankest habited Grass cannot overpower them. There are many estates where old hedgerows abound, and I doubt not that there is often a desire to embellish them, the difficulty being to find plants that will hold their own indefinitely. In such cases I would advise a free trial of the strongest-growing kinds of these cheerful autumn flowers. I think that failures in naturalising often occur through small plants being set out singly, which, before they get strong, become smothered. If good old stools cannot be had, half-a-dozen small ones should be set together, just cutting the Grass away around them the first season; the second year they would take care of themselves.—BYFLEET.

**Begonias as annuals.**—I find that by sowing the seed of tuberous *Begonias* in pans and placing them in a hotbed of about 60°, or on a hot-water tank, the first week in February (never at any time letting them get too dry), that in about three or four weeks' time they will be up. They should then be gradually hardened off by letting down the temperature to about 50°. As soon as the young plants are large enough to handle, prick them out in pans or boxes in light compost in which there is a little peat. In this let them remain, guarding them well from bright sunshine all through March and April. In May, if all goes on well, they will require more room; therefore prick them off again in leaf-mould and fibry loam in about equal parts and a little sand. In the fourth week in May begin hardening them off, when the flowers will begin to show themselves. In the second week in June plant them out in beds or borders, when it will be found that throughout the summer they will produce a varied and grand display of bloom, which will continue in good condition until frost sets in—in all, some four months. I am now lifting the best of them where too thick and potting them for house decoration in November and December. Seed is produced freely, and from it I get both single and double flowers and of all colours, such as scarlets, whites tinged with pink, yellows of different shades, and other tints, the more showy being, perhaps, the brightly coloured kinds. My double yellows are greatly admired.—A. AGER, *Bury St. Edmunds*.

**Sweet Williams on the Grass.**—I should not have considered Sweet Williams very suitable for naturalising amongst herbage, but they appear to be quite at home where the Grass does not grow very



strongly. For several years past I have remarked some plants growing in the herbage in the partial shade of some Oak trees, and they not only grow and flower well, but seedlings come up here and there, so that in time they are likely to abundantly occupy a position into which they first came in an accidental manner. I should not have thought that they would have flowered so well in the shade, which is, however, by no means dense. When in bloom they looked very pretty, the various colours showing up much better on the green Grass than when the plants grew on the bare earth. The fact that these showy flowers will succeed under such circumstances will probably be as new to many of your readers as it was to me. I have thought it worthy of a note because there are so many places where similar positions to the one here described occur, and where so few summer blooming plants will do well.—J. CORNHILL.

**Colchicums and Tunica Saxifraga.**—For some time we have been trying to find a suitable plant for covering bare ground among the Meadow Saffrons, and for giving a little support to the flowers that have a distressing way of falling over and lying flat on the ground. In their native pastures they are held up by the Grass and other herbage, and it is only reasonable that in cultivation we should give them some compensation. *Tunica Saxifraga* we find answers well. It gives just the amount of support needed and looks right and suitable. It is a plant that, though it has some prettiness, has an insignificant look when placed by itself, and for this very reason its use for a secondary ornamental purpose, in the character of a carpeting plant, is all the more appropriate. The dusky colouring of the whole plant sets off that of the Colchicum flowers, and is in perfect harmony with it; so also are its own little flowers, a pale and feeble reflection of the Colchicum colour.—G. J.

**Violets in Somerset.**—We commenced picking Violets from the open ground early in this month, the variety being Marie Louise; Comte Brazza, growing in the same border and treated in the same way, is only just showing its flower-buds. This has been my experience of this variety from the first; it has never flowered so early as Marie Louise, nor is it quite so free a flowerer. At the same time, it is such a vigorous grower, that one can put up with such trifling shortcomings. We plant our Violets out in May quite in the open, and during very bright weather in summer they are shaded with evergreen branches stuck in between the plants. The stock this season is very vigorous, which I find to be the best condition in which to have the plants to withstand our damp climate; however carefully we may ventilate the frames, damp is sure to make itself felt amongst the leaves.—J. C. C.

**Gentians as plants for edgings.**—In one garden with which I am acquainted the old-fashioned *Gentiana acaulis* edges nearly every bed and border which it contains, and when in flower is a grand sight. Even when out of bloom it makes a good edging, and, instead of having many of our shrub border edges bare, this plant would look beautiful so used. It will grow in almost any kind of soil, and will be sure to please the most fastidious. There are also other kinds of Gentians that are very beautiful, and which in hardy flower borders make a grand show. *Gentiana decumbens* is a fine kind; it bears blooms of a sky-blue colour and flowers very freely. If planted in masses, it will produce a striking effect. *G. cruciata* is a vigorous species which grows a foot or so in height and produces numerous dark blue flowers. *G. gelida* is another very fine one, the flowers of which are light blue. It is one of the best of the tall kinds, and one that flowers very freely, and for cutting it is most useful. Lastly, there is the Heath Gentian, a kind like the old *Gentianella*; this is very dwarf, and for an edging is very pretty when profusely covered with light blue flowers. I would strongly recommend these charming Gentians to all lovers of hardy plants.—W. C. L., Stamford.

**Narcissus bicolor maximus.**—Is not the variety of Daffodil figured under this name in Moore's and Ayres' "Gardener's Magazine of Botany" (vol. iii., p. 289) really *N. bicolor* Michael Foster or Dean Herbert? One thing is quite clear, viz., that the plate does not represent the *N. bicolor maximus* (or grandis) of our present day gardens. It would be well to have this point settled now once for all in order to prevent further error and confusion.—F. W. B.

## INDOOR GARDEN.

### GREENHOUSE PLANTS OUTDOORS.

IT is a common practice with many to plant out in the open ground such plants as Abutilons, Bouvardias, Solanums, Spiræas, Libonias, Richardias, Deutzias, Salvias, Chrysanthemums, and others in early summer and lift and repot them in the autumn for greenhouse and conservatory decoration throughout the winter. The advantage of this system is that a great deal of watering is saved during summer, as the plants are better able to look after themselves when planted in the open ground than when confined to pots, but there is the drawback of the lifting to contend with, which is not always a successful matter. We have found planted-out specimens to become larger than those in pots, but as the latter receive no check in autumn they not unfrequently prove the most useful of the two in winter. This year we planted out in a border a number of Spiræas in June. Very dry weather followed, and our plants in the border are not by any means so good now as those retained in pots; indeed, we will not lift our planted-out ones this season, but allow them to remain in the ground in the hope that they will make better progress next year. Some of the Deutzias will be subjected to the same treatment. The summer this year has not been very favourable to planted-out subjects. They required almost as much water as those in pots, and where this could not be given them they suffered; good or bad, however, the most must be made of them, and it is a great advantage to take them up and have them established as much as possible in pots before the shortest days arrive. The end of September or the early days of October is a good time to take them all up.

Where the soil in which they are grown is rich many of them may have made far more roots than can be got into ordinary sized pots, and the question is, what must become of these? A good many of them, I doubt not, must be cut off, and it is much better to do this before they are lifted than afterwards. A week or more before taking them up they should be cut in and round about with a sharp spade, allowing the ball to remain just a little less than the size of the pots in which it is intended to put them. At first they may resent this rough treatment by drooping, but the flower-buds will not fall, and they will soon pick up, with the advantage that when placed in pots there will be no cramming or breaking and shaking to get them into them, and the parts cut will soon emit young rootlets of much more value than the main roots severed with the spade. As a rule, there cannot be much drainage placed in the bottoms of the pots for the reception of these plants; they root too deeply for that; only a little, carefully placed in them, has to serve the purpose, and it does so, thus affording a maximum amount of room for soil.

It is a difficult matter to carry some of them from the place in which they have been growing to the potting shed without much of the soil falling off. The better way, therefore, is to take the pots and any soil required to the part where they are growing and put them into the pots at once as lifted. After lifting and potting they should be placed in a cool house and in the shade for a time. Where there is a Peach or other fruit house being kept cool, they may be placed under the trees for the sake of the shade, and if the front ventilators are closed for a week or so, the top ones being open will do no harm. It is generally thought that a close atmosphere is best for them after being newly

lifted, and they will not, it is true, do well in a draught, but so long as a current of air does not play directly upon them no harm will be done. Shade is of more importance at first than a close atmosphere. A little sand must be used in the potting mixture, but too much of this is not beneficial. Small lumps of turfy loam are very useful, as when once the roots find their way into these blooms are sure to expand. Solanums and other berry-bearing plants cannot be handled too carefully, as ill-usage of any kind will cause the berries to drop, and the value of the plants is then gone. Those on which flower-buds have formed will sometimes drop these too, but this is more the exception than the rule, and the cutting of the roots some time previous to taking up, as well as the shading after this has been effected, will generally be sufficient to secure them in good condition. They should be watered thoroughly once after potting, and then only in the utmost moderation until young roots begin to require water. When once these begin to grow the plants may be exposed to sun, air, and all the conditions belonging to an ordinary greenhouse.

In the case of large Chrysanthemums and other plants which are only required to supply cut bloom, we are not very particular as to the size of the root space, and rather than cram them into pots we often put them into square boxes, which we find to answer the purpose exceedingly well.

CAMBRIAN.

**Anthurium Andreanum.**—Complaints are made that this *Anthurium* does not flower freely. The blooms, however, last for a long time, sometimes from six to eight weeks; still, whatever their durability may be, that does not compensate for want of quantity. One is usually satisfied to see three or four flowers on a plant, but when a single specimen (not a made-up one) has seventeen beautiful glossy scarlet flowers peeping from amongst the heart-shaped leaves, the sight is one not easily forgotten. Such is the condition of a plant now in Mr. John Marshall's collection at Taunton. It is generally understood that of this beautiful species there are two forms which, although similar in flowers, are totally distinct in habit; one is long-wooded, the other has leaves placed closer together and makes scarcely any stem; in fact it resembles *A. Scherzerianum* in growth. The latter form is the one generally most appreciated, but Mr. Marshall's plant belongs to the sarmentous form, and its flowers, as far as size and colour are concerned, are perfection itself, and it is also more floriferous than specimens with which one generally meets in this country.—S.

**Early-flowering Chrysanthemums.**—I have in one of my houses just now a row consisting of a dozen plants of large-flowered Chrysanthemums in full bloom, the flowers of which are equally as large and as good in colour and form as in November. I might have had many more a great deal earlier, but I destroyed the buds so as to keep them back until the proper time. Readers of THE GARDEN may remember that I recorded the flowering of Coquette de Castille and M. Ghys in June last; the first-named might justly be termed a perpetual, for it has been flowering ever since, and is now as healthy as possible, and has set five or six good buds. I have also had very good flowers in August on M. Comte, one of the 1884 set. The following are also in full bloom at the present time, viz., Fabian de Maderenza, Flamme de Punch, Colibri (1884); Isidore Feral, Rose Céleste, L'Aube Matinale, M. Garnier, Mandarin, Bouquet d'Estival, Roi des Précoces, and Lakme, all 1885. I may add that the early-flowering Pomponne, Lyon, produced its first perfect flower in the first week in June. This is a grand addition to the summer flowering section, and one which, along with M. Luquet, a miniature model of perfection, should be in all collections.—WILLIAM CLARK, Ferme Park Road North, Hornsey.

**Double-flowered Bouvardias.**—America would seem to have a monopoly as regards the pro-



duction of double-flowered Bouvardias; the first of this class, the white Alfred Neuner, originated there; then after a time it was succeeded by another, President Garfield—a counterpart, except in colour, of the first-named, the blossoms of the new-comer being of a delicate shade of pink. Now a third kind—Thomas Meehan—has made its appearance from the same source, with flowers of a bright vermilion-red, thus forming a series of distinct double-flowered Bouvardias. This new-comer, as far as it has yet been observed, seems to be of good free habit of growth, and as prolific in the production of flowers as the others. Its blooms do not appear to be quite so double in character as those of the other two, but perhaps this may be the result of rapid propagation, thereby weakening the constitution of the plant. If this surmise is correct, when it has become better established the flowers will show their true character, and in all probability will be as double as those of its predecessors. These double Bouvardias are very valuable for cutting, as their blossoms last much longer in that state than those of the single varieties, and in the smaller floral arrangements, such as button-hole bouquets, wreaths, sprays, &c., they are now extensively employed.—H. P.

#### CHRYSANTHEMUMS OUT AND INDOORS.

CHRYSANTHEMUM blooms are most acceptable as cut flowers late in the season. Many entertain an idea that only pot culture and glass roofs will produce a good display of this flower, and if Chrysanthemums were only grown for exhibition in the form of single flowers, I admit that these are necessary. But in my case, and also indeed in the majority of cases, growers require something more than one or two blooms from a plant after twelve months' attention, and I can safely say that, since adopting the planting out of our stock, both for pot plants and cut flowers, we get blooms in quantity out of all proportion to what we could ever obtain from plants confined to pots all the season, and with but very little labour in the way of watering and other cultural details. For producing healthy plants for the conservatory, or for room decoration, or for cut flowers for ordinary floral decoration, I can strongly recommend the following plan of culture. As soon as the plants cease flowering cut them down, for if under glass the old tops tend to draw up the young shoots weakly, whereas they must be kept as robust as possible; but those left out of doors will be benefited by the old tops being laid over the crowns to shelter them, and during severe weather some evergreen branches should be added, as, although Chrysanthemums are quite hardy, cold cutting winds wither up the young shoots. In January we take off a full supply of cuttings, selecting the sturdy shoots that spring direct from the soil, and that have usually embryo roots at their base. These are put into pots or boxes, according to quantity, set in a cold frame, kept closely shut, and covered during frost. They are soon fit for potting off into 3-inch pots. The points are then pinched out to induce a bushy habit of growth, and in April they are planted out in an open, sunny position about 2 feet apart. As soon as they start freely into growth, the points of the shoots are pinched out, and beyond keeping the ground clear of weeds, little more attention is needed until the bloom buds begin to expand, when, if needed for pots, the plants are carefully lifted and potted, setting them in a shaded position, and keeping them frequently syringed until the leaves will bear exposure without flagging. They are then removed to a vinery, or any cool glasshouse, to expand, and, by growing both early and late-flowering varieties, a succession of bloom may be kept up for several months. For cut flowers we place the plants in boxes, and set them under temporary protection until danger of severe frost renders it necessary to place them under glass, and, by keeping back the latest varieties as long as possible, we had last year as good a supply at Christmas as we usually had in November. There is no plant which we cultivate that submits to lifting and root-disturbance so well as the Chrysanthemum. Our soil being very light, we can shake it all away from the roots, and thereby get very large plants into very small pots, and it is surprising to see how soon they recover, hardly dropping a leaf through the check

thus sustained. For supplying cut flowers only we adopt the following plan: Old plants that have stood out all winter are divided in February or March, according to the season, and planted in any position where shelter can be given them; we utilise a boarded fence, as in this locality, on the south coast, storms of wind and rain are to be more dreaded than actual frost. If kept dry, it takes several degrees of frost to injure them, and for the latest supply out-of-doors we grow some in close proximity to a wall, and place a covering of mats or evergreen branches over the blooms during very severe frost. In this way we get good blooms very late in the season. I may add that, for decorative purposes, disbudding and dressing of flowers are not required; this may be safely left to exhibitors. Although we can all admire the fine examples of show kinds set up at our autumnal exhibitions, we want something else for everyday use; and as Chrysanthemums come in just at a time when the supply of other flowers begins, as a rule, to fail, they can hardly be too largely grown; being hardy and only requiring a little shelter during the most inclement periods, they are eminently suited for those who have no heated glass structures at command. With a good deal of shelter from walls and fences to carry us through November, and the latest kinds placed in a cold glass house for December and January, the work of supplying the flower basket will be made far easier than it usually is, for as soon as the days begin to lengthen a variety of subjects come in to aid the floral decorator. J. GROOM.

*Gosport.*

**Musks of different kinds.**—At a flower show held not long since prizes were offered for the best specimens of the Musk plant, and I was somewhat surprised to find that the judges had accepted a plant of *Mimulus cardinalis* as a Musk, and had awarded it one of the prizes. The old Californian Cardinal *Mimulus* is an excellent plant for pot or border culture, but it is not a Musk properly so-called, and has none of the pleasant Musk scent to be found in *M. moschatus*. It makes, however, a capital window plant, and in some parts of the country, as well as in towns, I have seen specimens of it in windows both well grown and flowered. Those familiar with exhibitions of plants grown in thickly populated districts need not be told that the common Musk is an excellent town plant, though in the more crowded parts it is difficult to get it to flower well, owing to a deficiency of sunlight. When the City Flower Show used to be held in Finsbury Circus, very fine specimens of Musk were shown, grown in some of the City warehouses, healthy and blooming abundantly. It is a plant that does well in a moist, cool, shady part of the garden. Let it be planted there and it will run freely of its own sweet will, and be a thing of beauty when in blossom. But there is no lack of Musks now. In addition to the old type there is Harrison's variety, with true Musk scent, a good grower and a free flowerer. Its golden blossoms, too, are handsomely blotched and spotted with dark brown. This sort makes an excellent exhibition plant. Then there are the new varieties raised by Mr. Clapham. One called *grandiflorus* has flowers the size of those of Harrison's Musk, but they are pure yellow and destitute of spots. Like Harrison's, it is a free grower, and makes a good exhibition plant. Then there is the dwarf and compact form of it called *Cloth of Gold*, a variety that, if well grown, makes a capital pot plant, and might be got good enough for exhibition purposes. *Ruber* is a very distinct Musk, of dwarf, close growth; its flowers are large and of an orange-brown colour. I find, if well grown, that this also makes an admirable specimen. It is to be regretted that this variety is not better known, as it is really very distinct, and the colour altogether unique. Musks well repay good treatment. If wanted for exhibition purposes they should be in a cool place and have plenty of air. If what is called drawn, they are useless for show purposes. In order to have them in flower at the right time it will be necessary, in all probability, to pinch the shoots once or twice, and constant watchfulness will be required to have the plant in good form at the right time.—R. D.

**Fuchsias from seed.**—I have now a group of seedling Fuchsias in bloom. They are the produce

of seed sown during the early part of last year, most of which flowered the same season, but the weakest did not do so. Some seeds of last year's saving were sown early this spring in gentle heat, and are now good plants, several of which will soon be in bloom. In saving the seed, I take care that it is thoroughly ripe before it is gathered. It is then mixed up with a little dry sand, and placed in the sun to dry. It is kept in this way throughout the winter, and in spring, when sowing, care is taken not to cover it too deeply. Just as the young plants come up they are rather delicate and somewhat liable to damp off, but they soon gain strength and grow away freely. The dark varieties, and also those with white corollas, both single and double, I have no difficulty in raising; but with me the light-coloured kinds do not ripen perfect seeds at all freely. Among seedling plants there are always some strong and loose in growth, even if raised from short-jointed, free-flowering kinds; others, on the contrary, are all that can be desired, and amongst seedlings one has always the chance of getting something new.—T.

#### TWO GOOD BERRY-BEARING PLANTS.

**SOLANUM HYBRIDUM AND CAPSICASTRUM**, raised from seed we grow in quantity for indoor decoration. We select the seed from plants which bear fruit most freely, and sow it in heat in the end of March. When sufficiently strong, the seedlings are pricked off into shallow boxes. In the middle of May they are planted out in a bed of ordinary garden soil in any spare place where room can be found for them. They are allowed to grow as they like through the season till severe frost is likely to set in, when they are taken up, trimmed a little, again put thickly together in shallow boxes, and stored away in a cold pit for the winter. In the following May they are planted out in rows, 18 inches apart and 12 inches asunder in the rows; rich soil is not used, as our object is to get close, short-jointed, stocky, fruitful plants. After planting and watering them in, very little attention is paid to them except to keep them free from weeds by an occasional hoeing. About the third week in September, when the berries have swelled to their full size and are beginning to colour, flower-pots of the sizes called twenty-fours, thirty-twos, and forty-eights are brought to the bed; a little drainage is put in the bottom of each; then, with a half-worn, bright, sharp spade the soil is cut straight down on the four sides of the plant to be lifted; it is then taken up; the soil is carefully reduced by the fingers into the shape and size of the pot in which it is to be placed, taking care to save every fibre possible. When this is done the ball of earth is carefully pressed into the pot, sufficient room being left on the surface to hold water enough to soak the ball of earth. As fast as the plants are potted they are watered with water to which a little liquid manure has been added, and are at once removed to the shady side of a 7-foot high hedge, where a bed of ashes has been prepared on which to set them. Here they remain till they are taken into the greenhouse or cold pit in the middle or end of October. After the first soaking with water they do not get much more till they make fresh roots, but they are syringed once or twice a day if the weather is hot and dry. Under this treatment they scarcely lose a leaf. When taken into the greenhouse some of the most forward are placed in an intermediate temperature, where they soon become a mass of bright red berries. There is scarcely anything in the way of decorative plants that can be grown with less trouble, or that requires less artificial warmth. They have always a bright cheerful appearance, and the berries are very persistent if the plants are kept properly cared for in the way of watering after they are taken into the rooms. Considerable quantities of these *Solanums* may be kept in a comparatively small space, as they may be set closely together after being taken into the greenhouse. All the growth will have been completed, and not much harm can come to them from a little crowding. Has *capsicastrum* ever been used grafted or inched to form heads as standards? I have not met with anyone who has seen it so treated, but I know that it will do very well worked on *Solanum marginatum*. We have a plant of it about 2 feet high growing in this



way, and it does very well; it is looked upon by most people who have seen it as being rather unique.

R. L.

#### WINTER-FLOWERING FUCHSIAS.

ALTHOUGH great improvements have been effected in all soft-wooded flowering plants, few, if any, have made such rapid strides as Fuchsias, which seem to have had the special care and attention of skilled hybridists, one of whom, Mr. Banks, has been exceedingly successful in raising new varieties; most of the improved kinds have originated with him, and Mr. Dominy has been working skilfully on the evergreen species, and has produced several winter-flowering kinds, two of the most noteworthy being *exoniensis* and *Dominiana*, kinds with very long blossoms, produced in racemes at the ends of the shoots. The old *serratifolia* blooms in the same way, and is a fine kind, coming in naturally very late in the autumn. The soil most suitable for Fuchsias is good fibry loam, mixed with broken horse droppings or thoroughly decayed cow manure and a little leaf-mould, together with a sprinkling of sand to keep the whole open and porous. As soon as the plants are potted in this mixture, they should be again placed in a close, warm house, where the atmosphere is moist, and if syringed during the afternoons of bright days the young shoots will soon lengthen, when, to make them break back, and so form foundations for good specimens, they must be stopped by nipping out the points, and after a month or so, this operation ought to be repeated, and the same again later on if the plants are not wanted early in bloom. The shifting on must be done according to the amount of root-growth, but directly these are well through the ball, it is time to give more room and soil, which should be of the same kind, rammed in somewhat firmly, as then the plants grow sturdier, and make shorter jointed wood. To encourage them to do this, they require full light and a fair amount of air, with no shade till late in the season, and then only a very thin one, or the shoots will be weak and drawn, in which state they do not flower with anything like the freedom they do when the plants are more fully exposed. The natural habit of Fuchsias is such that they always look best either as standards or in a pyramidal form, ways in which they show off their elegant pendulous blossoms to the greatest advantage; but stakes beyond such as are absolutely necessary for their support should not be used in training them. A good way of supporting pyramids is to have a stout stake for the main stem, and small wires running down from the point of it to an iron hoop secured to the pots; to these the side branches may then be made fast, and as the shoots grow they will hide all below, and droop in a regular manner. Standards only require a single stick to each head; and the way to make good plants of these is to select young ones that have nice straight leading shoots; rub out all buds up the sides till they reach the height required, when the tops should have the points nipped out, and if the shoots made afterwards are again stopped, fine bushy heads will be formed. For the generality of people, good stocky, well-furnished, small-sized young plants are best, and these may be got by propagating in the autumn and growing the fresh struck cuttings on slowly during the winter, which is easily done by keeping them in a warm pit or house, where they can have a temperature ranging between 45° and 50°. Here they should be kept moist, and about February shifted on into larger pots. Cuttings put in now, or even after this, will make good, well-furnished plants, as they strike quickly in any hotbed, or under a close handlight or bell-glass in any warm house. During summer, when glass room could not well be spared, I have grown capital little Fuchsias by plunging them in a border where they got a little shade from a wall; the wood they made there was very firm and short-jointed, and the shoots as a consequence became laden with flowers. To have these large and fine and keep the plants on blooming, they must be well fed by giving plenty of liquid manure, but not strong, as it is better to give it frequently in a diluted form than overdose them at any one time. After blooming, place them outdoors to ripen, and when frost is apprehended they should at once be housed, a shed or cellar being a good place in which to winter them, as they do not require light; but they must

not be allowed to be quite dry, or the wood will die back, and the plants, if they live, will have much difficulty in breaking again. Although Fuchsias are not generally grown suspended in baskets, they are well adapted for that purpose, and are exceedingly ornamental elevated in that way, and help to furnish the roof of a conservatory or greenhouse almost better than anything else. [The sorts most suited for baskets are the loose drooping-habited ones, which when just above head height show off their pendent blossoms to the greatest advantage. Not only are Fuchsias good for baskets, but some of the stronger kinds are capital for training up pillars or rafters, where they are equal or superior to many climbers, and yet they are not half so much used for this work as their merits deserve. Excepting green fly, which assail the shoots in their young state, the plants are not subject to insects, and all that is necessary to keep them clean is an occasional fumigation with tobacco or tobacco paper, which should be used cautiously on two or three nights in succession.]

S. D.

#### *Pachyphytum bracteosum* under glass.—

I have just been examining some flower-spikes of this handsome succulent, and I find that the blossoms well repay inspection. There is first the outer, grey, shell-like calyx, in four divisions, and within are the maroon-coloured petals, and within these, again, a mass of bright pale green stamens. A strong plant throws up vigorous flower-stems, and these bear many blossoms, and they assume a pendent character, which gives them a graceful appearance. For years past I have been endeavouring to solve the problem of how to get a good display of flowers in summer and of foliage in winter in a somewhat roomy greenhouse, much exposed, open underneath, and without artificial heat. It is easy enough to have a supply of cut flowers in summer, and by means of *Chrysanthemums* almost down to Christmas, if the weather keeps open and fairly dry; but it is not so easy to have a pleasing effect during winter. To secure this I have a collection of evergreen-foliaged plants, green-leaved, variegated, and berried; and among them I find the *Pachyphytum* most valuable, especially when it has grown into plants a foot in height. I call it a hardy plant. I have specimens that stood through the bitter winter of 1881 untrained and without fire-heat, and a plant that will do that deserves to be termed hardy. Damp is much more injurious than frost. I have had to witness with sorrow the rotting off of plants at some points of the stem—generally near the surface—though the soil about the roots has been kept as dry as possible. Happily, this does not very often happen, but I instance it as one of the dangers besetting the plants in a cold house during the winter season. It is not difficult to propagate, and I do it by laying some of the older fleshy leaves on the surface of well-drained pots of light soil after sprinkling over it some silver sand. All that is required is that the base of the fleshy leaf shall just touch the surface. I do this in spring, and then stand the pots on a shelf in the house in the sun. A number of them will root, and in two seasons grow into nice plants. It is an attractive subject at all seasons of the year, and it well deserves the attention of amateurs who have to grow a few plants during winter under great difficulty.—R. D.

#### New way of growing Hyacinths in glasses.

—Some years ago I was called upon to furnish every year three dozen Hyacinths for a London conservatory. There was no fixed time for them to be in flower, but they were required to be in the best possible condition, that is to say, the spikes of flowers were expected to be fairly uniform in height and well developed. I tried various plans of growing them, but I found I had much the best results when the glasses were filled with water in the usual way, with the base of the bulb just touching the water and then burying the glass, bulb and all, in the ground close to a warm wall, the top of the bulbs being of one uniform depth of 2 inches under the surface. This was done about the middle of October. In frosty weather old mats were placed over them, or long litter, according to the severity of the frost, and that was all the attention which they had while they remained there. As a rule, the leaves were peeping through

the soil about the middle of February, and this was the signal to take them up. They were then taken to a cool greenhouse and kept dark for a few days, when they were gradually allowed more air, and this treatment was continued until they came into flower, and I think finer Hyacinths could not possibly be grown in water than they were. As to coddling the bulbs in any way, I do not agree with it; changing the water does more harm to the roots than it does good, and as regards the health and growth of the bulbs, placing charcoal in the water is quite harmless, either for good or evil. I always used rain or pond water.—J. C. C.

#### BRIGHTLY COLOURED DRACÆNAS.

AMONG stove plants few, if any, are more ornamental than Dracænas, especially the coloured-leaved varieties; they brighten up beautifully under artificial light, and this renders them of great value for dinner-table embellishment or the decoration of rooms, where, during summer, they will stand in spite of dry air and dust, and retain their healthy appearance for a very long time. To enable them to do this all that is necessary is to keep them properly watered and sponged, the latter being a very important matter, as without it the pores get choked up. To get up a stock of Dracænas is an easy matter; they may be propagated by cutting up their woody stems into lengths of about an inch or so, by means of the big fleshy roots, and by striking the tops. This latter is a good plan when it is desired to get a dwarf well-furnished and highly-coloured plant. The best way in which to start is to get a small flower-pot and split it in half, when the two pieces may be placed on each side of the part to be operated on, brought together, and then tied. This done, the next thing is to fill the pot with sharp sandy soil, and if this is kept wet roots will soon strike into it, when the head may be taken off and potted in a larger pot. In dealing with the stem, it should be cut straight across, so as to divide it in pieces about an inch or so long, all of which pieces may be split down the middle, and then laid, with the cut part down, in a pot or pan filled with sharp sandy soil; after that they should be covered with sand and watered and then placed in a propagating box where they can have a brisk moist heat, which will soon cause the wounded parts to callus or heal. As soon as shoots can be seen well above the soil, it is time to pot the young plants, which should be done in small pots, using a mixture of peat and loam in about equal parts, with a dash of sand to keep the whole open. The way to manage with the roots is to shake the earth from them, when they may be broken or cut off, and treated precisely the same as the short portions of stem, except that they must not be split or divided, but put in whole, and they will then send up strong shoots. Dracænas require but little root room, and may therefore be grown in small pots; this makes them hard and serviceable for vases, and specially fitted for the purposes already mentioned. Although the better kinds need heat, and are classed as stove subjects, it is surprising the amount of cold and hardship they will bear without showing signs of distress; they will stand and look well in an atmosphere vitiated by gas long after other plants would succumb. In conservatories or greenhouses they are just at home during the summer, but to fit them to stand there or in rooms they should be hardened off a little, by giving them less warmth than they have been grown in, and full exposure to light, which will help to brighten their colours. A few years ago there were not many varieties of Dracænas, but since then hybridists have been successful in crossing the different sorts, with the result that we have now numbers with foliage very varied and beautiful. The leaves of *D. nigro-rubra* during their early stages are very dark, but as the plants gain age and send up young ones they come of a deep crimson, and afford a fine contrast. *D. Guilfoylei* has light greenish foliage, striped and marked with rich creamy white and occasional streaks of pink, which make it very attractive. *D. amabilis* resembles the last-named, but is altogether a larger grower and stronger in habit, as well as of a hardier constitution, which enables it to live in a greenhouse. One of the best is still *D. terminalis*, the young leaves of which are scarlet, and



remarkably telling when the light is shining through them; this renders it a great favourite for market, where it is sent in thousands, and always meets with a ready sale. *D. albo-rosea* is a bold-habited kind, having leaves about 18 inches long and 3 inches wide, with a glaucous green centre and rose-coloured border, the young foliage being more delicately tinted with similar colours. *D. excelsa* is another fine sort, the foliage of which is of a deep bronzy cast, margined with magenta-crimson. *D. Shepherd* forms a striking object in a conservatory, where it is sure to arrest attention on account of its bold outline and showy appearance. *D. Cooperi* must not be forgotten, as, though it is an old variety, it is still one of the best, as not only is it rich in colour, but the leaves arch over in the most graceful manner, and give it an elegant look when standing in a vase on a pedestal or table. These are a few of the best. S. D.

#### WINTER-FLOWERING PLANTS.

WHERE a good supply of flowers during winter is required, no time should be lost in getting plants prepared to produce them. After trying a great variety of winter-blooming plants, I can confidently recommend the following as being sure to give satisfaction. They are naturally winter or all-the-year-round bloomers, and flower freely in what is usually termed an intermediate temperature of about 55°. *Chrysanthemums* I regard as the best of all plants for furnishing a quantity of bloom during December and January, the most difficult period to provide for, as in February Dutch bulbs and flowering shrubs can be had. For flowering in mid-winter, *Chrysanthemums* must not be propagated before March or April, when there is usually plenty of good healthy cuttings to be got. We strike them in boxes, and, as soon as rooted, get them out in an open sunny position. When well hardened off, we plant them out about 1 foot apart in any good kitchen garden soil, and keep them stopped, so as to make them bushy, until the beginning of August, when they are allowed to grow naturally. Beyond keeping them supplied with water, no other attention is needed until they are lifted and potted, which is usually done in the first week of October. They are then set under the shelter of a wall, or in a cool airy house, and kept as cool as possible, only shutting the lights when sharp frosts prevail. By selecting the latest Japanese varieties and growing them in this way we get plenty of bloom from Christmas until the end of January. The blooms are smaller than from plants that have not been stopped, but for decorative purposes they are all that can be desired. *Schizostylis coccinea* is a brilliant flowered hardy plant with spikes of bloom like those of some small *Gladiolus*; its natural season of flowering is the early part of winter, but if fully exposed to alternate frost and thaws the blooms get discoloured. We therefore lift clumps of it in September, put the best in pots, and the others we plant in frames, or cover them with movable sashes. By this means we get a full supply of this most useful flower. *Helleborus niger*, or Christmas Rose, is, as its name implies, one of the very best plants that can be grown for winter flowering. Large clumps of it in pots set in any cool house will yield hundreds of blooms. We also make beds of them, and as soon as the flowers begin to show through the soil, put stout boards all round the bed and lay glass lights over it, covering with mats if frost is very severe; but if the plants are kept dry and clean, they are not easily injured by cold.

*VERONICAS* of the *Hendersoni* or *subsessilis* type are excellent winter-flowering plants; they flower, indeed, continuously if protected by glass. Small plants from cuttings struck in autumn and planted out in spring make bushy specimens for potting in 5-inch or 6-inch pots, and larger bushes if lifted and planted on the floor of a vinery yield a quantity of flower-spikes for cutting; the variegated variety of *V. Hendersoni* is always welcome. *Iris reticulata* if potted now, putting from three to five bulbs in a pot, and placing them in a cold house or pit, will flower during the most inclement period of the year, or, planted out and protected by means of glass, will yield beautiful flowers for cutting. Roman *Hyacinths* are invaluable as companion plants to this *Iris*, but

they require a little warmth in order to get them to produce good long spikes. We put three bulbs in a 4-inch pot, but for cutting we force the majority in ordinary cutting boxes, putting about twenty-five bulbs in a box of light rich soil, and setting them under the stage of a greenhouse until the blooms are ready to expand. They are then brought up to the light, and good bulbs yield several spikes of the purest white sweet-scented flowers. *Eupatorium odoratissimum*, with its light, feathery heads of white flowers, is most useful for cutting. We cut the old plants down close early in spring, and when they have broken nicely into growth, plant them out of doors in April in the kitchen garden, and beyond pinching out the points at midsummer they require no other attention except giving them plenty of water in seasons like the present. By September they are fine bushy plants, covered with flower-heads, and must be carefully lifted, potted, and placed in a cool house. When placed in heat they will, as a rule, keep on flowering at a time when white flowers are in great request.

*Cyclamens* and *Primulas* are never more useful than when got into flower about Christmas, and it is wholly a question of starting them early whether they succeed or not, as they will not stand forcing. A warm greenhouse, with shelves near the glass, is the place for these most useful winter-flowering plants. *Sparmannia africana* is one of those good old-fashioned plants that ought to be found in every garden. We give our plants of it a good shift after they have done flowering in spring, and return them to the greenhouse until the summer is fairly advanced, when they are set out of doors and kept well watered until September; then they will be covered with flower-buds and must be returned to the conservatory, where they will flower all through the winter. The white *Abutilon Boule de Neige* we treat in the same way, and it is never out of bloom, every leaf having a bunch of pure white flowers at its axil. These may be taken as a selection of the many good things that make our greenhouses gay without anything approaching what may be called forcing.

Gasport.

J. GROOM.

**Tropæolum azureum.**—Many who attempt to grow this *Tropæolum* commit the error of deferring the potting of the tubers until too late a period. If a tuber is in congenial circumstances it will of its own free will push into growth in September. It will, therefore, be seen that potting should be done rather before that time, and that the advice so often given to pot in October and November is wrong. As a fact, the plants should have made good growth by that time. In order to form good specimens of this *Tropæolum*, sound two-year-old tubers should be procured, and when these are to be purchased take care to get them before they have begun to grow. The compost for them must be friable, for these little climbers are by no means coarse-rooted, and cannot make good progress when the delicate fibres are enveloped in a hard or sour mass of soil. The mixture that I recommend is leaf-mould, peat, and loam in equal parts, adding quite one-sixth of the whole of silver sand, together with a few nobbs of charcoal. The size of the pot will be in accordance with the requirements of the grower, as if large specimens are desired for conservatory decoration, two or more tubers may be placed in an 8-inch pot, but really good effective plants may be grown in 6-inch pots, and for window decoration and many purposes 4½-inch pots will be large enough. No matter what the dimensions of the receptacle may be, the drainage must be ample, and so disposed as to obviate all danger of stagnation. For the large size 2 inches of crocks will be none too much, and on these should be laid some fibrous peat, which will guard against all danger of choking, and the drainage will remain free and open in good working order until growth is completed; use the compost in a state between dry and wet, make it firm, but not hard, bury the tubers some half-inch under the soil, and water gently to moisten it through. This done, plunge the pots quite to their rims in a cold frame, water again gently, and cover the surface soil, pots, and all thickly with Moss or old pieces of mat. Upon this part of the work being well carried out depends the future pro-

gress of the plants; this plunging of the pots forms indeed the keystone of success to the culture of *Tropæolums*, for the soil being thereby preserved in an unvarying state of moisture, a slight sprinkle now and then in hot weather being enough to keep it in good order, a large amount of roots is made, with the consequent effect that the young growths push forth with great vigour, making as much progress in one week as they would otherwise do in a month.—S.

#### NOTES OF THE WEEK.

**Fruit** is almost a drug just now in the London markets. Plums have been bought in the Borough Market as low as from a shilling to fifteenpence per half bushel, or about a halfpenny a pound. Nuts, too, are very cheap, and so are Pears.

**Autumn Violets.**—A beautiful bunch of *Marie Louise* Violets has reached us from the garden at Holker, near Carnforth, where Mr. Fox tells us he has been gathering excellent Violets out-of-doors for these last six weeks. The northerly situation and moist atmosphere have doubtless favoured the production of early autumn blooms.

**The Irish Heath** (*Daboecia polifolia*) seems to be less known than it should be. "There's a pretty plant; what is it?" is not an unfrequent question asked on seeing this emerald gem when in full flower. Growing in a peaty bed, shaded from the mid-day sun and well supplied with water, it has been a bright spot in the rock garden since early summer, and promises to hold out for a few weeks longer. There are white, red, and rose-coloured forms of this plant, and grown in separate patches they are extremely pretty, but intermixed they are even more striking. It is one of the easiest of the Heaths to increase, layered branches rooting freely; even cuttings strike root in a few weeks.

**The Heleniums**, from the fact of *H. pumilum* having lately gained a first-class certificate, are likely to come prominently into notice, and seeing that they are capable of further development under good cultivation, a little attention paid to them may prove profitable. *H. grandiflorum*, a new one lately introduced, produces very fine well-formed flowers, the disc of which is black and gold, surrounded by pretty golden yellow rays. Near to this comes *H. Bolanderi*, a much earlier flowerer, however, the former just coming in time to take its place. *H. autumnale grandiflorum*, a variety known in the trade as *H. grandicephalum*, is, perhaps, the handsomest of the genus. It has a fine compact habit and is extremely floriferous. The individual flowers measure from 3 inches to 4 inches in diameter, and their discs are darker than the rays. It is an excellent plant for our mixed autumn flower borders.

**Single Dahlias.**—White single Dahlias are so much sought after, that we would like to direct attention to the apparent neglect of *D. Mercki* and its varieties. At the Crystal Palace, and indeed at most of our shows, we did not see a single bloom of *D. Mercki* staged. It is no doubt small, but small Dahlias, as well as other things, may be admired and become popular if that be the only objection. The colour ranges from pure white to lilac; the form of the flower is faultless, and the habit of the plant, which is dwarf and compact, fits it well for the second, or even the first, row in a mixed border. It is a useful kind for cutting, the flower-stalks being long and clean. A bed of it is very effective, so very neat and dwarf do the plants keep, and the flowers last a considerable time in beauty.

**The Hedychiums.**—Flower-spikes of both *H. Gardnerianum* and *coronarium* have reached us from the Cromer Hall gardens. The spike of the first-named is uncommonly fine, being as much as 16 inches in length, forming a huge cylindrical mass of yellow flowers with red filaments. The flowers of *H. coronarium*, popularly called the Garland Flower, are pure white, much larger than those of *Gardnerianum*, and delicately scented. Mr. Burn, the gardener at Cromer Hall, states that while the flower-spikes of *Gardnerianum* last but a few days, those of *coronarium* endure for as long as six weeks, as flowers open in succession at the tip of the spike instead of



being all expanded at once, as in the case of the other species. Both are noble plants for conservatory borders or beds at this season, and, so far as our experience goes, we find that they succeed best when planted out in good soil.

**Sunflowers.**—No Sunflower, to our thinking, among the annual varieties is half so effective as *Helianthus argophyllus*, the flowers of which are well formed and really beautiful, and its silvery foliage makes it attractive as a fine-foliaged plant. At Joldwynds, where we saw it in a mixed border, it was very fine, towering above other plants. A seedling raised last year from this plant is likely to be an acquisition. It is, if anything, more robust than the type, with perhaps just a trace of *H. annuus* in it; the flowers are, however, larger, more graceful, and more compact in form. Isolated and well attended to, these Sunflowers make really handsome plants. Some kinds lately introduced from Russia, the seeds of which are said to be eaten so abundantly, that the streets are strewn with their husks, produce extremely large flowers, a disc minus the rays often measuring 14 inches in diameter, the rays adding perhaps 3 inches or 4 inches more to the breadth.

**Cyclamens**, as represented in the wild garden at Kew growing in large patches, form quite a striking feature. *C. repandum*, probably better known in gardens as *C. hederaefolium*, is now flowering beautifully along with various *Colchicums* and autumn *Crocus*. This *Cyclamen* has been successfully naturalised in Cornwall, and there is no reason why its naturalisation should not become general in our woods and waste places. It likes damp shady spots, and its pink and white flowers are very ornamental; its foliage, too, is beautifully marked. It is not, however, produced along with the flowers, but afterwards. After the blooms have faded the flower-stalks twist up spirally, like a corkscrew, enclosing the seed vessel in the centre, and drawing it under the shelter of the leaves which serve as a protection to the seed during severe weather, and again expose it when brighter and warmer days set in. The seeds ripen in June and July.

The autumn *Colchicums* remind us, if a reminder is necessary, that the bulb season proper is fast approaching. Their ever-welcome flowers are just now making a good show, and at Kew, where they are being naturalised in the wild garden, and also in the vicinity of the pond near the Palm house, they have a striking effect. They seem quite at home, gaining strength, which means an increase of blooms, every year. The kinds chiefly employed are the old *C. autumnale* and *C. variegatum*. The tessellated *Colchicum*, *C. speciosum*, a noble kind, shows a wonderful variation, some being nearly as large again as those usually grown, although the colour has improved little if at all. *C. byzantinum* is also worthy of attention; it seems to come exactly between *autumnale* and *speciosum*. It has faultlessly formed flowers, not so deeply coloured as those of the latter, and pale almost white in the throat and base of the segments. *Bulbocodium vernum* and *trigynum* are also now in flower; the former, very dwarf and handsome, is just peeping above ground.

**Hoya imperialis.**—This somewhat remarkable climbing plant is now finely in flower in one of the stoves in Mr. Crowley's garden at Waddon House, Croydon. It is among the handsomest climbers with which we are acquainted, quite a giant among Hoyas. It has the characteristic growth of other Hoyas, large fleshy leaves and slender stems, and the flowers are produced in umbels terminating the shoots. On the Waddon House specimen there are over a dozen flower clusters either in flower or bud. The flowers, which are produced from six to twelve together, measure about 2 inches across, in shape like a star, having five points. They are fleshy and peculiarly tinged with chocolate-brown, while the centre is white and wax-like. When the flower clusters are expanded, the plant has an appearance different from that of any other climber with which it is associated. It is now about forty years since this plant was introduced from Borneo, yet it is still a rare plant and very seldom seen in bloom. Judging by Mr. King's success in growing and flowering it at Waddon, it likes to be dealt with liberally. It seems to want plenty of heat and moisture and good

soil. The flowers endure some weeks in perfection, and, like other Hoyas, the flower-stalks are perennial, developing an umbel at their extremities each successive year.

**Nymphæa Sturtevanti.**—Some time ago we were informed of the beauty and distinctness of this new hybrid Water Lily by its raiser, Mr. Sturtevanti, of New Jersey, after whom it is named, and we have this summer had an opportunity of noting its merits through a plant at Kew which has been in flower for several months, and is still in fine flowering condition. It has a leaf-blade over a foot in diameter, the margins toothed and waved, and the colour a pale green, with yellowish broad veins; when young the colour is bronzy green, and in the centre at the base of the sinus is a conspicuous crimson blotch. The flowers are 8 inches across, cup-shaped, the petals and sepals semi-erect or curving slightly inwards, instead of outwards, as in other *Nymphæa* flowers, the sepals ovate,  $3\frac{1}{2}$  inches long by 2 inches wide, the outer whorl of petals the same size as the sepals, the points rounded and broad, not pointed acutely, as in *N. rubra*. The colour of these large distinct-looking blooms is a deep rose, shaded with crimson, whilst the centre of the cup is occupied by a cluster of orange-coloured stamens. It will be seen from this description that *N. Sturtevanti* differs very much from the other red-flowered *Nymphæas*—viz., *N. rubra*, *N. devoniensis*, and *N. ortgiesiana*, both in the form and colour of its large flowers and in the peculiar tint of its leaves.

**Gastronema hybridum.**—A few hybrid plants may fairly be considered as being in some way superior to their parents either in floriferousness or in size of flower or in colour, but we think by far the majority of them are nothing other than a step in the wrong direction, and in the case of the above plant, which is said to be the result of a cross between *Vallota purpurea* and *Gastronema sanguineum*, we have a good instance of this retrograde work. There is not much room for improvement in the usefulness and beauty of the old *Vallota*, which anyone can grow and flower as well in a cottage window as in a greenhouse. Its colour is intense and clear, and the size and form of its flowers are all that could be desired. Of the *Gastronema* parent we cannot speak quite so highly, though it is a beautiful plant when well managed. Of the hybrid we can speak from having seen a plant of it at Kew, and certainly there cannot be room for two opinions as to its being inferior to the *Vallota*. The colour of the flowers is washy, and they lack the substance of the *Vallota* flowers. Considered in the light of a break from which good results may in time be obtained, this hybrid is of course interesting, as also it is when viewed from the botanist's standpoint, owing to its being the offspring of two distinct genera, but as a garden plant it falls short of the *Vallota*.

**Aralia amboinensis.**—This is one of many plants which are called *Aralias*, owing to their resemblance in some point or other to the true species of that genus, but which, when properly identified, prove to be not *Aralias* at all. Such are the *Sonchus*-leaved plant known as *Aralia sonchifolia*, but which is a *Meryta*; *Aralia splendens*, a species of *Panax*, and many of the *Panaxes*. A sturdy specimen of *A. amboinensis* has recently flowered at Kew, and turns out to be a new species of *Heptapleurum*. It has leaf-stalks about 2 feet long, curving downwards, the apex suddenly twisting up and bearing a number of stalked leaflets which radiate from the centre like the spokes of a wheel. There are from twelve to eighteen leaflets to each leaf, and they are 8 inches long, ovate-lanceolate, with a long, tapering point, and a stalk 2 inches long. The stem of the plant is erect, thick, 2 feet high, and bears at its apex a branching panicle of tiny flowers, which are succeeded by numerous berry-like fruits, both flowers and berries being very like what are produced on the common Ivy. When young this plant is sufficiently ornamental to be useful for table decoration, and it seems likely to reproduce itself freely by means of seeds.

**Solanum trilobatum.**—This is an addition to our cultivated climbing *Solanums*, of which the hardy old-fashioned *S. crispum* and the pretty greenhouse

white-flowered *S. jasminoides*, are well-known examples. *S. trilobatum* comes from India, and is apparently a stove plant, as it has grown freely and flowered well in the house devoted to tropical Water Lilies at Kew. It has spiny green stems and leaves, the latter 2 inches or 3 inches long and three-lobed, and on the ends of the young lateral branches its flowers are produced, generally about four flowers together. They are deep blue, saucer-shaped, and  $1\frac{1}{2}$  inches across, the cluster of anthers in the middle being yellow. As the flowers fade, they gradually change to a pink and brown colour, and after they fall the little berries appear, which at present are round, as large as Peas, and green striped with white. The habit of the plant is somewhat straggling, which, however, may perhaps be remedied by judicious pinching and training. It is not a plant to please the million, but still worthy of a place in large collections. A picture of it has been prepared for the *Botanical Magazine*. By the way, does anyone know whether *S. reflexum*, a pretty climbing stove species with racemes of purplish flowers, is in cultivation now? We once saw a large specimen of it in beautiful flowering condition in an old-fashioned garden, but it is not there now.

**Notes from Baden-Baden.**—*Hibiscus palustris grandiflorus* has been for some time, and still is, in great beauty; its flowers, which are numerous, are 5 inches across when half open, pure white with a bright crimson throat. *Acidanthera bicolor*, the white and black Abyssinian *Gladiolus*, is flowering well just now; its flowers are suitable for button-hole bouquets, and keep fresh for some hours; they are deliciously sweet-scented. *Sternbergia angustifolia*, the Hungarian variety of *lutea*, is also in great beauty just now; its flowers, which are large like those of a *Colchicum*, harmonise well with the dark green foliage, and keep good for many days. *Caryopteris Mastachanthus* has just opened its first flowers, which are blue and feathery; I wonder how it will stand the winter. The dark green carpet of *Androsace lanuginosa Leichtliniana* is covered with numerous pure white, crimson-eyed blossoms like those of some *Verbenas*. By carefully selecting breeders I have succeeded in obtaining a variety of *Primula capitata*, both plants and flowers of which are twice as large as those of the type; if sown very early they flower freely about this time of the year. *Lilium Wallichianum* is showing its large white trumpets, and, apart from its non-hardiness, seems easy to cultivate. That best of all *Belladonnas*, *Amaryllis Belladonna rubra major*, is producing a glorious umbel of very large flowers, the colour of which is a bright deep rose. *Vallota magnifica*, introduced by the New Plant and Bulb Company, Colchester, is a very distinct species, and, though neither the colour nor the shape of the flowers is so brilliant or well formed as in *V. purpurea*, yet *magnifica* is likely to become a favourite; its constitution seems very robust. —MAX LEICHTLIN.

**The Dittany of Amorgos** (*Origanum Tourneforti*), sometimes found in gardens under the name of *O. pulchellum*, is said by Miller to be a hybrid, and by him referred to common Marjoram. He says, "It is undoubtedly a variety produced from intermixing the farina of the Cretan Dittany (*O. creticum*) with that of Mount Sipyleus (*O. sipyleum*), for the plants in the garden of the Apothecaries' Company were accidentally produced from the seeds of one species where both sorts stood near each other in the botanic garden of Mr. John Browning, at Chelsea." Miller had also dried plants of another variety, which arose from seeds in the Leyden Garden. These seeds were sent from Paris under the name which Tournefort gave to the kind which he found in the Levant. The leaves of this variety are as large as those of *O. Dictamnus*, but not so thick or woolly; the habit is more like that of *O. sipyleum*, but more branching at the top. Whether hybrid or not need not concern us much, but the value of *O. Tourneforti* as an ornamental rock plant can hardly be gainsaid. It stands our winters extremely well, and is just now one of the few features of interest in the rockery at Kew. Its long, much-branched flower-stems with their curious Hop-like bunches of reddish purple flowers, are almost unique. It does best on a dry shelf or slope, and may be readily increased by means



of cuttings. *O. Dictamnus*, a nearly allied species, has much the same habit and coloured flowers, but the leaves are covered with a silky wool, and it rarely stands a severe winter, even in the most sheltered localities. It is an old garden plant, having been cultivated as long ago as 1563. Some of the varieties of the common Marjoram even are not to be despised as border plants, being both pretty and useful. They should find a place where they can be seen, instead of being planted in an out-of-the-way corner, and made to serve culinary purposes only.

#### NOTES ON RECENT NUMBERS.

**Nectarines** (p. 286), somehow or other, never seem to be so popular as Peaches, and yet to many people they are one of the best of fruits. Of good flavour, "good appearance," and free bearers, gardeners ought to be much interested in them for supplying such useful dishes for dessert. Sufficient attention, as a rule, is not paid to flavour and quality in the different sorts, and some which are greatly wanting in this respect seem to be generally grown because the fruits are of a larger size than the others. It is no doubt the same with Peaches, but what is more useless on a dinner-table than an enormous Peach, the very size of which is sufficient to deter people from taking one? Nothing is more juicy and delicate in flavour than a well-grown Nectarine; but the best variety of all—the white one—seems by far the scarcest, and, I suppose, is not known in more than twenty gardens in England; at all events, one never sees it mentioned, and it does not appear in trade catalogues. Those who have seen and tasted it are not likely to forget it, and though it has not the bright colour of the others, it is one of the largest. We had an old tree of it for a great many years which, I regret to say, is now dead, but it supplied a good many grafts during its day that I hope will flourish and perpetuate its good name.

**Exhibition and table Potatoes** (p. 287).—The distinction between the two, according to Mr. Muir's article, seems to be plain enough; the one is meant to be eaten, the other to be looked at; but the object and use of a class of Potatoes which any decent cook would probably put straight into the pig tub is not so easily arrived at. Florists have their "foibles," and are often pretty well abused for them; certainly the rules laid down for the attainment of perfection in a flower appear to many very arbitrary and unnecessary. Still, the general feeling among their opponents is that "it pleases them and does not hurt us," and their successes in many cases are freely acknowledged by all. The points which constitute a perfect vegetable, as laid down by the ordinary run of judges at a prize show, seem quite as arbitrary and open to question; and the honoured dish which has gained the first prize, be it of Potatoes or Peas, is not always the one which even the judges themselves would feel least hesitation in choosing for their own domestic consumption. In all discussions as to the relative value of different varieties of the same vegetable, proofs of this are constantly cropping up, which, however, do not serve in any way to explain the mystery of why it should be so. I never could understand why "colour" should be made such an essential point in Grapes, for it is not a criterion of either sweetness or juiciness, and a heavy colour is often put on at the expense of the keeping qualities of the fruit, and as far as appearance is concerned, though the bunches may look well in a vinery by day, at night by candle or lamp light they appear as a heavy black mass without roundness or shading. The presence of bloom on fruit is quite a different matter, for it is always a guarantee of freshness and clean but little handling. The fact that the chief aim and object in growing both fruit and vegetables is in order that they may be eaten would appear sometimes to have escaped entirely the memory and observation of the judging brotherhood.

Sussex.

C. R. S. D.

**Seedling Dahlias** (*A. Campbell*).—The flowers arrived in better condition this time, but still somewhat damaged. No. 1 we like much, being large, of good shape, and of a delicate tint. No. 3 is a bright colour, but very similar to many other named varieties. No. 2 is valuable for its colour—a soft bluish pink. Without actual comparison we cannot see how far your seedlings are distinct from or superior to others.

## FRUIT GARDEN.

### VINE BORDERS.

THE question relating to Vine border-making cannot be settled by selecting isolated cases; it must rest on facts collected over a wide range. It will then, I think, be found that in eight cases out of ten the cultivator has had but little choice of materials—no crushed bones, charcoal, or other ingredients so often recommended as essential to successful Vine culture. It has been proved, in short, that expensive ingredients of this class are not absolutely necessary in order to grow good Grapes. What, then, is the composition of the soil which plays such an important part in the production of fine Grapes? I know that it is easier to ask such a question than to answer it satisfactorily. Nevertheless, I will attempt to do so. A sandy loam is undoubtedly the kind of soil that will produce the best Grapes, all other things being equal, and the worst material is that class of sticky loams that incline to clay, and which turn into a compact mass. The soil that I prefer for Vines is one made up of fine particles, with sufficient gritty matter to keep it open. In a word, a soil that feels soft and kindly to the fingers will invariably prove to be a suitable soil for Vines. It has been the practice to prefer the top spit of a pasture for Vine borders, but I have long since learned that there is not so much virtue in turf soils as has been ascribed to them. The fibrous matter for which they are so much valued decays in a year or two, and then their virtue is gone, and the open character which has been claimed for them is also at an end. All becomes a solid mass, and retains more moisture than is good for the roots. Grape growers have found this out, and in order to counteract such solidity, lime, rubble, charcoal, and similar opening materials have come to be looked upon as a necessity in the formation of Vine borders, with the result that the making a Vine border is now looked upon as a costly undertaking; much expense is, however, unnecessary, for, given a loam of the description which I have named and plenty of root space, neither crushed bones, lime, rubble, nor manure of any kind are wanted. Many years' observation have convinced me that deep as well as restricted Vine borders are not productive of long-lived Vines; it is not in the nature of Vines to be restricted either in root or branch; this is shown by the way in which they fail after a space of fifteen or twenty years. They resent such treatment by refusing to produce profitable crops.

THE DEPTH of Vine borders should be in proportion to the width. If narrow, the depth must be greater; but did anyone ever know Vines send many roots down deep into a border when they could find an agreeable soil and space in which to extend near the surface? I have never known them to do so, but I have known plenty of instances in which they have extended far beyond the limits of the border, and yet kept near the surface in search of heat and moisture. Where there is a space of 40 feet or more in width, the depth of the border need not be more than 18 inches, and the warmth that the roots will abstract through being so near the surface will more than compensate for greater depth. Few of us realise the effect of a warm border on the growth of Vines—I mean warmed by solar heat. The most successful exhibitor of Grapes I ever knew, whose Vines have their roots inside as well as outside, covers his outside borders with sheets of corrugated iron. These are put on in November and not taken off again until the Grapes are ripe early in the following August, and not a drop of water is put on the outside border during the time when the covers are on, yet his Vines mature heavy crops, and finish them off in a first-class manner. Knowing the conducting power of iron, one can readily understand how the border gets warmed, and there is not a doubt but that the roots are grateful for the heat thus imparted to them.

LARGE BORDERS are not always practicable; therefore we must face the matter in a purely useful spirit, because it is better to have Vine borders with a limited space than none at all, and I do not wish to ignore the fact that good Grapes are sometimes

grown in small borders, but those who are so situated should bear in mind that although they start well for a few years they sooner come to a dead lock than those which have more space. What I wish to refer to more particularly in the case of those whose Vines fail from want of root room sooner than they expect is that the Vines are condemned as being worn out, when in reality they are only temporarily impaired, owing to their having exhausted all the available nourishment within their reach. Instead, therefore, of rooting them out, it would be better to re-make the border with fresh soil. When Vines have been fairly well treated, they should not be considered past renovation until they are a quarter of a century or more old. I have known Vines to fail after they had been in bearing from twelve to fifteen years, but when the roots had been carefully lifted and the border re-made with fresh soil, they have borne better crops after being lifted and re-planted than they did before. Therefore, those who have to content themselves with narrow borders should hesitate before they determine to root out their Vines. J. C. C.

### FOSTER'S SEEDLING GRAPE.

IN reference to "A. D.'s" remarks in THE GARDEN (p. 287) on Foster's Seedling shown by me at South Kensington, I regret to state that I have not another berry left on the Vine from which the bunches were cut, but happily there is plenty of foliage, some of which I will gladly send to the next fruit committee meeting for comparison with the leaves of the White Tokay. The great difference in the foliage of these two Vines should be sufficient to settle the doubt that now exists regarding Foster's Seedling. The parent Vine from which the graft was taken is not now in existence, having been uprooted some five years ago, as it was growing with Hamburgs that were unsatisfactory. A Vine, however, taken from it is now growing in the gardens of Blickling Hall, and in all probability a houseful of it is to be found at Chatsworth, as I sent Mr. Elphinstone, now of Shipley Hall, Derby, a large number of eyes when fruit foreman there, he having informed me that the late Mr. Speed was desirous of planting a whole house with it. If "A. D." will refer to THE GARDEN of Sept., 1884 (p. 287), he will there find a report on some bunches of Foster's Seedling exhibited by me at South Kensington on Sept. 23 and 24. They were cut from the grafted Vine, and the report states: "Mr. Allan sent three grand bunches of Foster's with berries as bright as amber, but a trifle too far advanced."

These bunches, which were shown with the shoulders intact, had been fully exposed to the sun, but they were not so large in the berry as some I have had. Those in dispute, on the contrary, had their shoulders removed at the thinning, and as I was desirous of showing them in London with abnormally large berries, they were shaded from the sun for at least six weeks before they were exhibited; that, I think, will satisfactorily account for their difference in colour from the other samples staged. When I inform "A. D." that three bunches cut from the same Vine (the only Foster's Seedling that I have in the place) won the first prize in the class for any white Grape on July 1 at Ipswich, and again that three more bunches won the first prize at Great Yarmouth on Aug. 7, he will understand why I had occasion to shade in order to have them in good condition at South Kensington on Sept. 8 and 9.

If "A. D." will call here next season I will show him my grafted Foster, and if he is not able to distinguish it from White Tokay by its wood, leaves, and shape of bunches, he is not the astute judge I take him to be. I may add that both Mr. Miles, of Wycombe Abbey, and Mr. Roberts, of Gunnersbury, spoke on the day of the show of similar changes to that exhibited by Foster's Seedling having come under their notice through grafting. In Mr. Roberts' case they occurred from Foster's being grafted on the Duke of Buccleuch.

WM. ALLAN,

Guntton Park, Norwich.

**Apple Mr. Gladstone.**—This is one of the best of all Apples either for kitchen or dessert use during the latter part of July and throughout August.



When grafted on the Paradise stock it is a sure bearer, and large, handsome, crisp, and juicy. It is uncommonly prolific, even in quite a small state, and in my opinion is one of the best of all Apples we possess for general purposes during the time just named.—J. MUIR, *Margam Park, Glamorganshire.*

**Downton Pippin Apple.**—If I were to distinguish any kind of Apples as children's Apples, I should include Downton Pippin, Golden Pippin, Yellow Ingestre, Sam Young, and a few others, all of the finest flavour, and singularly suited to form dessert fruits for children. We are so anxious to get big kinds to fill the bushel, that the children's sorts get somewhat overlooked. I have just been gathering a pretty lot of fruits from a small tree of Downton Pippin. Beside others of more ambitious pretensions it is quite a dwarf, for it makes little growth, although it crops freely. It is a kind that does not want dwarfing stocks to render it fruitful—indeed, seems rather to need help to stimulate it into stronger growth. I trust in the future some of these small-fruited kinds may find encouragement for our children's sake.—A. D.

**5395.—Diseased Pears.**—If "G. S. S." had stated in his query on this subject the name of his Pear which he finds "diseased," no doubt a more practical reply might have been afforded. Possibly the kind is one of those worthless sorts which go "sleepy," as the old phrase is, even before they are really ripe. Sleepiness, so-called, means a kind of rotting, beginning in the core and spreading outwardly to the rind—a sort of fatality which exists in many of the earlier sorts, and is both most deceptive and annoying. Jargonelle exhibits this feature frequently. As it seems to be more a form of rotting than of ripening, it would be interesting to learn whether any special reason can be given for a feature that is chiefly confined to early Pears, but more especially to Pears than to Apples. As both are cored fruits, it seems odd that both, especially early kinds of Apples, do not present the same feature. Can this sleepiness or rotting of the inside flesh, which does not in the least proceed from external causes, be caused by some fungus settling in the bloom early, or does it penetrate the Pear through the eye, or what is it? No doubt it is a very difficult question to answer, and it is easier to propound suggestions than to find practical replies.—A. D.

**How to stock an orchard.**—This is a very important question, as it will depend very much upon how the work is done as to whether substantial success will be attained or not. In the first place, the soil and position should be good. Loamy clay on chalk suits most kinds of fruit trees. The first operation is to trench the ground 18 inches deep, grubbing out all roots and perennial weeds in the process. This work might be done for 1s. 6d. or 2s. per rod, according to the nature of the ground and the state of the labour market. The cheapest and best way is to plant two-year-old trees 4 feet apart. Were I intending to plant, say, two acres, I would first purchase 1361 trees at 9d. each—perhaps less. I would trench the two acres, but would plant only half an acre to begin with, which would take 1361 trees at 4 feet apart. In two years the trees must be thinned out; but during that period the remainder of the ground will have been cropped and manured for vegetables, and will be in the best condition to be planted with the fruit trees; and if every alternate row on the half-acre is taken up, that will give 680 trees, which, at 8 feet apart, will occupy exactly an acre. Every alternate tree in the rows that remain must also be taken up, and they will number 340—the number required to plant the remaining half-acre. The whole space of ground will now be occupied with trees at 8 feet apart, and they will be in full bearing the year after they are planted.—J. D. E.

**Large Green Gage Pears.**—On Friday last I gathered a dish of Green Gages from a tree in my garden; nine of them weighed 16½ ounces. All who saw them admitted that they never saw such large fruit of this variety of Plum before. Is the weight above the average?—G. GOODY, *Bures, Suffolk.*

**5392.—Preserving Filberts.**—First put a layer of Filberts, then sprinkle with salt, and so on until the vessel is full; tie down air-tight and store in a cool place; they will then keep for any length of time. Care should be taken not to put too much salt on them.—W. A. E.

## STANDARD PEACH TREES.

ALLOW me to tell "J. S. W." that I have had to deal with both tall and dwarf standard Peach trees. Only last November I rooted out a Royal George that had a clear stem of 6 feet and as fine an open head as anyone could desire. I had managed this tree for seventeen years, and during the whole of that time the fruit was inferior in flavour to that on trained trees. As for trained standards, Peaches have an awkward way of placing themselves on the branches just where they like, and I may mention that the weight of five or six fruit on a branch is enough to bring the shoot that carries them down upon the one below it. Thus fruit and branches get intermingled in a way that shuts out both light and air, and as a result the fruit is wanting in both colour and flavour.—J. C. C.

—"J. S. W." says that the standard Peaches, which he asserts are preferable to trained trees, were at one time bepraised by me, thus misrepresenting what I have said. So far from praising standards, I have condemned them for their shortcomings on the score of colour and flavour in the fruit, a defect which sooner or later causes the rejection of this form of tree wherever it is tried. It is passing strange that not one of the shrewd market growers take to standard trees, if, as "J. S. W." asserts, their produce is such as to make them preferable to trained trees. Market growers know full well that whatever they gained in quantity from standards they would lose two or three times over by the low price which the fruit would fetch. "J. S. W." is unfortunate in the time he has chosen for trying to show that he has made a new discovery in these standard Peaches. It is an old way of growing this fruit, discarded through having been found wanting. The solitary instance of the standards at White-hill, which "J. S. W." holds up as an evidence in favour of the system, stands as a drop in a bucket compared with the verdict of the best Peach growers throughout the country, who in a body reject standards. At a place in Warwickshire that I saw lately, where fruits of all kinds are well grown, there is a large house filled with as good standard Peaches and Nectarines as I ever saw, but they are condemned, and in their places are to be planted trained trees, because of the inferiority of the fruit as compared with that borne by trained trees in the adjoining houses. Cases like this forebode ill to the fulfilment of "J. S. W.'s" prophecy that the standard will be the future form of Peach and Nectarine trees.—T. B.

## HEDGE FRUITS.

MANY of what may be rightly termed hedge fruits may not be edible, and cannot therefore appeal to the palate. What they lack in this respect, however, they often make up to the eye by their beauty, and in this sense there is hardly a hedge fruit which has a greater claim to attention just now than that of the wild Guelder Rose. In early summer the flowers of this tree are second to none in their attractiveness, and now that they have developed into fruit the charm is rather increased than diminished. It is not within the range of these remarks to recommend these hedge trees, of which mention may be made, as subjects for the garden, yet this is one which certainly should have a place there. By the most casual observer the almost Cherry-like bunches of rounded bright red fruit and the unevenly serrated leaves, now turning to a crimson hue, cannot be mistaken. The nearest approach perhaps is the other Viburnum common to our hedges—the Wayfaring Tree. Yet, although belonging to the same species, there is a wide difference seen on the most cursory comparison. The leaves are not so delicately formed or veined and the fruit is inferior in shape, size, and colour. In this latter tree it is more compressed and of a smaller size, and although mostly red, ranges in colour from a dark yellow to black. Another tree which is more remarkable for the beauty of its decaying foliage than for its fruit, although the latter is abundant, is the common Dogwood. Its leaves approach the colour of those of the Guelder Rose, but have slightly more of a leaden hue. The common Privet bears in its fruit a little resemblance to that of the Dogwood, but in other respects is dissimilar. The birds have,

however, commenced their attack upon it, and in some cases the bushes are already bare. A more conspicuous object than any yet mentioned is the common Elder, and this season, as with many of the hedge fruits, its berries, now fast ripening, are specially abundant. This may be looked upon as the first edible fruit we have referred to, as many good housewives turn these innumerable cymes of juicy fruit to account in the manufacture of wine for winter consumption.

Another class of fruit is that produced by the Thorns, the most common being the well-known haw of the Hawthorn. The fruit of this species is this season remarkably large in size and above the average in quantity. This is largely the winter fruit of the birds, and although the two are commonly spoken of as Thorns, is widely different from the fruit of the Blackthorn (*Prunus spinosa*), which is in reality a Plum, and is in consequence of much less frequent occurrence than the former, and when it does occur the Sloes are few and far between. The Hazel-nut, of all the fruits of the hedge, is probably the most popular, and from this reason by the roadsides is seldom allowed to grow to perfection. Where, however, a branch has here and there escaped the attention of the passer-by, the fruit is now almost at its best. Next amongst the bushes bearing edible fruit found by the roadside comes the Bramble, and although the countryman, when explaining the phases through which the fruit passed before it ripened, remarked that the "Blackberry was always red when it was green," it is now in most cases approaching the colour which gives it its name. I have before me a number of other fruits gathered at hap-hazard from the hedges by the roadside, but sufficient has probably been said to direct attention to the fact that outside our gardens there are many beautiful and useful fruits. Those which may be outside the latter class in the sense of being useful for food in the ordinary sense can be included in the scarcely less desirable list affording food for the eye. For decorative plants I would at the present time as readily betake myself to the hedgerows as to the garden. RUSTIC.

## APPLES AND APPLE SOILS.

THE soils and management best suited to the growth of Apples are points which have been much discussed in recent years. Various authorities have treated of fruit farming and particularly of Apples. Estimates of the first cost of an orchard differ widely; while A makes out the total expense of planting an orchard at £10 an acre, B estimates the cost at £20 per acre.

The latter, however, includes trenching at £10 an acre as a necessary item of expenditure, doubling the cost by that one operation. My own experience is that the necessity for trenching depends on the character of the subsoil, and that it is not always desirable. On those soils which are naturally adapted to the growth of Apples, such as the deep greensand of Kent and Surrey, or the sandstone of Devonshire and the cider districts, this heavy outlay may be avoided. Differences of opinion like those just noticed are explained by the fact of great differences in soils. Apples will grow on all soils, and the preparation of the ground for an orchard must be suited to its character. In offering advice, therefore, as to the growth of Apples it becomes essential to quote the experience of more than one locality, and for that reason the report entitled "British Apples," and prepared by Mr. Barron after the close of the Apple Congress of last year, is, perhaps, the most reliable guide that can be found to the cultivation of Apples on all kinds of soil. Mr. Barron's informants state, with much truth, that good Apples may be grown on almost all soils with proper management, but not always with profit—certainly not with the same profit



on land that requires elaborate preparation as on soils where but slight outlay is needed. We learn from the report in question that varieties of management are due to varieties of soil, and that almost anybody may grow good Apples at a certain cost, which will vary from small to large according to circumstances. Some of the best Apple orchards in England are on the well-drained, warm soils of the old red sandstone of North Devon, Herefordshire, Worcestershire, and Gloucestershire. There are capital orchards on the same formation in Scotland, including those of the Carse of Gowrie, from which a specimen of Lord Suffield—one of the best of early bearers—was sent to the Congress, weighing 17½ ounces, or exactly the same weight as a Blenheim which I weighed from an orchard in Sussex. It matters not what the formation may be, so that the soil is deep, good, dry, and warm; and in support of this I could point to a dozen sites, including the Vale of Holmdale, in Surrey, which is famous for its old orchards, and where, the soil being suitable, a costly system of management is unnecessary. Elsewhere the case is different. The variety of the beds interposed between the new and the old red sandstone (both Apple-growing formations) may serve to recall those varieties in the natural constitution of soils which dominate the farming and the character of the Apple crop. There are, for example, the coal measures, as poor at top as they are rich below; the miserable millstone grit, with its wretched pasturage; and the mountain limestone succeeding it, and often covered with rich turf.

THE VARIETIES OF MANAGEMENT described in the report of the Apple Congress are therefore not surprising. "We find it a good plan," says one, "to lift as many trees as possible every year, and to put a quantity of old brick rubbish under them and maiden loam round

clay must remedy the defect, or they cannot grow good Apples. The soil must be made, in fact, and only small trees capable of being lifted should be attempted to be grown. A fine sample of Apples was furnished from Dover,



A Bramble cluster.

the roots." The orchard occupies a loam with a wet gravel below, and when the roots reach this wretched subsoil, we are told the trees cease bearing. No doubt they do, and to bring them into bearing they must be lifted and re-set in better soil. Scores of similar examples are given. Those growers whose soils are ungenial and who plant Apples on chalk or sand or wet

having been successfully grown on thin chalk on pyramids, planted in good turfy loam, in which these small trees grew well and ripened their wood. But the cultivation was entirely artificial, and as the substratum on the cliff of Dover is by no means suited to Apples, holes had been dug and filled with loam, which was frequently manured. "The great secret is,"

writes the grower, "to mulch well with good manure; the better manure I use, the better the fruit." So far as soil is concerned, one may grow Apples anywhere at a price, but one can only grow them profitably on deep soils where they become great trees, and still continue to bear good fruit. The soil should be sound, deep, dry, and friable, like the wholesome loams of the cider districts, or the ragstone loams of the Medway Valley, and others of that class. In orchards near Maidstone the favourite Apples are Cox's Orange Pippin, Margil, Cornish Gilliflower, Dumelow's Seedling, Stone's Apple, Winter Nonsuch, King of the Pippins, and others. On these best soils only can one hope to compete with the favoured Apple districts of the United States. Large crops of fine fruit may be produced, no doubt, on trees which are purposely dwarfed in gardens and elsewhere, for reasons which have been already stated. But the big trees are far less expensive in their management, being easily manured; and all fruit trees in full bearing require plenty of manure. An orchard of small trees must be kept in tillage for the convenience of moving them when required, but a Kentish orchard is invariably kept in turf for the sake of manuring it by the depasturing of cattle, and also because turf is more favourable than tillage to the surface-feeding roots and to the elaboration of healthy sap. The report just referred to does not treat specially of Apple farming and the economical aspect of the subject, and I may therefore supply the omission by pointing out how greatly stock-keeping may assist fruit culture in a good district.

ORCHARDS may be pastured with highly fed cattle, including a few sheep, and as farming stock generally are fond of Apples, they will eat all worm-eaten windfalls before the escape of the grubs into the earth, and thus nip in the bud an injurious pest of many orchards. Cows are as useful in orchards as their offspring, and will eat up the wormy fruit with the same relish. The quantity of stock for an orchard is one calf per acre for young turf not yet producing much Grass, each animal having a quart of Oats and two quarts of middlings daily, or other mixture of feeding stuffs, according to the views of the feeder. But this is a branch of Apple growing on which I need not enter. My object is to supply a few hints from an agricultural standpoint, and to correct a common error, that because Apples are everywhere found they are therefore capable of being everywhere grown with profit for market where only the best sorts find a sale, and where the competition in regard to price is keen.

PROFITS.—I shall only add a single estimate of the profits of Apple growing. It comes from Wyese, where the Apple of the neighbourhood is the Blenheim Orange, which sold last season at from 6s. to 12s. per cwt. from the trees. An orchard planted with the trees the usual distance of 30 feet apart each way would give forty-eight trees to the acre, which, at 2 cwt. each per annum (it is a biennial bearer), and 8s. per cwt. as the average price, would yield a return of £38. 8s. per acre, from which must be deducted the cost of gathering and marketing, 1s. 6d. per cwt., and the rent and any outgoings for management. If the grower plants an orchard by arrangement with his landlord, he must calculate interest of money on his outlay, and the difference between first cost and the sum to be paid him for compensation at quitting. Some of the best Blenheims sold last season at a fashionable watering-place were grown near this spot, in a deep rich loam, on a farm belonging to a small occupier, on trees planted thirty years ago by the landlord.—*Field*.



## STRAWBERRY CULTURE.

THERE are favoured places where Strawberries will retain their bearing powers for half a decade or more, but in the generality of gardens three years may be reckoned as the limit of a healthy existence, and in many places they cannot be depended on after the second season of fruiting. This is especially the case in gardens that have been many years under cultivation. Why Strawberries should often so persistently die out in such places is rather perplexing, for it is a fact that too frequently the greatest difficulty is experienced in getting the plants to carry two crops. Poverty it is not, because in such gardens liberal culture does not lessen the evil, and although the plants may grow with great freedom, the first year they do not seem to possess the staying powers necessary to bring off a good crop of fruit without suffering. If other crops suffered in the same way, this quick deterioration could be easily explained, but the fact is that vegetables and hardy fruits generally may be seen in most excellent condition where the Strawberry has no lengthened vitality. The most reasonable explanation would seem to be that a long succession of vegetable crops draws from the soil some particular property which is absolutely needful to the perfect building up of the tissues of the Strawberry, and, failing this, the plants are deprived in a great measure of successfully battling with the climatic extremes to which under culture they are subjected. If such is really the case, and one could know what particular element of fertility is wanting, it could probably be supplied. One thing is certain—a good coat of loam, marl, or even of pulverised clay will work wonders in such cases, and where there are means of obtaining such materials, they should be applied as freely as possible. If 3 inches or 4 inches of them can be worked into the top spit, the enduring powers of Strawberries will be increased to a very marked extent. A portion of our soil is an old garden, and we have always experienced much difficulty in getting Strawberries to do well in it. If planted in August they grow as freely and look as well as Strawberries need do, and they go on very well till the following summer; then in a time of drought they go off, and frequently before ripening their fruit.

## STRAWBERRIES AFTER FARM CROPS.

Very different is the behaviour of plants on a piece of ground which up to within the last two or three years has been occupied with ordinary farm crops. There, no matter what the weather may be, they never die off. This summer they were not mulched nor watered; they sent out thousands of runners, which were allowed to remain, as we much needed more young plants, and as we have had but one heavy rain here this summer, the ground was for weeks as dry as dust. They had, moreover, an attack of spider and mildew, and yet now they are looking well, and there is not a blank amongst them. In our other ground they would have been dead long ago. The amount of runners and the drought would have killed them off. This illustrates as well as anything could do how wonderfully Strawberries are affected by soil alone, for the two pieces of ground are contiguous, and the first-mentioned when first made into a garden probably in no way differed from the other. The change has been effected by a long course of cropping with vegetables, and, as I have before stated, no amount of manure will remedy the defect. I have often wondered whether a good dressing of lime would be a cure; perhaps some of your readers have had sufficient experience to afford information on this particular point. There are various ways as well as various times for forming

## NEW STRAWBERRY PLANTATIONS,

and circumstances can alone decide which is preferable. They may be planted all the year round in some soils, and if the weather in winter is tolerably dry and open, they will succeed as well planted then as at any other time. I have planted during December and January, and the plants have done very well, but our soil is a light loam and the weather was open and tolerably dry. I have also set out fruiting plants during the winter season, and have gathered excellent crops from them. If I had any large amount of ground to plant, I should prefer doing it from the

latter end of September up to the middle of October, as during August the soil can be well prepared, and as all danger of very hot dry weather is over by the middle of September, plants set out then require but little care after planting, and have good time in which to get well hold of the soil before winter. There is no better way of preparing ground for Strawberries than by cropping it with early Potatoes, which come off in time to allow of setting out the plants at the period above mentioned. Early Potatoes being indispensable, this way of preparing the ground for Strawberries is the easiest as well as the best. The operation of moulding up and lifting the Potatoes so thoroughly sweetens the soil, that little remains to be done to it beyond forking in some manure and properly levelling it. Exception has to be made, however, of very light soils, which cannot have the surface made too firm, and unless this is done there is but little chance of the plants passing through dry periods without suffering. The open nature of such soils allows the free entry of sun, air, and frost to such an extent, that the surface roots are continually being subjected to trials which they cannot withstand, and to the activity and abundance of these in a great measure depends the fruitfulness of the plants.

## FIRMING THE SURFACE SOIL.

When the surface is firm it becomes in time completely matted with fibres, and these well mulched during the fruiting season feel the power of the sun without suffering from its desiccating influence, and are, moreover, as one might say, lying in wait for any good thing which might come in their way. The warm rains stimulate them, and carry to them the nutritious particles contained in a manurial mulch; the berries swell up, colour, and attain a flavour and general excellence impossible when these surface-feeders are not encouraged to a liberal development and maintained in healthy condition. There is another advantage in making the surface firm; heavy rains do not have such an effect on the soil generally. It is a fact that if you make the surface as hard as a gravel path, you may pour almost any amount of water on it without rendering the soil underneath at all close; whereas when the ground is allowed to remain quite loose, a continuance of heavy rains in winter will in many instances so clog it, that when the growing time arrives the roots cannot freely work in it. A dry time should always be chosen for treading or rolling the ground, and when the natural staple is very light, it should be made so firm as to scarcely take the impress of the foot when trodden upon. I may here remark that in the case of old gardens, such as were alluded to in the beginning of this paper, this firming of the surface very much lessens the risk of failure, which tends to prove that not only the chemical, but the mechanical nature of ground changes to a very material extent during a long course of vegetable culture. My attention was directed to this particular point by the fact of some plants remaining quite healthy through a very trying time of drought where the ground around them was accidentally trodden so hard, that a fork could scarcely penetrate it, whilst others near by, growing under ordinary circumstances, were seriously crippled. One who grew Strawberries very well repeatedly declared that he had not dug the ground for them during seven years. His garden varied in character of soil almost more than any garden I ever saw. In the comparatively small area of about two acres there were almost pure sand and heavy loam, and it was only on the restricted space, which consisted of the latter soil, that Strawberries did well. This had been, in the first place, trenched and otherwise well prepared, but in after times when a batch of plants gave out they were simply hoed off, and holes cut into the solid surface just large enough to contain the balls of forced plants. They were well trodden round the crowns and mulched, and I have seen plants there the second year with foliage as high as one's knees, the fruit being abundant and of good quality. The individual in question did not probably adopt this practice from choice, but because the small amount of soil suitable for Strawberry culture did not allow of devoting any portion to other crops. The results show, however, that Strawberries might often be grown in a rough and ready way, and that by

keeping a firm surface over soil that has been well and deeply stirred and sweetened it may be maintained for a long period in a condition fit for roots to work in. It is well to know that Strawberries do succeed in this way, and that the toilsome preparation of the soil need not be so frequently undertaken as is commonly considered necessary. For forming new plantations I would preferably use the runners made the latter end of August; for they, being formed under the refreshing influence of cooler days and moister nights, and subjected from their birth to the invigorating early autumn rains, always seem to possess a higher vitality and to be more clean and free from the pests that infest the Strawberry than such as are produced during the hottest time of the year. One never knows exactly how an early summer will finish off, for very often the flush of vigour displayed is deceptive, and the

## GERM OF DEBILITY,

sown by drought and heat, only declares itself towards the latter end of the season. This is noticeable in the case of pot plants, a percentage of which will generally go back, the quantity of weakly plants being as a rule in proportion to the amount of trying weather experienced in the early part of the summer. The late-made runners are more reliable, and those that come away strongly after the middle of August may be counted upon to remain in healthy condition. Very few of these fail to give fruit, and with some surprise I have seen how strongly quite small late-formed plants throw up in spring. A runner made early and grown along freely will by the end of its growing season form from three to six crowns. I would sooner have three good late runners together in one pot than plants of any description, as then you get three strong trusses of bloom from every pot; whereas the early runners split up as the season advances, are sometimes so late, that the individual crowns are not very strong. The finest fruit we ever grew on pot plants were from such late runners, and I believe that if extra fine berries are wanted, this is the way to get them. One of the largest of the London market growers always takes the later-made runners, so that his plants never have more than three crowns, and the size and quality of his fruit is unsurpassed. Returning to outdoor culture, if planting is not done by the middle of October, the next best time is March, but the runners should be taken up and laid in tolerably thick for the winter. They then strike root afresh, and are better provided with fibres than if allowed to remain undisturbed all the winter. Planting in autumn and early spring is the easier way of forming new plantations, but when a crop of fruit as soon as possible is desirable, the earliest runners must be layered and planted out as soon as they are sufficiently well rooted. They may either be laid on pieces of turf or in 2½-inch pots, and having the ground well manured and thoroughly sweetened, they should be planted without loss of time, and, getting sufficient care in watering, they will make fine plants, quite large enough to bear a good crop of fruit the following year. If plenty of plants are at command, they may be put a foot asunder and 2 feet apart between the rows, but the following year every other plant will have to be cut out. A good plan is to leave 3 feet between every two rows, as this allows of their being easily netted, and is a more convenient arrangement for gathering. J. C. B.

**Ribston Pippin Apple.**—It would, I think, be a rather difficult matter for anyone to describe the exact condition of soil that suits this Apple. I have watched the behaviour of a particular tree of it for some years past, and I must say it puzzles me. The tree is not much larger than it was eighteen years ago, yet it bears as good crops and quite as regularly as any tree in the same orchard, though growing in a swamp with its roots within a few feet of a running stream. The ground all round is higher than the spot which its roots occupy, and the soil one would think about as unsuitable as it could possibly be. Nevertheless, the tree is fairly healthy, the branches little cankered, the leaves plentiful, and the present crop, like all previous ones, fairly good both in size and number of fruit. The point which puzzles me is this: Our garden is not more than 300 yards distant from this tree, and yet if I supply good soil and put in



young trees they become so much disfigured with canker, that I have to destroy them in three or four years. I am wholly unable to account for the difference in the behaviour of the trees in the two positions. —J. C. C.

## TWO FORMS OF SHANKING IN GRAPES.

I DO not know whether it has ever been noticed before or not that there are two forms of shanking commonly recognised as one and the same by gardeners, but which are unlike, and therefore needing different treatment. The form of disease most familiar to cultivators is the shanking which takes place at the stoning period, and this is by far the most destructive form met with. The "Gardener's Assistant" calls shanking "a disease of the footstalk," and Mr. Barron says the disease consists in a "withering up of the footstalk;" but neither of these descriptions correctly describe the common form of the disease, and it is doubtful if it be a disease of the footstalk at all. It is certain, at all events, that the most prominent characteristic of this form of shanking is the almost sudden conversion of the pulp and fibre of the berry into a watery liquid of a sour disagreeable taste, altogether unlike what it is before the berry shanks. If a shanked berry is pulled off the footstalk and squeezed between the finger and thumb, the water will run out; whereas nothing of the kind takes place in the sound berry, squeeze it as you may. Moreover, this condition may arise before the footstalk dies or turns black, showing that the disease is not due to the footstalk perishing. All shanked berries soon go off in that way, whole shoulders shrivelling, but this is an after symptom as often as otherwise. The most significant feature of the disease is the conversion of the flesh and sugary juices of the berry into a vinegary liquid and the failure of the berries to colour. It is a chemical change that takes place, and the perishing of the footstalk seems to be a result of this change. It is certain, at any rate, that when the footstalk is destroyed by any other cause the berry shrivels, but no other change takes place in the juices like that observed in shanking. It is customary to attribute the disease to any cause that weakens the Vine, but shanking takes place on vigorous Vines that otherwise show no signs of disease, and it is much worse in some soils than others, while it is certain that heavy cropping alone will induce it. This, as I have said before, is the most common form of shanking, and the other and less common form is that in which the footstalks go black and die, causing the berries to perish also. This form is often seen in the Black Alicante after the fruit is quite ripe, but the fruit does not change, as in the other form, but only loses flavour and does not keep. The berries are still fit for use, and I have often seen such Grapes for sale in shops. All bottled Grapes "shank" sooner or later, although the berries may remain plump, and in the case of the white Spanish Grapes of the shops, the stalks are always quite dead and black, although the berries are quite good. J. S. W.

## GRAPES IN SEASON.

THOSE who scan the list of exhibits of Grapes at fruit shows between, say, the middle of August and the middle of September, or of any of the autumn shows in fact, cannot fail being struck by the quantities of Grapes shown that are absolutely of no use for consumption at these seasons. Thus we read of numerous entries for collections of single dishes of Grapes at such notable shows as the Edinburgh autumn show, for example, where the prizes are so arranged that any competitor who cares to enter the lists must cut his latest Grapes for the purpose; and not only that, but he must grow and ripen his crops of these, irrespective of his employer's wants, for the sole purpose of being able to have them ready for the show, for no one thinks of eating Black Alicante, Alnwick Seedling, Lady Downes, Raisin de Calabre, Gros Colman, and other late varieties while they can procure the better sorts commonly in use during the autumn months. Horticultural societies seem to have been more bent in times past in trying to show at what unseasonable times certain varieties of Grapes could be produced than in trying to prove how well

they could be preserved till their proper season. What becomes of those early "late" Grapes, does anyone imagine, that are shown in such prodigal quantities in autumn? Only the exhibitors know; but they are practically unsaleable, because no one will have them who knows what good Grapes are. The conditions of the schedules in which prizes are offered for numerous collections, let alone single bunches, induce intending exhibitors in pursuit of big money prizes to start their late vineries earlier in the season than is needful in order to have their crops ripe in time, and thus the crops have to be kept a longer period in the ripe condition before they can be used, their chances of shrivelling and damping off being very much increased thereby. The northern shows, and particularly the Edinburgh society, have been the greatest offenders in this way, because they have from the beginning, under the plea of encouraging Grape culture, been lavish of prizes for Grapes "ripe and fit for the table" early in autumn that would have been more properly in season, and far more worthy of a prize, at their spring shows in March or April. This is a practice in showing that wants looking into, because it is one that serves no good purpose. J. S.

## COLOUR NO TEST OF QUALITY IN FRUIT.

THIS subject was well debated in THE GARDEN some years ago, the balance of opinion, if I remember rightly, being about equally divided, or at any rate, all were not of opinion that highly coloured fruits were necessarily the best. I do not, therefore, refer to this matter now merely for the sake of starting another interminable argument, but as it is closely allied to the subject of "Standard v. Trained Peach Trees," I may be excused for stating my views, and thus indirectly contributing to the discussion now being carried on in THE GARDEN. That highly coloured fruits are of the greatest value for purposes of exhibition and market all must admit, and they also prove most attractive on the dining table, but with the statement that they are superior in quality to fruits taken perhaps from the same tree and not coloured at all, I must say I cannot agree. On the contrary, I find that highly coloured fruits are sometimes most deceptive, owing to the fact that exposure to fierce sunshine induces too rapid ripening, and in this case a certain amount of acidity is easily detected, while fruits much less exposed ripen more slowly, and are the sweetest and most luscious when eaten. This I have proved in the case of Peaches and Nectarines to my own satisfaction, at any rate, at various times this season, or from the first week in June till the middle of September. Given a fair amount of light and heat, and fruits on the under or shady side of Peach trees will ripen to perfection, and be inferior to better placed and more highly coloured fruits in point of colour only. The same remarks apply equally well to various other kinds of fruits, none of which absolutely require full exposure to the sun. The best coloured Grapes, not excepting Muscat of Alexandria and other white Grapes, are those which receive plenty of light, though shaded with a fair amount of foliage over-head. Those who wish to colour them rapidly may with advantage expose them to full sunshine, but the colour thus "laid on" is patchy and unnatural in appearance, and will not favourably compare with bunches of the same variety that have received plenty of time in which to ripen and no unnatural exposure. Now those unexposed and properly ripened Muscats are as clear as amber and of the best possible quality, and the same may be said of all black Grapes, that all agree must have a moderate shade from foliage if they are to colour properly. If Grapes will ripen to perfection under a light shading of foliage, why not also Peaches and Nectarines? Are highly coloured Brown Turkey Figs so much, or at all, superior to those so different in appearances as to suggest the possibility of their being another variety? In proof of the contrary, I may mention that I secured a first prize at an August show for Figs gathered from the lowest limbs of a tree, and as there were several certainly better-looking dishes than mine shown, and seeing that they were judged in the same way as Melons are, viz., by flavour, it would appear that the shaded fruits were the best. If I had the opportunity, I would unhesi-

tatingly plant a house with standard Peach trees, provided always it was roomy enough and properly heated, and I have no doubt that I should eventually secure very heavy crops of fruit, some well coloured and some not, but all of the best quality. Without a little assistance from fire-heat I can quite understand that neither the wood nor the fruit would always ripen on all sides of the trees, nor should I expect good fruit in abundance from thick, mop-headed trees alluded to by "J. S. W." (p. 262). Most fruit growers admire well-balanced neatly-trained wall trees, but under glass especially this excessive neatness may easily be overdone. We may obtain the finest and best-coloured fruit from closely-trained Peach trees, but by far the heaviest crops I have yet seen under glass were on trees that at one time had been carefully trained, but which had been allowed to push out plenty of breast-wood, this being lightly pruned, and subsequently roughly spurred in, so that the trees had become furnished with fruiting branches that extended about 12 inches from the wall. These trees perfected wonderfully heavy crops of medium-sized fruit, all that I tested being equal in quality to anything I tasted elsewhere during the same season. Apricots may often be seen under somewhat similar conditions; in their case, long, ugly-looking, and somewhat crowded spurs frequently produce exceptionally heavy crops of very good fruit. Appearances have great weight now-a-days, but those who know what a good Peach is are not easily convinced that colour is a sure gauge of quality. W. I. M.

## THE BEST FRUITS TO EAT.

WHAT fruits are most relished at dessert? What fruits are liked best by fruit eaters generally? I do not know that this question has ever been put before, but it is evident that it goes to the foundation of the subject of fruit culture. I find that the Pine-apple is very often accorded the first place in the list by cultivators, but I doubt if it deserves it. It is probably less eaten, even in establishments where it is plentiful, than any other fruit. A bite of it seems to suffice, and it is put aside for something else. The flavour of the Pine-apple is surfeiting, and no one can eat much of a fruit of that kind. Grapes come next on the list, but all Grapes are not relished alike. Perhaps people can eat more of the Black Hamburg than any other, some of the crackling and refreshing Sweetwaters and Muscat of Alexandria, but when we come to the coarse winter varieties, the consumption falls off at once. The next most acceptable fruit —indeed, I am not sure but that it should be placed first on the list—is the Gooseberry. I have always noticed that even epicures in fruit will eat the Gooseberry at every meal, every day, as long as it is to be had—the best kinds at least—for Gooseberries differ greatly in flavour. It is a fruit that never seems to pall on the taste. Curious that gardeners should have hitherto thought so little about it, and done so little by way of procuring early and late crops. Probably the next favourite is the Strawberry, with which, however, people are sooner satisfied. As regards the Plum and Peach, although gardeners accord the latter the highest place, owing probably to the greater difficulty experienced in its culture, still fruit-eaters prefer the Plum, or at least Green Gages, Coe's Golden Drop and other good kinds. This is my experience at least, and I notice that children generally prefer Plums to Peaches after they have become accustomed to both. Yet Plums are comparatively scarce at seasons when Peaches are plentiful, although the former could be more easily produced than the latter. It is a case of fashion, I suppose. Figs and Melons are not everyone's fruit, and they hardly rank in opposition to the varieties named. J. S. W.

5392.—**Filberts.**—The practice of many in the country when they wish to preserve common Hazelnuts for winter consumption is to place them in earthen jars, which they securely fasten, and then bury beneath the soil in some convenient spot in the garden until wanted. This does not destroy their flavour, but keeps them sufficiently moist. The same plan would no doubt apply to Filberts, but the precaution first of not forgetting where they are buried, and, secondly, of not making the facts of their whereabouts too public, should be observed.—RUSTIC.



## PYRAMIDAL FRUIT TREES.

"J. S. W." says (p. 241), "I deny that any Pear or Apple tree grows naturally in a pyramid shape, and no one can show me such a specimen ten or twenty years of age and left to itself that has grown in that shape." If "J. S. W." was in this neighbourhood I could show him Pear trees at least double the age he mentions which, so far as I know, have been left to themselves, and are certainly pyramidal in shape. I think, however, that he has no cause to travel far to see such trees, and I may ask him if he ever saw the well-known Swan's Egg Pear tree grown in any other form than that of a pyramid if left to itself. Other varieties of Pear, as well as other trees, assume more or less a pyramidal form, and why, as I asked before, should such trees be considered unnatural any more than spherical formed trees? The parallax which "J. S. W." attempts to draw with reference to the Spruce Fir is not at all to the purpose; the Spruce Fir is not a fruit tree. What I wished, and still wish, to say is simply this, that I very much disapprove of condemning any method or system of training fruit trees by the practice of which good crops of improved fruit can be obtained. "J. S. W." says, "True art aims at combining utility with ornament," a statement with which I quite agree; but when he says, "It can be shown that artificial training does not add to the usefulness of fruit trees for cropping purposes," then I disagree with him. I am quite as much opposed to the introduction into the landscape of artificially trimmed trees or shrubs as "J. S. W." or anyone else can be, but fruit trees are generally confined to the garden, the orchard, or other inclosed space, and, as a rule, do not in any way affect the landscape. Indeed, landscape gardeners would sadly misunderstand their duty if they did not as much as possible conceal such enclosures as the garden and the orchard, &c., from view. I have recently had the pleasure of seeing a comparatively small garden in which magnificent crops of Apples, Pears, Plums, &c., are growing on trees in the form of dwarf pyramids, espaliers, cordons, &c. In nearly all instances the quality of the fruit is excellent, and will bear favourable comparison with fruits of similar varieties produced upon standard or unrestricted trees, and the advantage of having such trees is the fact that they do not injuriously affect the crops of culinary vegetables, as is the case where trees of unrestricted growth are permitted to grow in vegetable gardens.

Bury St. Edmunds.

P. G.

**Soil for Melons.**—Would Mr. Coleman kindly favour us with his experience as to the influence of divers soils on the quality of Melons? Personally, I have found that heavy soils taken from a calcareous subsoil are suited for Melons like William Tillery, and unsuited for High Cross Hybrid, Colston Basset, The Squire, Best of All, and Golden Perfection, while, on the other hand, light sandy soils suit High Cross Hybrid and Davenham Early, and seem unfriendly to scarlet fleshed Melons of the Gem type. Again, by placing the fermenting material round the pipes, encouraging quick and vigorous growth by adding rich soil to the sides of the ridge in which the plants were originally inserted, and growing on the extension system, I have seen Melons cut that have taken first prizes at first-class shows, chiefly Victory

of Bristol, but never a good Hero of Lockinge. Since, in the case of Melons, we have the whole ordering of the soil and ventilation, there ought to be some satisfying theory as to why one kind of Melon is good flavoured in one soil and Vegetable Marrowy in another. Under the cultivation just mentioned there was hardly any difference in growth, except that the old leaves of Victory of Bristol were darker green, stiffer, and more brittle than those of the others.—W. C.

**Thrips on Vines (Sub.).**—Your Vines are badly attacked by thrips. Fumigation with tobacco smoke is the most certain means of destroying this insect, but it will give the Grapes an unpleasant flavour. Paint the hot-water pipes with the following mixture: One pound of fresh lime, two pounds of flowers of sulphur, and add enough water to form a thick paint; then make the pipes as hot as possible; the fumes of the sulphur will kill the thrips. Shut all the ventilators and doors. As this operation will not kill the eggs, it should be repeated three times at intervals of ten days. When the crop is cut, dress

young dwarf trees that have been cut down once in the fruit nursery, and the only pruning they require afterwards is shortening the strong shoots in the autumn to about one-half their length, leaving the weakly shoots entire to form fruit-bearing wood.—J. G., Hants.

## GARDEN FLORA.

## PLATE 511.

## GREENHOUSE RHODODENDRONS.

(WITH FIGURES OF R. DALHOUSIANUM AND DENNISONI.\*)

THOUGH hardy in the milder parts of England, the various Himalayan Rhododendrons and the numerous hybrids raised therefrom require a certain amount of protection, as even should the plant itself prove to be hardy, the blossoms are often injured by late spring frosts, and their beauty is thus to a great extent lost. Such being the case, they are generally treated as greenhouse plants, and during the spring months when in bloom they well repay that attention. Strong growing kinds that must attain a goodly size before flowering are well adapted for large conservatories, but some of the smaller ones, and especially the hybrid varieties, will flower freely in a young state, and can be utilised for various decorative purposes.

Rhododendrons of this class are undoubtedly becoming popular, and no wonder, for their cultural requirements are but few, while their beauty when in blossom is great. Though fine specimens of the larger kinds may be had in pots or tubs, it is when planted out in a prepared bed that they are seen to the greatest advantage. Grown in this way in the temperate house at Kew, in spring they are most attractive.

**R. DALHOUSIANUM** when in bloom is most beautiful, but it is seldom grown, owing probably to its being more delicate in constitution than the rest, and also because of its leggy habit, unless great care is taken in stopping it during its earlier stages of growth. In its wild state it is an epiphyte, and when growing on the branches of a tree the shoots extend for some distance in order to reach the light, a circumstance which accounts for its rambling habit. It intercrosses easily with other sorts and produces seeds in quantity, from which have been raised Henryanum, a hybrid between Dalhousianum and formosum, and Countess of Haddington, the result of a cross between Dalhousianum and ciliatum. This last is more vigorous in growth than either of its parents, but has the free branching character of ciliatum rather than the more naked habit of Dalhousianum. Its blossoms are large, bell-shaped, and pinkish when first expanded but afterwards almost white.

\* Drawn in Mr. B. S. Williams' nursery, Upper Holloway April 15.



Rhododendron Dalhousianum, as it grows wild.

the rods with one part of gas tar to six of clay, with enough water to form a paint; this will kill any eggs which may be on them. Give plenty of ventilation and do not keep the air too dry, and this pest will not be troublesome.—G. S. S.

**Washington Plum.**—This is a noble looking fruit, and when fully ripe delicious for dessert. It does well on a west wall, where it can be covered with canvas to exclude wasps and flies, so as to enable it to hang till September. This Plum makes a fine bush or dwarf standard, and forms such a dense canopy of large leaves as to effectually keep rain off the fruit. As a rule, old trees of it are more prolific than young ones, for, being a strong grower, it makes too luxuriant wood the first few years after planting, i.e., if given high culture. The best course to pursue with sorts inclined to over-luxuriance is to plant in rather poor and very firm ground. The growth then will only be of moderate strength, and on that account fruit-bearing will be accelerated. For open-air culture, I find the bush form to suit this Plum well, as, in common with other stone fruits, the less pruning the better. The bush, too, is the simplest of all forms of trees. One has merely to plant healthy





RHODODENDRON DENNISONII (PINK) AND R. DALHOUSIANUM







*R. DENNISONI*, also here figured, is a very beautiful hybrid. A striking feature of this *Rhododendron* is the deep hue of the unopened flower-buds, and the delicate and varying tints of the expanded blossoms.

*R. EDGEWORTHII* is a free-branching, prolific-flowered species with peculiarly rugose foliage, which readily distinguishes it from any other kind. The blooms are large, open in character, with generally a yellowish blotch in the centre, and occasionally the unopened buds are slightly suffused with pink. It flowers freely in a small state, as do also its numerous hybrids, some of which are *Sesterianum*, a cross between *Edgeworthii* and *formosum*; *fragrantissimum* and *Duchess of Buccleuch*, both claiming the same parentage; while *Princess Alice*, a popular kind, is the result of crossing *Edgeworthii* with *ciliatum*. The finest of all the *Edgeworthii* hybrids in point of flower is *Forsterianum*, the other parent of which is the Moulmein *R. Veitchianum*. The blooms of this are large and pure white except the centre, which is stained with lemon. The flowers possess the thick wax-like texture of those of *Veitchianum*, but the habit of the plant is somewhat tall and straggling. *R. ciliatum*, the parent of several of the hybrids in question, is in itself a pretty low-growing, free-flowering species with pinkish blossoms. It is one of the hardiest of what may be called greenhouse *Rhododendrons*, and forms a neat little bush. A valuable early-flowering kind, and one that is quite hardy, is *R. præcox*, a cross between *R. ciliatum* and *R. davuricum*, the latter a small, upright-habited bush with purplish blossoms. *Præcox* resembles *R. ciliatum* more than its other parent, but it is quite distinct from either. When grown in pots it can be had in bloom very early with but little forcing; indeed, it flowers out of doors sometimes in the end of March, but, unless sheltered, the blooms are unfortunately often injured by spring frosts.

*R. VEITCHIANUM* is a lovely species, but it has a somewhat straggling habit of growth, especially when in a small state, a drawback, however, which disappears as the plants attain the stature of fair-sized bushes. The leaves of this kind are small, thick in texture bright glossy green on the upper surface and glaucous

below, but in this latter respect individuals vary considerably. Its blooms are amongst the most beautiful of all, being of a pure waxy whiteness, with a lemon stain in the centre, and the edges of the petals are prettily crimped. *Lævigatum* is distinguished by the edges of the flower being smooth instead of fringed.

*R. EXONIENSE* a hybrid between *Veitchianum* and *Edgeworthii*, is a dwarf, free-growing kind,

The large-flowered *R. Aucklandi*, of which a coloured plate was given in Vol. XX. of *THE GARDEN*, has been crossed with hardy varieties rather than with tender kinds.

Several belonging to this cross have already made their appearance, one of the latest being *Manglesi*, the result of a cross between *Aucklandi* and *R. album grandiflorum*. The flowers of this are large, pure white, and open in character, like those of *Aucklandi*, but borne in globular trusses, as in the ordinary hybrid varieties. For this Messrs. Veitch were awarded a first-class certificate by the Royal Horticultural Society last spring.

The bright crimson-scarlet *R. arboreum* has played a prominent part in the production of hardy varieties by intercrossing with the outdoor kinds. To this source, indeed, we are indebted for most of our finest hardy varieties. A good form of the type is, nevertheless, well worth a place along with the best of the indoor kinds, but being a large-growing species, plenty of room must be devoted to it. In planting a selection, there must be included, besides those mentioned above, the large cream-coloured *R. Nuttalli*, a kind which has flowers arranged in a horizontal tier instead of in a compact truss, and *R. Falconeri*, a species remarkable for its large foliage as well as for its massive clusters of blossoms, which when first expanded are of a greenish tint, but afterwards become pure white and furnished with a dark blotch in the throat. *R. campylocarpum*, a very uncommon, but beautiful kind, has globular trusses of primrose-coloured blossoms. *R. argenteum*, the earliest of all to expand its blossoms, is a large tree-like kind with ample foliage, the undersides of which are silvery white. The flowers are borne in large compact trusses, but variously coloured



*Rhododendron campylocarpum*; flowers primrose-yellow (natural size).

resembling *Veitchianum* more than *Edgeworthii*. A group of hybrids, that should have been included under the head of *Edgeworthii*, were obtained by crossing that species with the little free-flowering *R. multiflorum*.

All the above are characterised by dwarf growth, freedom of flowering, and fragrance. They are Countess of Derby, Duchess of Sutherland, Countess of Sefton, Lady Skelmersdale, and Mrs. James Shawe. These, which are all much alike, have white or slightly tinted blossoms.

in different plants, some, when fully expanded, being pure white, while others are pink, but all are more or less pinkish in the bud state. *R. calophyllum*, *Jenkinsi*, *Maddeni*, and *tubulatum* all greatly resemble each other, and though regarded as botanically distinct, the difference is so slight that in an ordinary collection one of this group will suffice.

The foliage is very dark green above, more or less ferruginous beneath, and leathery in texture, while the flowers are pure white and



produced rather later than those of most other kinds. Among crimson coloured flowers may be mentioned *R. fulgens*, *R. Thomsoni*, and the distinct *R. barbatum*. *R. neilghericum*, with leaves silvery beneath and rose-coloured blossoms, is a good vigorous kind, and well worth a place in any collection, as is also *R. Hodgsoni*. There is a curious class of *Rhododendrons* with small tubular blossoms, for the most part of an orange or red colour, represented by such kinds as *blandfordiæflorum*, *Thibaudiense*, *Keysi*, and *retusum*, which, though pretty, cannot compare as regards display with sorts already mentioned. Most of the dwarf species from the alpine Himalayas are hardy in this country, but are seldom seen in flourishing condition. They are all pretty little dwarf bushes, better fitted for the rock garden than for associating with ordinary shrubs.

Another pretty class of tender *Rhododendrons* are the tube-flowered kinds, with which Messrs. Veitch have of late years made us familiar. Of this class the first was *R. Princess Royal*, a kind with pink blossoms, but now all shades of colour are represented from white to deep crimson. This class of *Rhododendrons* is altogether more tender than the Himalayan species and the various hybrids raised therefrom, while, unlike them, their flowering season is not limited to any particular time of the year; on the contrary, blossoms are produced more or less by them continuously at all seasons.

THE CULTURE of Himalayan *Rhododendrons* is by no means difficult if planted out in a bed in the greenhouse or conservatory; the principal thing is to take care that proper preparation is made for their reception. Thorough drainage must be secured, and if a light peaty compost is used, care should be taken not to leave it too loose and open. In turning out specimens that have been a long time in pots, the outside of the ball should be loosened by means of a pointed stick, otherwise the roots often fail to strike out into the new soil, and the plant does not make satisfactory progress. In the same way, unless the specimens are firmly planted, when watered the moisture is apt to percolate through the new soil and leave the old ball of earth quite dry. When grown in pots or tubs the same principle must be to a great extent carried out. These *Rhododendrons* being nearly hardy, no more heat should be given them than is just sufficient to protect them from frost, as if kept too warm they become weak and their constitution debilitated. With regard to their propagation, they can be increased by means of seeds, cuttings, or grafts. If it is desired to perpetuate any particular form, it must be effected by the two last-named methods, as seedlings are notoriously variable. In grafting the stock should be chosen as nearly allied to the scion as possible; if seedlings of the same species are available, so much the better. Cuttings take a good while to strike root, but with careful attention the losses amongst them need not be great. The best compost for them is very sandy peat with a liberal admixture of finely broken crocks. They should be placed singly in small pots and kept close in a temperature rather above that in which they have growing till rooted. The smaller-leaved kinds are the easiest to strike, the most difficult in this respect being *R. Falconeri*, *Nuttalli*, *argenteum*, and *Aucklandi*. Seeds, owing to their minute character, should be sown in well-drained pans of sandy peat, and just covered with the same compost sifted very finely. A shady spot in a warm greenhouse is a good position for them, and if the atmosphere is at all dry, a pane of glass should

be laid over the pot or pan till germination has taken place. When large enough to handle, the young plants must be pricked off, and after a time potted into small pots. Progress during their earlier stages is slow, but when well established they grow away freely. H. P.

## TREES AND SHRUBS.

### SPRING-FLOWERING SHRUBS.

THE most striking amongst these until recently has been the *Cydonia japonica*, which, if it were a stove plant, would be thought a great treasure and extensively cultivated; but, being hardy, is seldom seen, and yet what a brilliant display it makes against the wall of a house, especially if built with stone or light bricks, and then its big deep scarlet blossoms produce a striking effect. Where it does best is in light, dry, sandy soil, in a hot, sunny position, as then it makes short-jointed, hard, well-ripened shoots, that become crowded with bloom. As the habit of this *Cydonia* is naturally drooping and trailing, it is well adapted for rockwork or elevated situations, as then it can droop over and grow as it likes. The way to increase it is to put in cuttings in autumn, made of the young wood, and inserted in sandy soil under a handlight, where, if kept close, they will strike in the spring. Plants may also be obtained by layering any of the shoots that grow near the ground, which only need burying in order to get them to root. *Berberis Darwini* and *B. stenophylla* are both so good, that one hardly knows which to admire most; the latter is very graceful in habit, and when covered with bloom looks all aglow when the sun is upon it. The position in which to see plants of this kind best is on a raised bank or on rockwork, and the same with *B. Darwini*; this is so graceful in outline, that it can hardly be misplaced, and it comes in admirably for planting in the foreground of shrubs, where there are borders for flowers in front. If plants of it can be obtained in pots, that is the best way of getting them, as they may then be turned out at any time; but if they have to be transplanted, it must be done just before they start into growth in spring, as they require great care in lifting to get them to grow. To assist them in doing this, puddle them in and then mulch, as they must not suffer from want of water, or the bark will shrivel and the plants die. As both these *Berberis* seed freely, they may be increased quickly, and *B. stenophylla* roots readily from layers. *Pyrus Malus floribunda* is a remarkably showy shrub, as every branch and twig of it becomes smothered from end to end with lovely pink blossoms, in shape and size like those of the Cherry. For standing out on lawns, or growing among low Evergreens or shrubs, this *Pyrus* is quite unrivalled, but it should have a sheltered place, or the wind dashes the flowers about and soon spoils their beauty. I have often thought what a good thing it would be in pots, run up as standards for forcing, and the same with the *Cydonia japonica*, and I shall be glad to hear if anyone has tried them for this purpose, and, if so, how they found them succeed. *Weigela rosea* and *W. Van Houttei* force well, the last-named being much the better of the two, as the blooms are larger and deeper coloured and the plant stronger in growth. We have several large bushes of it. Half-ripened shoots, put in as soon as they can be got, root readily if kept close under hand-lights, and the same with cuttings made from young wood in the autumn. *Magnolia conspicua* has been perfectly lovely this year, the spring having just suited it; the blossoms opened in all their purity, without stain or blemish from the weather, which often interferes with them and tarnishes their petals. For cutting just before they burst, I know of nothing so valuable as the flowers of this *Magnolia*, which are not only large and exquisite in form, as well as snowy white, but deliciously fragrant. As the plants come so early into bloom, they should be planted in very sheltered places, a wall facing the south, or the same position backed by close Evergreens being the best. S. D.

**Memorial trees.**—The planting of a tree to commemorate any incident, such as a birth or a wed-

ding in a family, is the expression of a pleasant and proper feeling, and is not practised as often as it ought to be. It would add to the associations which would accompany this tree planting if children were to assist in the operation, and each tree be known as belonging to some particular child, which would throughout their lives give them a still stronger interest in their homes or the place of their birth.—Y.

**Cupressus macrocarpa.**—This handsome Conifer well deserves all that has been said in favour of it, for, notwithstanding its liability to be cut off when a bad year comes, its beauty and grace, even in its young stage, are so great, that we may be sure that it will always hold a place around our English country houses. When killed it must be replaced. It should, perhaps, be noted that a variety of *Cupressus Lawsoniana* (a much hardier plant) has been met with possessing exactly the same habit and port as the fastigate variety of *C. macrocarpa*; its colour, however, is not equal to that of the latter, although very beautiful in its own way; but the green of *C. macrocarpa* is peculiarly rich, and we remember no other Cypress which possesses it.—A.

**Oaks quick-growing.**—The unfortunate prejudice that Oaks are the snails of the vegetable creation has been against that use of them as lawn trees which their sterling worth and rugged beauty deserve. Some of the finest Oaks, however, grow as fast as many popular trees whose rate of growth is never considered, or at least objected to, and among their numberless species and varieties kinds may be selected that will thrive in almost any situation.

**Pavia macrostachya.**—This highly ornamental dwarf tree has been a mass of bloom during the last few weeks. It is one of the best flowering small trees (or rather shrubs) for decorating shrubberies and other ornamental grounds at a season when but few trees or shrubs are in blossom. Its flower-spikes are large and produced in great profusion. *Cytisus nigricans* is also a valuable, late-blooming, handsome shrub; its showy yellow flowers are still lingering on its beautiful green twigs.—FORESTER.

**The Atlas Cedar in Scotland.**—*C. atlantica* does well in the Edinburgh Botanic Garden, where the Cedar of Lebanon will not thrive. This is useful evidence in favour of the hardiness and value of the Atlas Cedar for cold and northern districts.—V.

### RHODODENDRONS IN CALIFORNIA.

IF one wants to know the unique position of San Francisco among the great cities of America, let him try the varied excursions possible within a radius of thirty miles from the foot of Market-street. Boston, Philadelphia, New Orleans, Baltimore, Chicago, have nothing to compare with them, and New York is ahead only because of the vast investment of capital in places of summer resort—investments so lavish, that every dull ravine and gurgling brook and rocky isle and bit of barren sea-sand has been made attractive. These things will come all too soon in California. Meanwhile, those among us who love the woods as they are can take the comfort of them while they last unhewn and untrampled. The hardest thing to do when one starts for a day in the woods is to find a companionable person to go with him. A friend in good earnest he must be, and one, too, who is a lover of *Rhododendrons*. If one cannot find such a companionship, it is better to go alone. Then he can creep down the wet base of the deepest cañon, or climb laboriously to the summit of the bluest peak, without any more argument than his own freak and choice. Then he can follow his own scheme of exploration, his own beliefs concerning the habitat of various wild flowers, and nothing can dismay him; and even his blunders will be fruitful of better woodcraft. Then he will notice each tree and bush and stone, each hill, outline, and landmark of value. And, best of all, the treasures he brings home will be all his own, the captives of his own knife and trowel. Each plant and flower will be to him a record of an episode in the day's wanderings. For reasons such as these, the train that a little past nine o'clock in the morning rounded the cliff near the junction of San Geronimo and Lagunitas creeks carried one searcher for *Rhododendrons*—and but one. Of course, this northward wandering train had



followed was most serpentine; such turns and twists in so pleasantly situated hills seemed at first absurd. Here was a country that for miles could be tilled to the top of each slope; but so contorted were the ravines, that bridges, tunnels, horse-shoe bends, and every sort of engineering contrivance followed in dizzy succession. If the hills were only higher, the result would be more picturesque than it is; but even now many of the curves are worth a long journey to see. By the time one reaches Lagunitas, we are really past the hills and in the mountains.

LAGUNITAS is a water-tank on a rock-mound in a deep ravine sloping north, and near the union of two other and still deeper ravines. Above it the hills rise, red and bush-clad, into a region of Spruces; below it the bank descends to the wide stream, beautifully hidden in blossoming shrubs; and far beyond, to the east, are other hills, golden brown, mellowing in the June-like sunlight; while northward, where the trend of the broader ravines is, the dark slopes are gigantic in magnitude, and clothed in places with Redwoods of considerable size, and with a tangled forest of deciduous and evergreen growths. Blown over the top of the water-tank, and far down into the gulch, the white spray falls in rainbow-making showers, and keeps the hillside green for many a rod. Purple Asters, darker here than one finds elsewhere—almost as dark, in fact, as those one gathers on the stony stairs of Western Massachusetts streams—grow on the narrow bank of the creek, beaten into close and glistening mats by the perpetual spray from the old water-tank. Sometime there will be a Strawberry bed here, and a Rose garden, perhaps, and a fat station-master, sitting in the shade, watching his Peas grow and his Cherries ripen. It will not be half as nice as

#### MY WILD ASTER BED,

with its beautiful colours, which I wish an artist could see this minute, and would paint for the joy of mortals. Men of wealth often pay great prices for fine trees, and move them at enormous expense to set them in new gardens; two thousand pounds an English nobleman once spent to transplant some 50-foot Elms—but what would one not give to have some Brobdignagian spade pushed firmly beneath this whole knoll and slope, taking up 50 feet in depth, and all my wild Asters, and the wild vines, and the Madroña bushes about them, to set them gently and safely in one's own level valley-garden? It is not in the deepest forests that beautiful flowers grow, but in the openings and old clearings run to waste, and on the sunny slopes far above the trees; and especially on rocky promontories, that project into the light and air from vast mountain masses, and are so steep and difficult to ascend, that wild goats could hardly manage to cling to their native precipices. There, untrampled by cattle, ungathered by human hand, rooting themselves and scattering their seeds more widely each year, the rarest of our native annuals grow, the best of our native bulbs are hidden. There seems to be an instinct by virtue of which its possessor is able to find "rare flowers in forest or on hillside." Just as a man with the spirit of Izaak Walton in his soul will find the best pool of the best trout stream in the country, so a man who has it in him will discover the very flower he wants if it is anywhere in the region. The result of a multitude of minor observations extending over a long period of years will have produced a delicacy of perception and a fullness of knowledge regarding the habits and characteristics of the desired flowers that unconsciously enables the hunter to ignore false trails, and to seize every indication in soil or far-off growths on the hillside of the desired plant. True rosy-purple Rhododendrons, not the yellow-throated snow-petaled Azaleas—though the latter are by many called Rhododendrons—are the much longed-for objects of the present quest. The botanists recognise the close relationship of the two shrubs, and some of them even demur at the division of the genera; but the differences are sufficiently great to justify one's opinion that our Rhododendron is of the two the royal flower. Its true home is farther north, in the fastnesses of Northern Sonoma, Mendocino, and Humboldt, far up in the giant Redwoods that line the Noyo and Gualala. And it certainly is not abundant in any part of Marin County. For this reason the quest is from its beginning a very doubtful one. There may not be any in all this

Lagunitas district—and if found, they may not be out of bloom, for the season is far advanced, the slopes are golden brown already, and it is like July weather in these rocky hills. It is a land of

#### WOOD-CAMPS,

ten miles square, that lies about the joining of the creeks San Geronimo and Lagunitas. A walk of five minutes from the spray-sprinkled old water-tank takes one to the midst of a clearing, about which are great stacks of cordwood and Grape Vine stakes. Men are at work riving up the logs left from old camps of a score of years ago and cutting down the "second growth." "Wood-slides" reach far up the yellow hills; dusty teams driven by swarthy Portuguese stand in the road. Before the day's ramble is done we shall find in these hills the remains of a dozen such camps, of old cabins slowly decaying, of ancient foot-logs thrown across torrents, of the confining boxes of cool mountain springs, of gardens run wild, where Berry Vines and Peas and Beans are choked with ten years' growth of Ferns. It is an old story in California, this desertion of old haunts, this decay of once prosperous industries. Far up in the Sierras some of the towns that were of old life sleeping and desolate; the streets have once more become sheep-pastures; the water, breaking loose from neglected mining ditches, flows unchecked, cutting new channels across town lots once held "at San Francisco prices;" and Vines and trees grow gradually over everything, and Nature re-asserts her dominion. Close by, the sound of a brook tempts one to seek it. It is hard to find, for several small cascades in the larger stream blend their sound with that of the hidden one, and masses of great Ferns and clumps of lavender-hued Ceanothus grow closely over every possible outlet. Ah! here it is! a tiny brooklet, indeed, to make so much of a murmur; and ice-cold its drops are, and clear-hued beyond comparison. Right from the highest peak, down a narrow gulch, it descends impetuously. Upward path there is none, and it seems as if no one had ever tried to make one, for such complete masses of undergrowth are rare in this region. Here is a bed of Rushes that stand 4 feet high and more; Ferns, whose fronds are so tall that a pair could be found that would meet above a doorway; then a tangle of Blackberry and wild Raspberry, all white with bloom and red with ripening fruit; then thickets of wild Rose, very large and pink. Far up on the sunny slopes the wild Roses are so much darker that they seem quite another species, and their tiny red buds are among the most beautiful of all the mountain treasures. But these pale, faint-hearted daughters of the hidden wood thicket have few buds, and those are hard to find, and harder still to keep in safety for half a day, so frail and slender are they. Like the Buttercups of New England, they wither in an hour. Far up on the banks, growing from soft beds of fallen leaves, beautiful pink Lily, the Clintonia, holds up its clusters of slender tubes. It is a little late for perfect flowers, and very gently one must gather them, or they will fall to pieces. Already the seed-pods show on some stems, and soon will assume that rich blue colour that makes them so handsome in later summer. It looks like a wild Allium, but it is not; the plant is a true Lily, and has a very beautiful leaf. The Humboldt Lily will not be in bloom for a few weeks yet, though its rank stems are already shooting forth, and nearing the gleam of the reddish bud.

#### NO RHODODENDRONS

occur along the narrow gulch, though our plant case is crowded with lesser blossoms of the ravine. Upwards we go, until the summit of the ridge a mile distant is neared. Here are clearings and plenty of plant growth; Anemones, Columbines, Pedicularis, little Oxalises, at the roots of the trees, and yellow flowered Echeverias cling to the steep sides of high rocks. The orange-coloured Erysimums flame out at intervals on the almost treeless southern exposure of the ridge. Numerous stems of Cyclobothras show that the hillside has been unusually crowded with their picturesque bells, but that was two months ago, in the time of Trilliums and Fritillaries. The best thing for one to do is evidently to search in some far off ravine where the woods are thicker and the growth

more varied, for as yet not a leaf of the wished-for shrub has been discovered. Back, then, let us go to the wood-camps, and then, like the pioneers of Aryan blood, westward. There are four hours left before the train returns, and how much one may do in four hours if the fates be not unfriendly; in far less measure of time the tides of empire-changing battles have been turned. Thus meditating, I chose an old wood-trail leading west in a winding track, and followed it for hours, making occasional detours north and south, and scanning all the ravines and slopes. Sign of human occupation there was none, nor all that afternoon did any living creature cross my path. I saw a green water snake, graceful and bright-eyed, swimming over a pool in the stream; flocks of quail rose whirling and soft-winged; but no cattle browsed in the wood-paths, no sheep nibbled among the sharp stones, and animal life seemed nearly absent from the region. Three miles west, and the ascent grew difficult and almost impossible at times by reason of the dense undergrowth. One climbed only with painful toil from opening to opening. The natural slope of the mountain was so abrupt, that often the outstretched hand as one stood upright touched the wall-like bank. The red shale slipped under foot, and now and then I slid downward despite my best efforts, and lost 5 feet or 10 feet before a grasp upon some friendly bush prevented further descent. Then came a belt of long-fallen trees, so brittle that one could not walk over them, for the decayed branches would break, and let him slip through to the ground with stiff, hard, thorny branchlets about his face, and amid rank growths of

#### WILD ROSES AND BLACKBERRIES.

Through, under, and over this *chevaux-de-frise* that in its prime would have made an army hesitate I was compelled to proceed for more than half an hour. Next came a belt of fine Fir trees, then Oaks and chaparral, then a barren sweep upwards towards the sky, then a view that was glorious payment for the climb. Tamalpais, Mount Diablo, the Santa Rosa Valley, the grey peaks beyond, hints of Sonoma, Napa, and Solano, the bays northward, the Heather-like purple of the heights of Northern Marin—and westward, under a sea of shining cloud, more than hints of the silver gleam of the ocean that Balboa saw and Drake swept with Queen Elizabeth's cannon and England's Spaniard-defying flag. But it is high time to return to the weather-beaten water-tank by Lagunitas Creek if the afternoon train is to be taken, and as yet no Azaleas, no Rhododendrons have gladdened our eyes in all this ascent. Surely it is time to be discouraged, or rather, to speak more wisely, this is a fitting opportunity for a large use of Mark Tapley's most desirable philosophy. Therefore, let us be jolly, and eat our last cracker, and empty our water-bottle, and drink without envy to the health of the man, whoever he may be, who first found a Rhododendron. Let us content ourselves with the happy thought that, hid by the spring, near Lagunitas Station, cool and moist and fresh, are whole armfuls of flowers we have already gathered, and that we shall not go home empty-handed. Like the ideal philosopher of the Hindoo sage, we have "wandered alone like a rhinoceros" all day, and we are master of circumstances, by Carlyle's simple formula of reducing our denominator of personal desires. We have had a long day's large measure of healthy, out-door delight, and it is sufficient. Turn eastwards, therefore, and hasten, for the time is short, still keeping a careful watch of the woods, hope, as ever, dormant in the heart, ready to spring full flowered at a sign. At last we near the last bend of the stream and catch a glimpse of the railroad track. Ah! how dark and close is yonder nest of shrubs on the hill! Let us climb nearer, though it cost us the loss of the train. They are surely Rhododendrons. Yes! I know the leaves, the growth, the dark stems; but no flowers are here, though a month ago there must have been an abundance, and if it were not such poor soil there would be still. I only find, after long search, the faint, fragrant, and fading purple petals of one flower, just fallen to the ground. The Rhododendron quest has ended in a withered flower. But has it, after all, when there is another spring tide coming on, and another season of blossoms next year? I shall



find my Rhododendron still some day. Last trophy from the hills, latest discovery, just as the engine is whistling far down the gorge, I find Azaleas in a thicket by the stream, hid so well that one might have passed by a dozen times and not have suspected their nearness. They were countless, and in their prime of snowy and golden magnificence. The breath of them was like the sound of a violin played by a master. One could afford to be glad that he had not found them sooner, else perhaps he might not have valued them so much; else, certainly, he would not have climbed so far, and crowded so much into one day's wanderings.—C. H. SHINN, in *Overland Monthly*.

**Golden Elder.**—Planted in a mass of, say, from six to twelve plants in a shrubbery, in front, if possible, of some dark

Evergreens, the Golden Elder is very effective in summer. When placed so as to receive the full rays of the sun, it colours much better than in a less sunny position. It is, however, often planted in out-of-the-way places, and in such a position it neither grows nor looks well. Planted in a mass, near a plantation of purple Hazel, the two colours blend most effectively. The Golden Elder is easily propagated from cuttings put in at this time of the year. Select stout shoots of this season's growth, and cut them into lengths of about a foot, cutting close to a joint. Insert the cuttings in rows a foot wide and 6 inches asunder in a border having a northern aspect. Use a little sand when putting them in and tread firmly. During the following summer they will make good growth, and in the autumn or spring following they may be planted in their permanent places, or transplanted at wider distances, and allowed to remain another year to strengthen. They should be pruned close in, say to two eyes each year, or they soon get leggy and unsightly.—E. M.

**Alcock's Spruce.**—Instances are constantly occurring to prove that Japanese Conifers are, as a rule, hardy. One of the most beautiful Spruces from Japan is the *Abies Alcockiana*, or Alcock's Spruce. The peculiar tint of its foliage at once stamps it as entirely distinct from any other species, as the upper sides of the leaves present a golden tinge, while the upper portion is silvery. In the island of Nippon, whence it comes, it forms a tree nearly 100 feet in height, growing on the mountain-sides at about 6000 feet or 7000 feet elevation.—A. T.

**Hemlock Spruce hedges.**—I have often wondered how such fast-growing evergreen trees as the Hemlock Spruce and Lawson Cypress were not more frequently employed as evergreen hedges. I had several Lawson Cypress hedges made here for sheltering a nursery, and they soon got to the size required, and bore well the cutting and clipping to which they were subjected to keep them in shape. Hemlock Spruce would answer the same purpose,

and when tried, both in the case of it and the Lawson Cypress, young plants should be selected so as to start with a bushy form. The soil should be trenched, and if necessary should be enriched with peat or leaf-mould, so that the plants may have a good start, when success would be certain.—W. T.

#### PICEA NOBILIS FROM SEEDS.

TWENTY years ago my practice was to fertilise the cones by means of a small brush loaded with pollen—cones at that time being worth a guinea each; but I found that as the trees advanced in age and size they generally produced abundance of beautiful crimson catkins loaded with pollen, which on being agitated by the wind shed it like a cloud of dust, fertilisation being thus effected without artificial aid. The cones

base of the stem, and can collect food and support from all quarters, a matter of the utmost importance as regards their future well-being. When about a foot high they should be planted out where they are to remain, care being taken to spread the roots out properly at the time of planting. In this way I have raised and planted out with great success large numbers of this fine Conifer, and although some of them are growing in exposed situations, I have never seen a single tree so treated uprooted by the wind.

J. B.

**Weeping Turkey Oak** (*Quercus Cerris pendula*).—Loudon says that the handsomest tree of this Weeping Oak in Britain, and perhaps in Europe, is probably that at Hackwood Park, from a specimen of which the illustration in his "Arboretum" was prepared.

This tree was planted in 1800, and in 1836 it was nearly 40 feet high, with a trunk clear of branches to the height of 8 feet 9 inches, which, at the surface of the ground, was 2 feet 10 inches in circumference. The branches not only droop to the ground, but after touching it they creep along the surface to some distance, like those of *Sophora japonica pendula*. The largest branch is about 17 feet in length to where it touches the ground, and it extends about 4 feet or 5 feet more along its surface. This variety seems remarkably distinct and well deserving of culture.

**Abies Albertiana.**—This Conifer has now been introduced to this country long enough to show that it is capable of coming to perfection in this climate. It has not received half the attention which it deserves, because it is so much like the common Hemlock Spruce (*Abies canadensis*), which does not usually thrive in this country, from reasons that are difficult to explain, and is at best but a rather small tree. *Abies Albertiana* in the forests of Oregon is a large and most graceful tree, attaining a



Rhododendrons and Azaleas in a Californian garden.

are ready for collecting in harvest time, and care should be taken not to allow them to remain too long on the tree, or the seeds will be shed and lost. In spring the seeds should be sown broadcast on well-prepared, light soil in nursery beds about 4 feet wide, and as they are of large size, I have found it beneficial to pass a light roller over the bed after sowing, which has the effect of settling all down in a uniform manner. A little fine soil should then be evenly spread over the whole, and the work is finished. When the seedling plants have attained a height of from 4 inches to 6 inches they should be planted out into nursery lines in the following manner: Stretch a line along the surface of the ground, and with a spade cut a notch on both sides of the line from one end to the other, thus leaving a small ridge below the line; then remove the line and set the plants along the ridge about a foot asunder, spreading the roots out both ways, and drawing the soil over them as the work proceeds. Under this mode of treatment they become furnished with fine roots round the whole

height of 120 feet in most places, and exceeding that height occasionally; so it far surpasses *A. canadensis* in stature, while it closely resembles it in habit. Its soft, drooping branches and delicate feathery sprays of foliage, silvered over on the under side, coupled with great rapidity of growth in ordinary soils and situations, should make it a formidable rival to the Deodar, as a graceful tree to be looked at on a lawn at all seasons of the year, and its hardness, combined with its beauty, makes it, perhaps, the most satisfactory tree of large growth introduced during the last twenty years.—W.

**The Golden Willow** (*Salix vitellina*).—This Willow has a very ornamental appearance when planted in large groups. Their masses of waving golden branches in winter, when the leaves are off, have a pretty appearance in the rear of masses of Evergreens, especially when associated with masses of the Red Dogwood (*Cornus sanguinea*), another low-growing deciduous shrub that might be advan-



tageously used for giving life and colour to masses of dark-leaved shrubs in winter, in ornamental game covers or large shrubberies. The pliable twigs are most useful for tying and other purposes, and after all the twigs that are required for use have been taken off, the remainder, in the spring, just before growth commences, should be cut well back. This keeps them dwarf, and stimulates the further production of plenty of young clean shoots. Cuttings of strong shoots, about 15 inches long, planted firmly in the ground, about two-thirds of their length, will soon make good plants.—E. H.

### PLANTING UNDER TREES.

As regards the results obtainable from this kind of planting, a good deal depends upon the nature of the shade, its density and duration, points which should be considered before deciding what to plant. In the case of evergreen trees, it is of but little use to plant anything but Ivy to carpet the ground under them, and as much light and air as it is possible to secure should be allowed to reach it. In planting under deciduous trees, there is much more prospect of securing satisfactory results, provided the branches do not come nearer than 6 feet to 8 feet of the ground. If they should come lower than that, it is advisable to cut them off. Of all deciduous trees, I find the Horse Chestnut to be the most injurious to anything growing under it. The Beech, the Elm, and Sycamore do not seriously affect undergrowth more than might be expected from the dense canopy of foliage with which they are furnished in summer. In dealing with spaces under deciduous trees which have attained a large size, and filled the soil even to near the surface with roots, it will be necessary to make the soil as suitable as possible for the reception of the plants to be put under them. It will do no injury to the trees if the surface is broken up from 4 inches to 6 inches deep. When this is done, some fresh earth should be mixed with the surface soil, for it is necessary to give the underwood a bit of good soil in which to start. The trees, too, will derive benefit from the new soil. Once the undergrowth gets hold of the soil, it will take care of itself as well as the circumstances under which it is placed will allow. Early in October is doubtless the best time to plant Evergreens under trees; if done later, all through the spring and summer the plants should receive as much water at the roots as will keep the soil about them moist. Where only one kind of plant is required, there is nothing better than Box. Plants of this about 2 feet high that have been grown in an open position are the best. They must be planted rather thickly, as they will not grow very fast. In such positions Box is more inclined to get bushy than to increase in height unless drawn up by surrounding subjects. In most cases a mixture of Evergreens will have the best effect. I have found the following to succeed under trees as well as one could expect, viz., Aucuba, Euonymus, Laurustinus, Yew, Rhododendron ponticum, Berberis Aquifolium, Box, green Holly, Butcher's Broom, common Laurel, and Portugal Laurel. In order to secure a carpet of greenery under trees, the St. John's Wort answers fairly well if the shade is not very dense. But the most satisfactory plant for this purpose is the Irish Ivy. For this the ground should be prepared in the same manner as for evergreen shrubs, and as growth is made, it should be pegged down until the surface is covered. Where it is not desirable to plant anything of an evergreen character under trees that stand in isolated positions on lawns, the ground beneath them may be made to have a cheerful appearance in early spring, before the leaves expand, by planting the space with bulbs, such as the Winter Aconite, Snowdrop, and Crocus. There is also a variety of variously coloured Primroses, which would live in such places if neither the lawn mower nor the scythe were allowed to go near them during summer. J. C. C.

**The Purple Birch.**—Many of our readers are familiar with the Purple Beech, which has hitherto stood unapproached by any other purple-foliated tree. The Purple Birch bids fair to divide honours with it when better known. The habit of this tree is similar to that of the Cut-leaved Birch, the pen-

dulous form of which is so popular throughout the country; but the leaves are entire, larger, and of a colour even deeper than that of the Beech, as ordinarily seen. What makes it more pleasing is the silvery white bark, which seems to throw out in stronger relief the beauty of its dark, rich leaves.

**Cotoneaster frigida.**—Among trees and shrubs this makes a showy object in winter. It is of robust growth, not particular as to soil, and produces freely large bunches of bright red fruits. These, too, seem less liable to be attacked by birds than those of many other trees and shrubs, and, therefore, remain in perfection for a long time. Their depth of colour seems to vary a good deal in different individuals, no doubt owing to the plants being raised from seed. Comparatively common though it be, it is certainly better worth the attention of planters than many oftener employed by them.—A.

## KITCHEN GARDEN.

### EXHIBITION AND TABLE POTATOES.

WHAT are exhibition Potatoes but ordinary kinds well grown? and there is not a kind mentioned in THE GARDEN (p. 298) but what has been found on show tables from time to time and included in winning collections. What good, therefore, can result from setting up arbitrary distinctions? One of the very foremost of present day exhibitors wrote a few days ago as follows: "My crops and samples are again far better than, for the season, I could possibly have expected, and the table quality is excellent." Perhaps good cultivation had something to do with this good table quality; hence with not a few it is a case of sour Grapes. Or it may be that soil constituents make all the difference, and if so, then it should be a warning to some not to measure others' corn with their own bushel. I find Potatoes to cook finely off our soil this year, and absolutely no distinction is to be found in that respect between so-called show kinds and less handsome sorts. If a grower has soil that will not produce good table Potatoes, his case is to be commiserated; but still he should not, therefore, proceed to denounce certain or all kinds of Potatoes as bad because he cannot produce good table quality, whilst others can get it easily. During the summer, when visiting a provincial show, I found brisk competition amongst market growers for the best bushel of Potatoes, and the first prize was awarded to International. I inquired afterwards of the exhibitor how he was growing that kind for market, as in some districts it had an indifferent reputation for table quality, and his reply was, "It is capital off my soil, and, being fine in tuber and a big cropper, it always pays well." Other kinds were Bresees' Prolific and Idaho, kinds largely grown in that locality. On the exhibition table, International has secured its object—viz., that of showing what a handsome kidney Potato should be, and now we find Recorder, Cosmopolitan, Snowdrop, Hughes' Prolific, Chancellor, and other white kidneys almost as fine and handsome, of first-rate table quality, and popular on the show table. I am indeed surprised to read any attempt to deprecate the quality of Woodstock Kidney; without exception it is here equal to that of the best Lapstone ever raised, with this additional value that whereas the latter looks somewhat firm in the tuber, those of Woodstock Kidney are soft, floury, and nutty all through. If we turn to coloured kidneys now found exhibited, we find first-rate quality in Prizetaker, Lifeguard, Cardinal, Beauty of Hebron, and others, but this section never was a large one. The last is the most popular early kidney in the London market, and the others have excellent table quality. Of coloured rounds most popular on show tables there are Reading Russet, Radstock Beauty, Vicar of Laleham, The Dean, Rosebud, Matchless, &c., all having first-rate table quality, and equal to the very best mentioned by adverse critics. Finally, of white rounds, Prime Minister, Early Regent, London Hero, Schoolmaster, Sunrise, Early Border, &c., are but a few I can call to mind as handsome show kinds, and yet all of first-class table quality. Of the sections mentioned, there are many others which could be named, but I have referred to quite

enough to show that in so-called show sorts we have an abundance of kinds constantly found on show tables which are equally good for human food. The International Potato Show, on the tables of which are usually found more varied kinds than are seen elsewhere, will soon be here, and I shall note with interest what kinds then seem to stand out as the best and most striking. I have no doubt whatever that the majority of these will prove to be kinds having sterling table quality and simply good varieties well grown. Now that such uncertain kinds as Regents, Victorias, and some other deep-eyed and not least disease-subject kinds have been materially eliminated from our sorts in ordinary cultivation, it is not at all difficult to obtain samples from almost any kinds that are handsome. Why, even the popular Magnum Bonum, which is more widely grown for market than any half-dozen other kinds put together, has in the past, and still with good culture, given plenty of handsome show tubers. Of course, some soils will turn out much handsomer tubers than others; but Potato soils, after all, are very much what good cultivators make them; so that, after all, I presume success in Potato showing is more a criterion of good culture all round than anything else. With reference to certain kinds named as so-called show Potatoes (p. 298), I should like to say that Emperor, Grampian, Vermont Champion, Porter's Excelsior, and Wiltshire Giant are kinds seldom seen at large shows now, and no encouragement would be given to them as against superior sorts; indeed, the selections I have given above show that these kinds do not enter into the recognised handsomest sorts. Sanday's Seedling was introduced as a new kind but a year or two ago, and it is now found to be but the old Lapstone reproduced. Good as the Lapstone may be, its poor cropping qualities prevent its becoming popular. I have no difficulty in obtaining from Chancellor, for instance, a crop three times as big as Lapstone will give, quite as handsome in sample, very free from disease, and good keeping. Potato exhibitions, I trust, do encourage kinds that, besides being handsome, are of good quality, and help to give the grower profitable returns. A. D.

**Large yield of Potatoes.**—I planted sixteen eyes, which I took from two Potatoes called the Flounder, weighing half a pound, and the produce from them was 75 lbs., all sound and good when taken up. The largest Potato weighed 2 lbs., and six of the largest 9 lbs. They laid exposed to the air and are now turned green; some few of them have become diseased since they were lifted.—J. W. MILLS, *Minterne, Cerne Abbas, Dorset.*

**White Elephant Potato.**—This seems to be especially well suited for dry seasons; the drought that has so seriously affected some crops, and even many varieties of Potatoes, has enabled the White Elephant to produce tubers evenly-sized and excellent in quality. I have been somewhat sceptical as to the value of this sort as a garden Potato, owing to the varied reports that have been made respecting it. I resolved, however, to try it fairly along with other kinds grown for seed. In the end of March I planted two gallons of seed in rows 2½ feet apart in good soil, and have just lifted the crop. It consists of two cwt., or one cwt. from each gallon of seed, which is the heaviest crop of any I have lifted this season. These American Potatoes are decidedly of better quality in dry soils and seasons than in moist, dripping ones; hence the conflicting accounts that occur as to quality. In this locality the American Rose, Beauty of Hebron, and kindred sorts are excellent cropping, cooking, and eating Potatoes, while in stiff retentive soils they are not so satisfactory.—J. GROOM, *Gosport.*

**Winter Spinach.**—This is a most valuable crop for giving variety to the list of green vegetables in season during the winter months. This season it should especially commend itself, from the fact that, owing to the protracted drought, all the varieties of Cabbage, Broccoli, &c., are likely to be a very short supply; and, even if we get sufficient rain, the season will be too far advanced for late plantations to make much progress. But Spinach, being of more rapid growth, will, if sown now, make good-sized leaves fit for picking during the winter. Any good soil, from which crops of Beans, Peas, or



Potatoes have been cleared, will do for Spinach. Fork it over, and draw drills 1 foot apart, and if the soil is still dry, give the drills a good soaking of water, then scatter the seed along the drills, having previously soaked it for several hours, and cover it with soil, treading it in firmly. For early winter I like the rounded-seeded or summer Spinach, sown rather thickly, for as soon as it is 6 inches high it can be cut right off close to the ground, and every particle is eatable; but for mid-winter and spring the prickly-seeded variety, sown thinly and allowed to develop large leaves that are picked off singly, is the one to rely on, and in severe weather some dry Fern fronds or light evergreen branches should be laid over the bed.—HANTS.

## WORK DONE IN WEEK ENDING SEPT. 22.

SEPTEMBER 16.

VERY fine. Gathered the following varieties of Pears: Beurré de l'Assomption, Beurré Hardy, Brockworth Park, a few of Beurré d'Amanlis and Swan's Egg. All kinds are quite free from spot, but some kinds are small by reason of drought. In gathering, they are handled as carefully as are Peaches, and are laid on the fruit-room shelves in single layers only, the ventilators of the room being for the present kept constantly open. The rain has marred the appearance of the flower garden, at least so far as the flowers—Pelargoniums in particular—are concerned, and such beds are being put in order by clipping the verges and picking off all bad flowers and leaves. There are plenty of flower-buds, and, of course, these are all preserved, and which a few fine days will expand and give us a second edition of gaiety. The foliage beds are all the brighter by contrast with the washed-out flower beds, and these we are also having put in order by picking or clipping into form any that have grown unevenly, so as to interfere with or mar the design of the bed. Cleaning up generally. Propagation of bedding plants is still the principal work of indoor hands; Pelargoniums are nearly completed; Coleus, Alternanthera, and other tender kinds are the next on the list. The frames in which to strike them have been ready for some days; two-thirds Oak leaves and one-third fresh stable litter are what we use as bottom heat in which to strike plants of this description. Gathered the last fruit from late Peach house—Princess of Wales and Raymacker's; the latter is an improved Noblesse in size and colour, but scarcely equals that variety in quality of flesh; the wood being already quite ripe, the house has been thrown wide open and the inside border well watered.

SEPTEMBER 17.

Occasional showers. Still trimming up flower beds. Tied up Michaelmas Daisies and the tall Pyrethrum uliginosum, and picked over and weeded herbaceous flower borders generally. Thinned out Spinach. Prepared, by deep digging and manuring, a south border for Cauliflower plants, on which they will be planted from 4 inches to 6 inches apart, and during severe weather they will be covered over with Bracken or long litter, and be transplanted in spring—a plan of growing Cauliflowers that we prefer to the usual one of growing them in hand-lights. Cut all ridge Cucumbers and cleared off haulm, the manure-heap on which they have been growing being required for ground that has been cleared of Potatoes, and which is now to be trenched for next year's Onion crop. Gathered a large number of Peaches from open walls, the best kinds at the present time being Noblesse and Nectarine Peach. We have wasps in shoals, but, singular to relate, they have as yet done little damage to fruit of any kind, their attention being almost solely given to the honeydew blight on Plum and Pear trees, and from their persistency of attack on this blight it appears as if the fruit will for once escape their ravages. We destroy their nests as soon as found by pouring coal-tar into the holes. Thinned out lateral shoots in late vineries and cut out a few shanked berries. We find it necessary to keep the fires gently going this damp weather, to prevent moisture condensing on the fruit. Pruned early Muscat Vines and took the lights entirely off the house, and thus the border, an inside one, is, as it were, turned outside, and the Vines are more completely at rest. Gave more room to Primulas and

Cinerarias in frames by moving a few of the earliest into the greenhouse and potted on a later batch. Potted Pinks and Carnations that had been struck in frames. They will have the shelter of frames through the winter, and be planted in the open borders in March.

SEPTEMBER 18.

Rain during the night, but a splendid sunny day. Gathered the following sorts of Pears: Brockworth Park, part of Durandau, Marie Louise, Louise Bonne of Jersey, Dunmore, and Beurré de Capiaumont. Gathered Apples—Cellini, Lord Suffield, Kerry Pippin, and Emperor Alexander. Gathered all Green Gage Plums, the only variety not yet gathered being Golden Drop. Earthed up Celery and the earlier Broccoli. Veitch's Protecting Broccoli is just turning in, being in advance of Autumn Giant Cauliflowers that were planted on the same day. Made another sowing of Lettuces between the rows of Strawberries that are planted for obtaining runners for forcing next year. The rows being 4 feet apart, there is ample space for a row of Lettuces between, and which will be used before the space is required for plunging the pots in for layering the runners. Had a turn at cleaning up sub-tropical garden; clipped edges of beds, picked off bad leaves and flowers off Funkias, Castor-oils, and Sunflowers, and tied up any plants likely to be injured by wind or heavy rain. Our most telling plants in this garden are the Australian Dracenas, Phormiums, Arundo conspicua (this has been in flower over two months), variegated Agaves, Ferula gigantea, and Acanthus mollis. This last has spikes of flower from 3 feet to 5 feet in length. Got soil—sandy loam—into cold frames in which to strike the harder kinds of bedding plants, such as Gnaphalium lanatum, Leucophyton Browni, Calceolarias, and Violas; a good many of the latter we propagate on borders under the shelter of walls, and cover them up with mats or Bracken in frosty weather. Offsets of Echeverias and Sempervivums now being put in, we winter in the same way, except the tender kinds, such as E. farinosa, E. Peacocki, and the tender Sempervivums; these all require warmth, and are therefore wintered in a heated pit. Picked runners off forcing Strawberries, and a few of the weakest side crowns were pinched quite out; a single large crown always throws up the best fruit. The pots are lifted each time the runners are picked off, so as to prevent roots forming outside the pots. Watered all Pines, the fruiterers being given manure water at each watering. There are a number of suckers that have been taken from fruiting plants to be potted at the first opportunity, and meanwhile they are heeled in between the plants in the Pine bed.

SEPTEMBER 19.

Rain all day long, so that, beyond a little cleaning up of flower garden and walks, nothing whatever has been done outside. Arranged Apples and Pears on fruit shelves, and sorted out all bruised, specky, and very small fruit of Apples for immediate use, and the largest Pears that were bruised for stewing, the very small fruits being thrown away. Till the fruit has all been gathered and got well inured to the atmosphere of the room, the ventilators are left wide open in all weathers. Lime-washed several pits in which are to be wintered bedding and forcing plants. Repairing and making boxes for bedding plants and sundry other little jobs in houses and sheds, that were it not for a rainy day would not get done. Shortened back laterals on Gros Colman Vines. The Grapes have coloured up moderately well, and till this has taken place we like to let the laterals remain. Mrs. Pince and Gros Colman we always have a difficulty to colour up well—indeed, the former beats us quite; but there is some consolation in the fact that it is just as good to eat when red as it is when quite black.

SEPTEMBER 21.

Very fine, with bright sunshine, a most welcome change, and much needed for ripening off Tomatoes, late varieties of Apples and Pears, and the wood of fruit trees generally. We are now going over Apricots to thin out all unnecessary wood, and to pinch back the new lateral growths that have pushed since the heavy rains. This done, the pruning required in winter is next to none at all, and the

reason for doing it now will be obvious to all, namely, the better to ensure ripeness of wood by the fullest exposure to sunshine of every branch. The flower garden still monopolises a great proportion of our labour, in the direction of keeping bad and seeding flowers picked off, and the foliage beds trimmed, and tall plants tied up. The arrangements that beget most praise are, as a rule, those that are the least intricate and quietest—if I may so express it—in colour, as, for instance, white Viola, light blue Agathæa, and pink-flowered Pelargoniums in mixture, or, again, variegated Pelargonium Lady Plymouth, blue Viola, and Fuchsias as standards, and still another is the yellow Marguerite, dark blue Heliotrope, and the pink-flowered Pelargonium Manglesi variegatum. The same is true of foliage colouring; high colour combinations are not pleasing. Succulents of various kinds and heights in a setting of the variegated Mesembryanthemum, in which is here and there dotted a plant of the large-flowering Mesembryanthemum conspicuum, is always pleasing; and so is an arrangement of Alternantheras, the blue Kleinia repens, and the white-foliaged Leucophyton or Antennaria; whilst as to large foliage, nothing can be more effective than a bed of bronzy-leaved Ricinus Gibsoni with an undergrowth of the white-leaved Salvia argentea. Gathered a few more Apples and Pears and all the Filberts and Cob-nuts. Planted Violets in frames; Marie Louise (double) and Queen Victoria (single) are still our favourites. Put in cuttings of Alternantheras and Coleus. Only a sufficiency are now propagated for the production of cuttings in spring.

SEPTEMBER 22.

Another fine day, and the thermometer this morning (37°) warned us of the necessity of getting the propagation of tender plants completed. Trimmed Grass verges of Rose beds, weeded and pulled out Brier shoots, and cut back a few of the lanky and flowerless growths, and surfaced the whole of the beds with Cocoa fibre. The autumn bloom promises to be equal to that of June, and as they have been well watered through the long drought, mildew, usually so prevalent in autumn, is conspicuous by its absence. Many of the auratum Lilies planted between the Roses are still in good flower, but others are over, though their stems remain, and are allowed to decay naturally. Amongst Roses in kitchen garden borders have to-day been planted Canterbury Bells, Sweet Williams, Pentstemons, a few Wall-flowers, Brompton Stocks, Limnanthes Douglasi, and Silene pendula. Began to harvest Onions; till thoroughly dried they are housed in a loft in an airy shed, but presently will be moved to the floor space under fruit-room shelves. Gladioli, Asters, Stocks, Mignonette, Sweet Scabious, and Salpiglossis still make a fine show in the mixed flower border, and are invaluable as cut flowers. To keep such borders free of weeds and in neat order generally it is necessary to go over them once a week and alike with Roses and perennials; ours have had their turn to-day. Propagation is still the order of the day in regard to work in houses; also disbudded a few Chrysanthemums. Plants that are being grown as bushes for conservatory and house decoration we also partially disbud, from three to six of the most prominent buds being left on each shoot, according to its strength. Cleared Melons from one of the divisions of Melon house, and put in their place Tomatoes that have been grown on in the open air for the purpose, and which are just showing flower. They are in 10-inch pots, and being stood on old Melon beds, they will root through and get some little assistance from the Melon soil, and, being trained to the trellis, they will get an abundance of light and all the sunshine we may be favoured with, so that they can hardly fail to fruit satisfactorily.

HANTS.

## FRUITS UNDER GLASS.

VINES.

Although the wood in many early forced houses is now ripe and fit for pruning, it will not be wise, except under special conditions, to commence this operation until the weather becomes colder, particularly where, through attacks of spider or other causes, the foliage has fallen prematurely from the Vines before



it has properly performed its functions. Had the weather continued dry, this caution would have been unnecessary, but the unusually heavy rains which have fallen throughout the country will have started the highly heated components of early borders into a state of fermentation, which may tend to the premature bursting of the buds; and it is well known that premature starting means ripe Grapes when they are not wanted, a gap when they are wanted, and most likely the speedy uprooting of the Vines. One very important matter the much-needed downpour will favour, and that is all border work, be it lifting and renovating additions, or only the ordinary top-dressing with fresh loam and bone dust. Many people dread the operation of lifting and relaying the roots of Vines during the time they are in full leaf and possibly still carrying a few clusters of fruit, but this is unquestionably the best time, as the earth is warm and the descending sap favours the formation of fresh spongioles before the leaves fall. The Grapes can, of course, be cut and bottled if every root is disturbed, as it is then necessary to keep the house close, moist, and warm until new growth sets in. This precaution is not, however, necessary where they have the run of internal and external borders, as experience justifies the assertion that one or other can be taken out and re-made without prejudice to a full crop of fruit which may be hanging or in many instances causing the foliage to flag. The most difficult houses to deal with are those from which the Grapes are usually cut about Christmas for bottling, but this difficulty can be got over by deferring the operation until the end of February or early in March, when returning activity will at once favour the formation of fresh roots, and although the succeeding crop may be a little smaller in the bunch, the berries will be good and colour perfect. The compost for spring renovation may be prepared early in the autumn while the materials are fresh and dry, or the turf can be stacked in an open shed and chopped down when it is wanted for use. In either case it should be protected from cold, rain, and snow, and a good body of fermenting material should be at hand for placing along the front and over the surface as soon as the new border is made. The most unfavourable time to disturb the roots of Vines is immediately after winter or bottling. Grapes are cut, for no matter how plentiful they may be, or how carefully the operation may be performed, the long resting or dormant period which intervenes before new growth sets in invariably paralyses the roots and causes many of them to perish. Two instances of this kind have lately come under my notice, and as some may wish to renovate their late Vine borders after the crop is cut, my advice is, patience. Let the Vines rest through January and February, have compost and fermenting material in fit condition for use when the buds begin to swell, choose a mild time for lifting, and perform the operation with the greatest care and dispatch.

#### MIDSEASON VINERIES.

As Vines in midseason houses are cleared of Grapes, cut back the laterals to the main buds that are expected to give the next year's supply of fruit; also remove all superfluous growths that interfere with the free passage of light and air, and cleanse the Vines with the syringe if infested with insects of any kind, not otherwise, as a sloppy state of the house is not particularly favourable to the hardening and ripening of the wood. When once clean keep the house dry and freely ventilated, and avoid injuring the old leaves by exposure to wind and wet, as perfectly formed buds cannot be secured or depended upon where they are destroyed before they have completed their functions and fall naturally. The worst insect pest it is hardly necessary to say is mealy bug, but this can be kept in check by the occasional use of paraffin, an eggcupful to a gallon of water from the time the fruit is cut until the Vines are pruned. This will not annihilate; it will only check the enemy; indeed, it is hardly possible to apply an insecticide that will at once kill it off without destroying the Vines or injuring them to an extent that will render them useless. When thoroughly established, the house, the floors, the walls, and the borders, as well as the Vines require cleansing, and it is not difficult to destroy thousands of bugs by scalding, scrubbing, painting, and lime-washing, but there will escape a remnant, it may be a single bug

or only a nest of eggs, and it is at this stage that the work of annihilation must be taken in hand. Assuming, then, that the rods have been well cleaned and painted with the now generally used coal tar dressing, one-quarter of a pint to a gallon of finely sifted loam worked into a paste and reduced to the consistency of paint with boiling water, operations may be suspended until the spring, when, provided with methylated spirits and a camel's-hair brush, daily search must be made for the insects as the warm sun draws them out of their winter quarters. The eggs that have escaped the fumes of the tar may not be numerous, but if left alone and the first batch of young become parents, all hope of extermination will be over for another year. Many Grape growers kill off the flower of the army at the first winter dressing and rest or forget all about the stragglers, when they ought to be up and on the alert in the spring; the consequence is an everlasting raid upon one of the most troublesome and loathsome enemies with which the fruit or plant grower has to contend.

#### STRAWBERRIES.

The fine rains we have recently had have given late potted plants a fresh start, and unless some means are adopted for giving them a timely check winter may be upon us before the crowns and roots are properly ripened. It will not, however, do to bring this about by suddenly cutting off the supplies, as Strawberries generally make good progress throughout the month of September, and if not closely watched overgrow and shade each other at a time when they cannot have too much light and air. In this garden, which lies very low and is much shaded by lofty hills and woods on the east and west, we have always found the perfect maturation of the crowns in ordinary seasons a matter of some difficulty, but unless the season has been unusually cold and wet our mode of treatment has generally been followed by satisfactory results. The first point is a good supply of early runners from maiden plants of the preceding year, then comes the selection of clean medium sized pots, dry and liberally crocked to admit of the free passage of water during the growing and forcing seasons. As we neither have time nor inclination to use small 3-inch pots, these clean fruiting pots are firmly filled with good, but not over rich, compost under cover on wet days, and are in due course conveyed to the quarters, or, better still, double rows of plants in near proximity to water. The runners are pegged down and the hose plays an important part during the time they are making roots. So soon as they are fit for removal, a high and dry worm-proof station is prepared for them where they can have an abundance of room from the first, to prevent the young leaf-stalks from becoming elongated. As growth proceeds we turn the stock every ten days or so to keep the pots free from weeds, runners, and worms, and to prevent the roots from escaping through the apertures. About the middle of September the pots are elevated on a long narrow platform made of plank some 18 inches from the ground, where they are regularly tended with water and disbudded to throw strength into the centres, as we find a strong scape from a single bud always produces the finest fruit. Here the plants are allowed to remain until frost sets in, when they are removed to cold pits for the winter.

#### PEACH HOUSES.

Now is the time to carry out all border operations in these structures. If not already done, early and succession houses should be taken in hand first, as the buds are unusually bold and prominent, and although the foliage is still fresh and green, the trees are in the best possible condition for lifting and replanting or root-pruning. The mode of carrying out this work and the quality of the compost having been so often described, it is only necessary to remind the tyro in these matters that all stone fruit trees require good drainage through which the water can pass freely, and a strong resisting calcareous loam corrected with burnt earth or old lime rubble produces the finest fruit, while light sandy loams, owing to their greater liability to become dry, tend to the casting of the flower-buds and premature ripening when the fruit ought to be commencing the last swelling. The compost, free from animal manure, should be

firmer rammed below and above the main roots when in a rather dry state to induce the production of numerous feeders before the trees go to rest. A liberal supply of tepid water will then carry the soil home, and a good mulch of short manure will make the trees safe until they are tied in ready for starting. Formerly it was the practice to lighten the crop of foliage by brushing the trees with a switch, but this is not a good method, neither is it necessary where the superfluous wood is cut out as soon as the last Peach is plucked, as every shoot then has full exposure to light and air, and by allowing every leaf to fall when it has completed its office the danger of bud-dropping is in a great measure done away with.

#### LATE PEACH TREES

from which the fruit has just been gathered must now be carefully pruned and well washed with the hose in order to free them from dust and spider. If root-lifting is considered necessary, dry friable loam free from manure should be used, as the trees will grow quite strong enough without it, particularly where the roots are outside and heavy mulching becomes necessary. Late varieties, like Walburton Admirable, Barrington, and Sea Eagle Peaches, Albert Victor, Humboldt, and Victoria Nectarines, when retarded in the spring and allowed to make slow progress with full ventilation throughout the summer, do not always ripen their wood and buds sufficiently without the aid of fire-heat. But by annual or biennial root-lifting and moderately heavy cropping gross growths are avoided, and gentle warmth applied to the pipes with liberal ventilation until the leaves fall generally leaves nothing to be desired on the score of ripeness. Still further to aid the process in exceptionally bad seasons, late houses may be shut up with dry sun and fire-heat about one o'clock in the day, provided they are reopened early the following morning.

#### YOUNG PEACH TREES.

I lately directed attention to the importance of paying an early visit to the nursery for the twofold purpose of having the first choice of the best trees and getting them carefully lifted and transferred at once to their quarters on the reserve walls. Always patronise nurserymen who lift and transplant annually, select trees with bright clean stocks and evenly balanced, but not over-strong shoots, and avoid those who shirk the spade and disappoint their clients by the production of gross overgrown trees with base buds buried in sap and shoots imperfectly ripened. Every forcing garden should have a good reserve wall from which young trees can be selected and worked through late and midseason houses until eventually they reach the earliest, where under judicious management the most difficult point in early forcing can be got over, as they can be started with the established trees about the end of November.

#### TURF AND COMPOST.

Without suitable compost the best laid arrangements may fail, but by a judicious selection of good turf from an old pasture, cutting, carting, and stacking before it is cold and saturated with wet, the main staple of a good border is always within reach. Good turf cut dry can be used at once, or it may be stacked in long narrow ridges in the soil ground, where, securely thatched or covered with shutters to protect it from rain and snow, it can be chopped down at all seasons as it is required for use. Some soils hold their fibre much longer than others. These, if carted and stacked in the spring, will be in good condition for use in the autumn. Others that do not hold their fibre for any length of time answer best when cut and used fresh in the autumn, as the roots are then ripe and do not so quickly decay. A good reserve of each kind of turf should always be kept under cover in an open airy shed for use through the winter and spring, otherwise, no matter how well every other detail may be managed, the want of a constant supply of dry compost will be severely felt. When extra strong composts are wanted for use at any particular time and soils naturally poor have to be enriched, it is a good plan to mix some time beforehand, as the chopped or broken turf can then be charged with ammonia and other stimulating gases; moreover, it can be turned at short intervals to thoroughly in-



corporate animal and vegetable matter before it is applied to the roots. Orchard-house trees which require the greatest quantity of rich food compressed into the smallest possible space are often treated to a compost that has been prepared some weeks in advance and kept constantly surrounded, if not covered, by fresh fermenting stable litter. W. C.

## ORCHIDS.

**Cattleya Dowiana.**—From Mr. Fowler's Orchid collection at Ashgrove, Pontypool, Mr. Williams sends us a magnificent spike of this *Cattleya* bearing three expanded flowers. The grandeur of the lip colour in contrast with the warm yellow sepals is most striking. It is not often that we see triple-flowered spikes of this *Cattleya* or its near relative *C. aurea*.

**Lælia elegans Turneri.**—Of this richly coloured Orchid, Mr. Harvey sends us examples from his garden at Riversdale-road, Aigburth. This variety differs from the typical form in having the sepals of a dull plum-purple and the lips of the flower of an intensely deep magenta-crimson. It is, indeed, a splendid Orchid, and a four-flowered spike of it makes a great show.

**Saccolabium guttatum.**—A spike of this Orchid, measuring just 21 inches long with only 3 inches destitute of flowers, has reached us from Mr. Harvey, whose gardener thinks it of unusual length, and so do we. On this spike there are hundreds of tiny blossoms, the whole making a charming wreath of delicate pink colour. We are not told how large the plant is from which the spike in question was cut, or how it has been grown.

**Aganisia cœrulea.**—At the solicitation of "B. W." (p. 290), allow me to say that the plant of this *Aganisia* for which I obtained a certificate at South Kensington was purchased twelve months ago at Liverpool. It is fixed somewhat loosely on a circular piece of wood, and has been suspended near the light in the house with *Cattleyas*, *Dendrobiums*, *Cypripediums*, *Lælias*, &c., but not in a great heat. It has been dipped in tepid water every morning and never allowed to be quite dry. As far as I am able to judge, it is not liable to thrips. Happily, my houses, through great care on the part of my gardener, Mr. Osborne, are not infested with this pest. The plant is now showing good root action, and I doubt not we shall flower it again next year.—H. J. BUCHAN, F.R.H.S., *Wilton House, Southampton*.

—Having successfully flowered *Aganisia cœrulea* six months since, I gladly respond to the appeal made by "B. W." for further information as to the treatment it seems to require. First of all, I would say that, coming from the north and not from the south of Brazil, as "B. W." states, it must have a stove temperature; secondly, it seems to need abundance of moisture and only a moderate amount of shade. Under these conditions, I have found it not difficult, as is supposed, but, on the contrary, easy to cultivate. The plants were collected last year by a young German botanist in the district between the Rio Negro and the river Amazon, and were described by him as growing up the stems of small Palm trees close to the banks of the river. Mr. Sander's plants were imported much later. It flowered successfully with me from April till August, and it has been the intention of Prof. Reichenbach to give some description of the flowers. Subject to correction on his part, I cannot describe it as other than bluish purple, without blotches, not approaching to the clearer blue of *Vanda cœrulea*, and with a bright, copper-coloured sacciform lip, fimbriated. The texture is thick and with a slight prismatic hue, adding to its singularity and beauty. An advantage is in its lasting quality. The plants do not seem to require the rest needed by many Orchids. They have, therefore, never ceased to have an abundance of moisture given to them. I am growing them both on the outside of an upright teak cylinder, and also on peat; and, although more successful as yet on the latter material, it is evidently more in accord with its natural habit to cultivate it in a way in which it can climb upwards

rather than on a flat or raised surface. The objection to wood is that, with the inexperienced, the plants may not get the requisite amount of moisture.—WALTER HOLLAND, *Linwood, Mossley Hill, Liverpool*.

**Angræcum Leonei.**—On August 25 the first specimen of this grand new plant flowered for the first time in the Jardin des Plantes, Paris, under the care of M. Loury, successor to Mr. Houlet. The flowers, which are deliciously scented, are, like some others of the same genus, white; but those on the plant just named were, according to M. Léon Humbolt, the discoverer, rather smaller than he usually saw them, a circumstance easily accounted for by the plant not being fully established. Its helmet-like lip is narrow and elongated and occupies a downward position, notwithstanding that the peduncles affect a spiral form instead of being upright. The long spur, common to all *Angræcums*, has a double twist, and thus possesses the form of an S. This new *Angræcum* must be regarded as a valuable addition to an already much admired genus.—J. SALLIER, *St. Germain-en-Laye*.

## PARKS AND PUBLIC GARDENS.

### Flower gardening in the Phoenix Park.

We were agreeably surprised lately to see some very good effects in the portion of this park set apart for flowers. The true beauty of the Phoenix Park is in its fine open sward, fine air, breadth, and old Thorns and good views; and we are doubtful of any so-called "improvements" which tend to limit or mar any of these. Still, it may be granted that, in a space so vast, it is well to set apart a small portion in the interest of those who see few flowers or gardens, and it is a pleasure to be able to say that what is done is well done. There is considerable variety in the plants employed, which is itself a charm. There are hardy and half-hardy plants in profusion, and both well used. A bold use is made of Stocks, of which one large bed looked extremely well in mid-September. The scarlet *Gladiolus* formed a very stately, simple mass, most effective, and without any of the drawbacks of the pattern geometric bed. Hardy flowers are treated in a more intelligent way than is the rule in the London parks. They are in simpler, bolder groups; they have some chance to grow, and not merely a certainty of perishing between the effects of the roots and shade of shrubs and trees. There are so many good healthy masses of them, that they must be pretty and telling in spring. We were much impressed with the stately grace of plants of the New Zealand Reed; they were on the edge of a lake, and bearing fine graceful plumes; the effect was excellent from various points of view. They were close to the water's edge—nearer to water than we have seen this fine Grass tried before, and, judging by their health, they enjoyed the position. We have, however, seen this Grass even larger in the west of England on a lawn, and not near water, though probably well fed. It was pleasant to see the effect of the fine large trees of the golden Osier, which grow near the same lake. They will be more effective when the leaves fall by-and-by. Nothing quite so good, we think, in the winter sun as their glistening shoots and bark. It is surprising how this tree is neglected by those who have the best means of enjoying it. We were lately in a pleasure ground running down to the banks of a large inland river. The owner had collected every pretty form of garden Willow he could hear of, but knew nothing whatever of the yellow Osier, and had not a plant of it in the place. A group of it as big as those in the Phoenix Park would form, to a lover of native and hardy trees, a true picture.—Field.

**Industrial exhibitions in connection with flower shows.**—I notice that these are largely on the increase, and they appear to be valuable auxiliaries in promoting the success of flower shows in many parts of the country in which the cottager and allotment-holder play an important part. The husband is encouraged to pursue habits of industry and thrift, not only by means of prizes being offered for well-kept allotment and cottage gardens, but also for the products of his garden in various classes. Cottagers'

wives are encouraged to compete in classes for the best home-made bread, plain plum-cake, fruit or jam-tarts, and similar eatables. Prizes are also offered for various forms of needle-work, knitted stockings and socks. In addition, the elder and younger girls are encouraged to compete, classes being formed for young people, say, under fifteen years, and also for children under ten. Exhibitors, too, willing to sell their articles are allowed to put prices upon them. In some other country shows prizes are offered for domestic rabbits and poultry. One of the most successful industrial shows in the kingdom is that held in connection with the horticultural exhibition which takes place at Sheldon, an important coal district about three miles from Bishop-Auckland. It is said there were 34,000 entries altogether, horticultural and otherwise. A tent 120 feet by 40 feet was required for the school-children's competition alone; there were also departments for mechanical works in metals, machinery in motion, &c. It is scarcely to be wondered at that this exhibition always proves a conspicuous success, it possesses so many ramifications, every one of which touches some particular interest. These industrial exhibitions, so far as I have seen them in operation, seem to be of great practical value, and worthy of being carried out in every available country district.—R. DEAN.

## LATE NOTES.

5393.—**The Guernsey Lily** (*Nerine sarniensis*) requires a strong yellow loam, a sunny position, and to be protected from frosts.—W. A. E.

**Araucarias coning.**—There has been some correspondence lately on this subject. It may be interesting to know that one in the garden of Mr. R. B. Martin, M.P., here was last year covered with cones, which still remain, but appear to be abortive.—W. H. MOBERLY, *Chislehurst*.

**Destroying wasps' nests.**—Can any reader of THE GARDEN tell me the way in which to use cyanide of potassium for destroying wasps' nests? It was recommended in THE GARDEN about a year ago for that purpose, but I either do not use it rightly or it is useless. I dissolve 3 ozs. in a quart of water, then soak a piece of tow or cotton wool in it, and stuff it into the entrance to the nest. Thus used it has no effect.—E. B. W.

**Milla biflora.**—I have had a letter from one of your subscribers in reference to my note on *Milla biflora* in THE GARDEN of August 22, complaining that in "the last volume of THE GARDEN (p. 228)" there is nothing whatever to be found about *Milla*. Whoever revised the note I sent altered what I wrote—"Vol. XXVI., p. 228," to the words "last volume" forgetting that the current volume is XXVIII., and not XXVII. It is a trifling matter, but it will be best to have it set right.—JOHN T. POE, *Riverston, Nenagh*.

**Diseased Pears (Honeylands).**—The black patches which deface your Pears are caused by a fungus named *Cladosporium dendriticum*, a fungus which has been extremely common this year, chiefly attacking the more tender varieties of Apples and Pears. Its extirpation presents several difficulties, as the fungus first attacks the foliage in spring (sometimes it destroys the flowers); at length it reaches the fruit, and grows beneath the skin, which it upturns and in time destroys.—W. G. S.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*Bet.*—*Salisburia adiantifolia*.—*W. H. M.*—1, specimen insufficient; 2, *Syringa Emodi variegata*; 3, *Lonicera Ledebouri*; 4, *Broussonetia papyrifera*.—*Miss Reynard*.—*Epilobium angustifolium*.—*H. L. B.*—1, *Adiantum claphamii*; 2, *Aspidium obtusatum* var. *lucidum*; 3, *Davallia filiensis*; 4, *Polypodium plesiosorum*.—*J. Turner*.—1, *Libonia floribunda*; 2, *Acacia dealbata*; 3, *Sedum dendroideum*; 4, *Acacia armata*.—*Honeylands*.—1, *Stapelia variegata*; 2, *Anthericum comosum variegatum*; 3, *Gasteria verrucosa*.—*C. Carey*.—*Nephrodium molle corymbiferum* (crested Fern); other is probably *Polypodium peltatum*.—*H. Collins*.—*Lysimachia clethroides*, said to be extremely poisonous.—*B. A.*—1, *Eryngium alpinum*; 2, *Spiræa Nobleana* (shrub).—*L. T. D.*—*Impatiens glandulifera*; *Orchid* from *West Indies*, *Schomburgkia Lyonsi* (best variety).

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruits.**—*Mrs. Gill*.—Small Apple is Shepherd's Newington; large fruit not recognised.—*Ridall Mount*.—*Pear Beurré Diel*.—*R. T.*—*Peasgood's Nonsuch*.—*E Misen*.—*Beurré Diel*. Others next week.



## WOODS & FORESTS.

### RAILWAYS AND NATIVE TIMBER.

MUCH has been said and written about railways and the high rates they charge for the conveyance of home-grown timber. The complaints are right enough from the producer's standpoint, at least in some cases, but it must not be forgotten that, except for purely local purposes, if the railways were non-existent the cost of transit would be too great to place it in the markets at all. Whether this would be altogether a disadvantage it is hard to say, as the lack of means of outlet for our home produce would, at any rate, carry with it the advantage of keeping the foreigner at bay.

Such a view as this in the present day would probably be characterised as conservatism with a vengeance, and, taken on the whole, is not a state of things we would desire to return to. Railways therefore, although they have many things to answer for, are very important factors in the calculations of the British timber grower. Not only does the growing of wood in the vicinity of a railway give it an enhanced value, on account of the facilities it affords of reaching the market, but of certain classes of the wood the railway companies themselves are large consumers. Not a small advantage in this connection is the fact that when buying for their own requirements the companies accept delivery at stations along their lines, and the producer is saved the cost of the transit. We do not think our railway authorities here would be so readily gulled, but if we could only believe in the *bona-fides* of much we hear, it would appear that this fact in a foreign country has been taken advantage of by the enterprising. A contract having been entered into under a bond to supply a certain quantity of a specified kind of wood, the contractor commenced to send in his supplies. These, as he very well knew, were not in accordance with his arrangement; but lot after lot went on. In the end, as he failed to supply according to the agreed terms, he was mulcted in the amount of his bond. This, however, left him a clear profit on the transaction, as it did not reach to the sum saved by getting his goods to market free of cost in the matter of transit—a very unlikely contingency certainly, and one which here would be met by the sender having his goods back and carriage charged to and fro. It, nevertheless, serves to show that those concerned are alive to the advantage accruing in saving of transit by selling to consumers who can accept delivery of their goods at almost any point. As with most other great industrial enterprises where wood is used, much of that consumed on the railways comes from abroad; but, in the face of this, most of our common woods find a place in the railway companies' works.

THE ENGLISH OAK, for purposes were great strength is necessary, is very considerably used, but not so much so as would be the case if the larger dimensions could be more readily obtained and of good quality. One of the principal uses for this wood is the construction of the framework of the goods wagons. The greater number of pieces required for this are of moderate dimensions and of sizes readily obtainable, but it is in the matter of the sides that the real difficulty arises. For this purpose scantlings of a considerable length and size are necessary, and above all of good quality. All these essentials are not too frequently found in our home-grown Oaks, and this fact has led to the introduction of iron or of foreign Oak for the purpose. Beyond the vehicles actually running

on the railway itself there is a large number employed as feeders and distributors of the traffic, and the maintenance of these annually consumes no small quantity of wood. Even in the two items of spokes for the wheels and material for the framework of these vans and other conveyances a quantity of English Oak finds a market.

THE ELM, too, is one among our common woods much used by the railway companies. In the case of the company to which we now particularly refer, this wood either goes into the works as round timber or in the shape of planks, and is there ultimately worked up into the shape and dimensions to which it is destined. These are various, and the uses are principally those outside the actual permanent way.

THE ASH, again, is a wood bought in large quantities by this class of consumers, and of all the British woods it is one in which the qualities of clearness and toughness of grain is essential. The larger trees of this kind are converted into planks and used mostly in building road vehicles, but the smaller of the trees find their way into pick, shovel, and hammer handles. These may appear to be comparatively insignificant uses, but when it is considered that such vast mileages of line has to be kept in equipments, it will be seen that the requirements are not trifling.

THE POPLAR is a wood which has for years past, on account of its peculiar qualities, found a market with the railways, but for some reason or another is not now so extensively used. Its principal employment was for blocks for the brakes of the different kinds of rolling stock. The introduction of continuous brakes on the passenger trains sounded its death-knell so far as they were concerned, but with the goods wagons the reason of its partial abandonment in favour of iron is not so clear. The Beech is a wood which is but seldom enquired for, and then in small quantities only; but amongst all our home-grown woods used on railways, although here given last on the list, is

THE LARCH, which is familiar to all, and, perhaps, is more extensively employed than any other. This is for fencing, and the maintenance of a good fence over thousands of miles of line annually consumes a lot of wood. In this particular, iron does not seem to have supplanted wood, and from the planter's side of the question it is to be hoped it will not be allowed to do so. There are other home-grown woods than those enumerated used on our railways, and those we have named are employed for more purposes than those on which we have touched. Sufficient, however, has been said to show that although railways often come in for a share of the indignation of the timber grower, they are by no means his worst customers.

**Soil for the Larch.**—With regard to Mr. Webster's remarks on this subject (p. 301), I will say another word when the occasion offers, but for the present I will merely mention I hardly agree with that writer when he says that if the Larch will grow well on a soil up to a certain age, but not until it reaches a large size, which I take to be the meaning of attaining its full development, that such a soil cannot be called a Larch soil. In one sense it may not, but, taking a more general view, any soil that will grow a crop profitably may be termed a soil suited to that crop. Here in the south it is uncommon to see Larch growing to a large size, as for most purposes large trees of it are not required. What is rather the order of the day is to grow plantations somewhat thickly planted, and allow them to remain until the trees have reached a moderate size only. The Larch to which I referred as growing on the chalk formation would reach the average of size of

those growing hereabouts on other soils; but as to the comparative time occupied by this tree in attaining a given size on the different soils, I have at time of writing no reliable data. Should I be able to obtain such, I will give it for what it may be worth. The particular spot from which I write is on the coral rag formation of the oolite. This, according to the paper on "Soils for Larch" (p. 282), as I understand it, should be a good Larch soil. I do not consider it so, however, and I could not, so far as I remember, point to instances of successful Larch growing on it. We are, it is true, at a good elevation from the sea and the situation is exposed, but this cannot account for it, as within two or three miles on a different formation, although higher, the Larch grows readily enough. The explanation probably is that the sub-soil is too solid; but whether this is so or not, the fact remains the same.—D. J. YEO.

### TIMBER AT FIVE SHILLINGS A TON.

THIS does not sound like much margin of profit to the planter, yet for most of the Firs it appears to be as much as is obtainable, at any rate at average distances from rail and market, and the merchants prove by detailed particulars that they are working at a loss even then. To extend our woodlands in the face of this demands no little courage, and with this caution. It is certain that all timber cannot be planted in proximity to markets or seaports, or even railway stations; yet, if it is not so situated, the chance of getting any return is very remote. To plant in inaccessible places may be of use for climatic or ornamental reasons, but in the case of the commoner Firs, for timber producing for profit the enterprise will be useless. Much has lately been said about re-afforesting Ireland, and on paper the project looks to be very desirable, and as though it may possibly give some return for the outlay. When we come to details and hard facts it, however, assumes a different aspect. It is the general practice of writers on these subjects to treat the timber merchant as a kind of necessary evil, and to some extent the view is not unreasonable; yet it would seem that even to this maligned individual the handling of wood is not all profit. Reference has been made to this at the commencement of these remarks, so a few of the details, as given by one of the merchants who writes from Ireland to a contemporary, may not be without its lesson, as showing how the difference between prices on the spot where grown and when delivered at market is accounted for. The writer assumes that the wood grows at 50 miles from the seaport and at five miles from the station, and that it has to be delivered at a Bristol Channel port. The initial cost he puts at 5s. per ton, the felling at 10d., and carting the five miles to the station at 3s.; loading and unloading wagons at 8d. and the fifty miles rail at 4s. 6d. Next, the cost of loading vessels, dock dues, and sea freight is given at 4s. 1½d., and incidental expenses of travelling, weighing, and loss of weight between plantation and market at 1s. 9d. more. This quadruples the first cost of the wood, and, according to the writer's statement, leaves the merchant with the balance on the wrong side. If this is so, there appears to be little profit out of the transaction for anyone concerned. The railway company has the largest individual share, and within 6d. per ton for carrying the wood fifty miles of what the grower has for all the years it has taken it to come to maturity. This looks to be out of proportion, yet when one considers that if the railway did not exist the wood would be practically valueless to the outside market, and that the railway itself does not reap a large amount on the prime cost of construction, there is comparatively little to be



said against it. The moral of the whole thing is that three-fourths of the market value goes in transit. Any fraction of this that can be saved by planting where the cost is relatively less adds to the value of the wood as it stands. To the consumer it matters not whether the timber has been brought five miles or 500 miles so long as he gets it at his price, but to the producer it makes all the difference.

AN OLD CHIP.

## NOTES.

**The Silver Fir.**—When I first took up this subject I explained that I confined myself to the merits of the Silver Fir as a timber tree grown for sale—as a marketable commodity—the profits or losses of planting being the subject uppermost in the minds of those interested in forestry at the present time; but as Mr. J. B. Webster, who took up the cudgels on its behalf, shuns all practical reference to such matters, dealing in platitudes and generalities, and as he has himself admitted that he plants the tree only at the rate of one to a thousand of other Firs, I do not see any need to prolong the discussion. He reminds me that “he does not speak of the Spruce at all, but of the *Picea pectinata*,” and my reply is that both the “common” Spruce and Silver Fir are universally spoken of in the trade as “Spruce” or “Fir,” and that any forester would be laughed at who offered either in the market as “Silver Fir” or “*Picea pectinata*.” I challenge your correspondent to produce a single sale transaction of any magnitude, from his books or anyone else’s books, showing that my estimate of the comparative value of the Silver Fir is a wrong one, the conditions both ways being equal. I say that under such conditions it will be found to be the poorest paying tree generally planted. I met quite accidentally the other day with the agent of one of the largest estates in the North Riding, and, speaking of timber, he observed that during an experience of forty years in one of the best timber districts in England the Spruce or Silver Fir had been the worst paying crop, and he wondered at anybody planting it except for covert.

**Selling timber.**—In reply to “Old Plane Tree,” I wish to say that I have nowhere stated or implied that anybody ever gave foresters pianos or anything else in connection with the sale of home-grown timber. What I said was that I read in another paper that one timber merchant bought either twenty or thirty cottage pianos from one firm in London and sent them to the officials on one railway where he had a monopoly of the trade. I myself know one railway on which the whole of the timber trade is in the hands of one man, and quote as liberally as one may, there seems to be no possibility of anyone else doing any business there. The whole thing is in the hands of the departmental officials of the railway, who have full control in such matters and pass all the lots sent in. I was talking the other day to one of the directors of the line here on the subject of the timber supply, but he appeared to be profoundly ignorant of such matters. I have known hundreds of pounds worth of timber, in one lot, pass through the hands of three parties before reaching the railway—first, the agent who sold the timber from the estate; next, the man who bought it; and, lastly, the man who supplied the railway company. Yet the second party had offered timber to the company direct, and the offer was declined. This company pays a poor dividend, and no wonder if all its contracts are managed in the same way.

**The Larch disease.**—I am sorry Mr. Elwes has not thought fit to describe the Larch disease, which he wished to know if I could suggest a preventive of. Many of your correspondents have referred to this subject from time to time in terms that would lead one to suppose they were quite familiar with its characteristics, but neither from books nor casual writers can one gather a clear idea of what the disease really is. It appears to be a something taken for granted among foresters, but concerning which they have no very clear conception. To what form of the disease does Mr. Elwes allude when he speaks

of the disease “which has been so prevalent of late years, and which has destroyed so many millions of trees?” Surely he can tell us something of a plague like this, and I press for an answer. I confess that I am not myself familiar with any distinct form of any very destructive disease or plague in the Larch, unless it be the blight which affects young trees. I have often seen the ulcerous condition of the bark so often alluded to, but never in a destructive form. Hereabout the Larch sometimes dies, but it appears to be from a kind of natural decay caused by unsuitable soil or situation. Not long since one large plantation of mature Larch was disposed of to one colliery proprietor because it was dying, but the trees did not appear to be affected by any particular disease. They gradually perished upwards in the branches till the topmost twigs died, but excepting here and there a decayed heart—probably a consequence of the decay—there was no sign of disease, and the trees were all saleable. On the same formation we have lately felled a lot of younger trees that have been going off during the past few years in the same manner, all of which have been sold for 9d. per foot to a dealer. What the cause of the decay is we cannot say, but it is the form of Larch disease which I am most familiar with. There is no scorbutic disease worth mentioning, and on many of the dead trees no signs of it at all. In conclusion, may I ask Mr. Webster to tell us also what “ground rot or pumping” in the Larch is, and which appears to be another form of disease? YORKSHIREMAN.

## HEDGEROW TREES.

I AM inclined to agree with “T. B.” (p. 281) in thinking that hedgerow trees are of little value as timber, and as they exist in most parts of the country disfigure rather than improve the landscape. Being mostly to be seen in the form of pollards, or with long bare stems with disproportionate small tops, they have, as he says, the appearance of large inverted brooms, while to allow such trees to develop to their natural form and dimensions would lead to greater waste of land than is the case when they are pollarded, or have their stems trimmed to an unnatural height. Even in this state the action of their roots rob the soil, or rather the crops, to a very serious extent, and, being mostly found in rows or straight lines, certainly do not improve the aspect of the landscape. Such trees are also very prejudicial to fences composed of the Whitethorn, or any other plants; and if a weak or ineffective part is to be found in such fences, it is almost sure to be found under the shade or close to the stems of such hedgerow trees.

In a little book, by Mr. Barron, of Borrowash, called “The British Winter Garden,” published more than thirty years ago, in speaking of hedgerow trees, he writes as follows: “If we trace our hedgerows one after another, we may wander a whole day and perhaps not find a single tree worthy either the pen of the poet or the brush of the painter to describe or portray. On the other hand, in these days of agricultural distress, the political economist would be horrified were his eyes sufficiently opened to discern the amount of evil arising from the waste of land caused from wide banks and hedgerow timber of an inferior description, which in many instances have occasioned failure in crops more than ten times the value of such timber.” This is true enough, as hedgerow trees are mostly found to consist of such species as the Ash and the Elm, whose root action is known to greatly impoverish the surrounding land; and it can hardly be claimed for such trees that they afford shelter to stock of any kind, as being deciduous they can give little or no shelter in winter or early spring, which is the time when shelter might be beneficial. The author already quoted further says: “I here denounce *in toto* the system of hedgerow timber, and feel assured that the time is not far distant when the progress of science will stamp it (where it is allowed to remain) as only a relic of the mismanagement of those who have gone before us.” The author then goes on to say that only such trees should be planted as will answer the twofold object of affording shelter to stock and adding beauty to the landscape, and instead of dotting single trees in the hedgerow necessarily in lines, recommends the

planting of them in groups, consisting of several trees, in the corners of fields, or at the junction of three or four fields, in such a way as to present a concave section for the corners of each enclosure, such as to afford more or less shelter to stock from whatever quarter the wind may blow. Those with occasional groups of suitable trees in various parts of large fields, to produce effect as regards the landscape, could be protected by a Ha-ha or other suitable fence.

Coniferous and other evergreen trees are strongly recommended to be used for these purposes, and a list of what were then considered to be suitable species for the purpose is given, some of which, after a further experience of thirty additional years, may not now be considered so well adapted for this purpose as was then the case; and the use of evergreen or deciduous species may be considered as matters of choice or opinion. And there can be no doubt that many suitable evergreen species might be selected which would present the advantages of giving shelter in winter and shade in summer, as well as giving warmth and beauty to the landscape at all seasons. It is true that many may possibly be found to differ from the authority I have quoted as to the use of evergreen in preference to deciduous trees. But fewer will, I think, be inclined to differ from his recommendation of evergreen in preference to deciduous hedges, or, in other words, the substitution of the common Holly for the Whitethorn or Quick, so generally used for this purpose. Some of your readers may, as a matter of sentiment, object to the displacement of the Whitethorn for this purpose by any other plant.

From time immemorial poets have sung of the charms of the Hawthorn, and will doubtless continue to do so; and the Hawthorn tree is deserving of all that has been said or sung in its praise. But it must be remembered that when Whitethorn hedges are kept as they ought to be kept, that is to be effective as fences against cattle or stock of all kinds, they furnish little or no bloom, nor do they greatly add to the beauty of the landscape, particularly during the winter season; and it is only when such hedges are allowed to run wild, and to waste land by greatly exceeding their proper bounds and becoming ineffective as fences, that they become objects of interest to the painter and the poet, but is, at the time, a luxury which the agriculturist at the present time can hardly afford to furnish. The common Holly is, like the Whitethorn, a native of this country, and where one species will succeed the other will do the same; and I believe that it has been proved that a fence against cattle can be raised sooner from Holly than from Whitethorn if the Holly plants have been properly prepared by annual transplanting, and not less than a yard in height when finally planted out; so that it would only be a matter of slightly increased cost in the first instance, the common Holly not being expensive, and would soon be less so, were an increased demand likely to set in for them, as the supply would soon be likely to meet the demand, however considerable that might be. Were the whole or a considerable portion of our hedges composed of Holly, the landscape would certainly be much improved, better shelter would be afforded to stock, and the entire aspect of the country would be changed for the better. And in order to give increased beauty to the landscape at all seasons of the year, the author suggests that single shoots might be selected when the hedges were topped and allowed to grow up and form trees at proper intervals, and these, if desired, might be readily grafted with the more rare and beautiful varieties with ornamental and variegated foliage, and thus render the face of the country interesting and beautiful during winter as well as in summer.

P. G.

**Trees on chalk soils.**—Since writing the note with regard to the soil for the Larch I have accidentally found a paper given at page 248 in the last volume. The chalk to which I referred in my note on which Mr. Webster comments is a portion of the very stratum of which your correspondent there speaks. What he says of the native trees agrees very closely with my own observation of these trees, and to some extent the list of what he terms exotic trees



does so too, though not so fully. In this list the chalk soil is stated to be congenial to the growth of the Larch, Silver Fir, Spruce, Scotch Fir, &c., and, it is added, of Conifers the Larch seems to succeed best. I do not know who the writer is, but, as far as it goes, it is independent testimony that I am not alone in my belief that the chalk may be termed a Larch soil. Some qualification of this appears later in the article with respect to some kinds of chalk, but that of which I am now speaking has a comparatively loose subsoil. An unusually good opportunity of studying this in this locality presents itself, as the main road has been cut through the formation, and a considerable depth of the subsoil is exposed to view. At the top of this cutting the Larch grows to the extreme edge, and as the face of it becomes worn away by the action of the weather it is no uncommon thing to see a Larch hanging by its roots down the face of the almost perpendicular chalk. There is one other thing in this paper I can endorse, and that is the reference to the Elm. The writer says the Elm flourishes more freely on the oolite than on the chalk. This anyone who has lived on, or in the neighbourhood of, these soils will probably agree with, as it is comparatively rare to find the Elm on the chalk growing as it does in the other case.—D. J. Y.

**Birches** and other coppice woods are said to push the most vigorous shoots when cut in the spring when the bud is swelling. The experience of others, as well as theory, would lead to the preference of autumn.

#### NORDMANN'S SILVER FIR.

WE have, no doubt, a great deal yet to learn regarding the requirements of some, if not most, of the new Conifers which have been recommended for extensive planting. On examining a large plantation the other day I was rather surprised to find *Abies Nordmanniana* all but a failure. The soil where this occurs is a poor gravelly soil resting upon dry shingle. The trees upon this class of soil are reduced to mere scarecrows, and to all appearance they will die out altogether before long. It is equally surprising on the same ground to find *Picea nobilis*, *P. magnifica*, and *P. lasiocarpa* all in splendid condition and making rapid progress. The failure of Nordmann's Fir here may be attributed to poverty in the soil. Good organic soil seems to be indispensable for the healthy growth of this tree; at all events, some of the finest trees that I have ever seen of this species are growing on thoroughly decomposed peat bog mixed with a little soil. I was formerly aware of this fact to a certain extent, and my practice has been when planting specimen trees on hard gravel and stiff clay soils to break them well up with a pick and mix a quantity of bog earth as a preliminary step previous to planting, but certainly was not aware that it would prove a complete failure when planted on loose inorganic soil, where others of the same tribe were flourishing and in perfect health. It being a native of the Crimean Mountains, one would naturally suppose that the mountain soil of that locality was principally composed of inorganic matter; but, be that as it may, the fact is now proved beyond a doubt that the mountain soils of this country are not equal to its requirements, at least the generality of mountain soils. This is to be regretted, as it seems proof against frost, and I was under the impression that before long it would take its place as a regular forest tree, it being so much harder in this respect than the common Silver Fir.

Its proper position in this country is principally in straths and valleys, subject to late spring frosts, and where the soil principally consists of alluvial deposit as well as flat peat bog thoroughly prepared and mixed with a little soil. I have planted it on such ground with perfect success, and as regards frost, it

proved equally as hardy as the common Spruce. The Spruce, however, has a much wider geographical range, and will not only weather the blast on bare, exposed situations, but will also attain a fair size on a greater variety of soils.

I may mention that in the same plantation where Nordmann's Silver Fir failed the common Spruce is in excellent health on the same ground. In this plantation I was very much interested with the fine appearance of *Picea lasiocarpa*, or Lowi of some collections. Like the Corsican Pine (*Pinus Laricio*), it does not exhaust itself in the production of long, unwieldy spreading side branches, but throws the greater part of its strength into the formation of wood in the stem. The branches are flat, of moderate length, and produced in regular whorls. It is perfectly hardy—at least I have never seen them suffer by frost, and my experience covers a pretty wide area, from about 80 feet up to about 1000 feet above sea level. It thrives on a variety of soils of different texture, including peat bog; but hard till, stiff clay, and cold subsoils impervious to water are inimical to its development.

J. B. WEBSTER

**Tree records.**—What detracts so much from these records is that in the majority of cases no indication is given as to where the tree written of is situated. The writer generally remarks "we have here," and then he goes on to describe the particular kind of specimen to which he refers, and ends with only his initials. This is very interesting in the abstract, but as far as practical purpose goes it is valueless. What one wants to know in connection with the description of a tree is where it is growing, what kind of soil and subsoil, some notion of elevation, aspect, and situation in other respects. If one has no clue to this, he is in doubt whether the specimen may be in the neighbourhood of John o' Groats or in the south of England, whether on the seaboard or high inland, whether sheltered or exposed. The necessity of referring to these matters may not occur to the writer, as they are perfectly familiar to him. The importance of them, however, is none the less, as without them it is impossible to deduce anything of value, let the description be ever so elaborate.—D. J. Y.

**Torch pruning.**—This is a simple method of shortening lofty and rambling side branches, such as those of the Wych Elm, that are inaccessible for other methods of pruning. It often happens in forest management that if we could only get at certain branches, to curtail their extremities, the tree itself might be spared for some years longer. It would not be injurious to any more valuable neighbours for some time if only we could amputate or blight the ends of certain rambling side branches. Now, that which we cannot do by means of ladder and saw, nor by long-handled French shears, nor mount to by anything short of a scaffolding, may easily be effected from the ground by means of a long Bamboo cane with a torch affixed to its tip, upon a continuation of stiff wire for the last half-ell. Midsummer is the time at which to operate. The torch is merely a bunch of cotton or linen rags dipped in oil. By means of it we can easily shrivel up, blight, and destroy the foliage of over 2 feet or 3 feet, or even more, at the extremity of a side branch, although it may be 30 feet or 40 feet above our heads. In the following spring such extremities will be seen to be either quite dead or nearly so, and the lateral advance of the offending limb of the tree will have been effectually checked. The reader will understand this alludes to the woodland or forest, where a dead twig is no eyesore, and not to lawn trees. Wych Elms and Black Italian Poplars are, above all, fair subjects for this stringent igneous treatment.

**Methods of planting.**—Now that the planting season is drawing on it would be interesting to hear what more can be advanced for or against the different systems of planting generally practised. Notwithstanding all that has been written upon it, I take it that planters are still divided in their opinions. The

one thing needed is an effective plan at the lowest possible outlay, but by which of the various methods in vogue this desirable end is to be obtained yet remains to be proved.—D. J. YEO.

#### RELATIVE VALUE OF THE PINES.

THERE is no doubt about the use and value of the Scotch Pine as a timber tree—a tree that is incomparably accommodating, adapting itself to the most opposite conditions, becoming naturalised to the poorest of soils, and requires no extra protection and treatment to force growth. It is indeed a valuable subject for alpine planting. It has stood the test of time too long to be speedily obliterated from the list of the best forest trees suitable for this country. What do we really know about the Corsican Pine? or, indeed, any of the other foreign Pines that we are always hearing so much about? Not much, I fear. There is much surmising as to the great future of these Pines; but, in the meanwhile, there is a dearth of facts to rest upon. There is not anything known as to the actual value of these Pines as timber trees; and there is as little known about their behaviour under cultivation. How, then, will they stand the tests of being planted in diverse soils and in a variety of situations? There is not a forest of these Pines of any extent—middle-aged or old—in any part of these islands on which to base final conclusion. Now our estimation of the worth of these aliens at present is merely imaginary and anticipatory, and, being so, we must tolerate hostile criticism. However, it is to be hoped that the great things predicted of these Pines will turn out fortunate. Doubtless some of them may yet be planted with entire success in some of the very poorest of soils—soils from which a former crop has been cut. In this way they may have great utility as second or succeeding crops. Truly the more varieties of excellent timber we can grow at home on the thousands of acres of barren land there are in this country in disuse at present, the better for ourselves and the worse for the foreigner. GLENDYNE.

**The Beech.**—The price and purposes for which this tree is used will of course vary in different districts. Hereabouts, when there is really good Beech to be sold it generally finds a market, and at a fair price. On the soil of which I have spoken in the previous note very little Beech grows, but on other soils more suited to it, within a few miles, it grows to perfection. That a light soil is *par excellence* the home of the Beech there is abundant evidence, the most suitable of all being probably that of a flinty nature.—WILTS.

**Larch in Wigtonshire.**—Mr. Webster asks (p. 247) if the Larch in this country is affected by "ulceration, ground-rot, or pumping." In reply I should say "not where the drainage is sufficient." Of course, in a soil underlaid, as this is, by the boulder clay, every depression holds water, which must be removed before Larch will thrive, but if this is attended to, this valuable tree grows rapidly in moderately sheltered places, and remains sound up to a considerable size. The salt-laden vapours of the Atlantic induce a thick growth of grey Lichens which give the trees a mouldy appearance to eyes accustomed to the clean bark of inland woods; but it does not seem to affect the health of these trees, which prosper in a cool climate and soil.—HERBERT MAXWELL.

**Old wrought Oak**, such as beams of buildings, church roofs, &c., have a use in the trade. They fall into the hands of makers and restorers of old or antique furniture. This wood is brushed with strong wire to remove parts of the soft grain, to give it the appearance of age and wear. It is stained to any colour short of a dead black, and holes are bored in it to imitate the ravages of worms. These, with old wainscoting panels, chests, and bedsteads, are worked up into antique furniture; and such is the smart way



in which this trick is carried out, that few, short of experts in this particular branch, can detect these practices.

### SELLING TIMBER.

SOME of the matters to which "Old Plane Tree" refers are important, while the others have not so much in them as he imagines. In the first case he is defending foresters against a charge which "Yorkshireman" did not make against them. What he referred to about the pianos, which if correct is a very extreme case, as I understood him, rested between the merchants and the consumer, not between them and the forester. That a merchant may occasionally make a little acknowledgment to the individual who, during the time he is removing his purchases from an estate, may be enabled to do him small favours which cost nothing, or may equally whilst within his duty obstruct the business, I think is very probable, and is rather a thing to be commended than censured. That foresters as a rule sacrifice their masters' property for the sake of a gratuity for themselves I do not believe sober-minded individuals will attribute to them. Such things may now and then occur, but in the vast majority of instances the official values his position of trust too highly to abuse it. What is a more probable thing, and one which may lead to such divergencies in price as those quoted by your correspondent, is the system, in private contract sales, of putting the onus of naming a price on the merchant. The reason of this may be that the seller does not know the value of what he is selling, and thinks to get at it in this way, or to leave the merchant in uncertainty whether there is a second bidder behind. Such measures as these generally fail in their object. What often happens is that the seller gets a very low bid in consequence, which, if not accepted, the merchant makes known the terms to his *confères*, who in turn would be invited to make their offers. This is practically a "Roland for an Oliver," as the seller who would, in the second instance, base his price on the first offer finds himself forestalled. A more fair and business-like method is for the seller to fix a selling price to his lot of timber. When this has been done the merchant knows the sale is to be a *bona-fide* one, and does his best to meet the vendor's terms. If he cannot see the value asked, he frankly says so, and the difference is generally adjusted. By the other plan he has, perhaps, to spend his time and judgment on half a dozen lots, and the one he finally hits upon has to pay for the whole. Such cases as this, which occur every day, will help to explain why such wide margins are to be met with. For speaking in this way, I shall most likely be accused of taking sides with the merchant. If so, I shall probably survive the charge, and with one more word I close. This is as to what "Old Plane Tree" says about a timber merchant turning his back when spoken to about measuring, as I must dissent from it. That a merchant would prefer to buy upon his own estimate without measuring is reasonable enough, but when he meets with a man who understands his work, that he would turn his back upon the lot because it had to be measured, I do not believe. What merchants object to is to have to deal with fussy individuals who affect to know a deal about what they are doing, but of which they really know nothing. Such instances as this are not unknown, and foresters who have been trained mainly on paper would do well to learn that there is, even in selling timber, a wide difference between theory and practice.

D. J. YEO.

*Lyneham, Wilts.*

**Wood of the Hornbeam.**—On account of its great toughness the wood of the Hornbeam is employed in engineering work for cogs in machinery. When subjected to vertical pressure it cannot be completely destroyed; its fibres, instead of breaking off short, double up like threads, a conclusive proof of its flexibility and fitness for service in machinery. According to Laslett, the vertical or crushing strain on cubes of 2 inches average 14'844 tons, whilst that on cubes of 1 inch is 3'711 tons. A few years ago an English firm required a large quantity of Hornbeam wood for the manufacture of lasts, but failed to procure it in England. They succeeded, however, in

obtaining a supply from France, where large quantities of this timber are used for that purpose. It may be interesting to state that in England, at any rate, lasts are no longer made to any extent by hand, but are rapidly turned in enormous numbers by machinery. In France sabots are also made of Hornbeam wood, but the difficulty of working it and its weight render it less valuable for sabotage than Beech. For turnery generally, cabinet making, and also for agricultural implements, &c., this wood is highly valued; in some of the French wine-growing districts, viz., Côte d'Or and Yonne, hoops for the wine barrels are largely made from this tree. It makes the best fuel and it is preferred to every other for apartments, as it lights easily, makes a bright flame, which burns equally, continues a long time, and gives out abundance of heat.

### TREE PLANTING OF THE PAST.

THE grand old trees at Blenheim, Hatfield, and numbers of other places show in a way that admits of no mistake that little has been wanting in the judgment of those who in the distant past have had to deal with planting upon estates. In planting trees for effect a selection of those that are the longest lived is a matter of the first importance. The extent to which the native Oak has been used wherever the soil was adapted to it proves that there was no error committed on the score of endurance in the kind of tree chosen. Fault might be found with the preference given to Elm by the planters at an early date, who have used this tree in many places where all the conditions were as favourable to the growth of Oak. But the mistake only extended so far as where Elm was planted to the exclusion of Oak and other desirable trees. Beech, where land and situation suit it, combined with room enough to admit of its pendent branches being fully developed, is one of the most beautiful of all trees. It may be set down as having stood next to Elm in the estimation of bygone planters.

SYCAMORE is not so much met with in the shape of very large old examples, though there is no tree that accommodates itself so well to the varied conditions of soil and locality, as shown by its presence in nearly all parts of England, east and west as well as north and south. Yet the haphazard positions it so often occupies in parks and grounds that have been planted with a view to effect, point to its existence being as much the result of Nature's work as to the hand of the planter. Possibly the fact of this tree being so common, springing up of its own accord, as it does almost anywhere, has had something to do with planters in times past, as with those of the present, not having used it to near the extent which its merits for all purposes make it deserving of.

LIME AND ASH have evidently been less in favour with the planters who have worked within the last two or three hundred years, as shown by the comparatively few trees of either of these species associated with the others mentioned that may be set down as having been planted at or about the times named. Less use of the queen of the woods (Birch) was made by the old planters than might have been expected, considering its distinct and highly ornamental character, differing, as it does, either in its erect or drooping habit of growth, from other trees. There is one deciduous tree, which, even if the views of those who are opposed to the idea of its being indigenous to Britain, are correct, has been so long in the country, is so long-lived, and assumes such magnificent proportions, that it seems strange it has not been much more frequently used by the early planters—

THE SWEET CHESTNUT—than which there are few finer trees existent, either native or that have been introduced. Of this there are plenty of examples to be met with in various parts of England; such, for instance, as the grand old Tortworth tree, which there is sufficient reason to credit with being at least nine hundred years old. When I saw it a few years back, it looked as if it might keep on in a healthy state for many generations to come. Amongst other noteworthy examples of this Chestnut may be named one standing in the grounds at Broxbournebury that has grown to a gigantic size, and, to all appearance, will yet keep on increasing in girth and spread of branches for time indefinite. Turning to the north of England, at Studley Royal, a place noted for its fine trees of various kinds, the Chestnuts stand out most remarkable, and are still in a vigorous thriving condition.

EVERGREEN TREES indigenous to any part of the kingdom are few in number, and the early planters did little with them. The Scotch Pine was little used, even at a much later date, than many of the trees I have spoken about, being generally confined to a few examples near a dwelling. The Yew was similarly employed, and from its frequent existence in churchyards in an old state it was evidently the tree chosen to commemorate the dead. When the Lebanon Cedar made its appearance, two hundred years ago, moderate numbers of it were planted in many places in the southern half of England, and an odd tree or two found a place in others. All that need be said respecting this magnificent tree is that if it had been used more generally and in much great numbers by those who have adopted it, the face of the country would have gained much in appearance thereby.

It is clear that the early planters gave a well-merited preference to the representative British tree, the Oak, which the evidence of their eyes, no doubt supported by tradition, convinced them had no superior, either for its merits as a decorative tree or for its timber, although the latter desirable property is outside the scope of the present subject, as it clearly was with the early planters generally, as shown by the character of the old Oaks. These have thick short boles and massive limbs, usually found springing from the trunk at no greater distance from the ground than sufficed to keep them out of the reach of cattle, showing the natural habit of the tree when stood through the early stages of growth, clear of any crowding influence calculated to induce a lengthening of the trunk with an absence of low branches. The early planters had little choice in the kinds of trees within their reach to select from as compared with those who came after them in the latter part of the last and the first half of the present century, and so far would seem to have laboured under a disadvantage. Yet, as matters have turned out, the disadvantage is much less than apparent, inasmuch that so many of the trees that have been introduced during the time named have proved unequal to the old native species. So far as the deciduous kinds are concerned, there is not one that has originated outside the country that has proved good enough in appearance to supplant any of the native sorts; and out of the host of evergreen kinds that have appeared the majority have, within what may be termed the early stages of their existence, shown that they are wanting in some or other of the properties indispensable to their admission within the select company of desirable trees.

These remarks are, as will be seen, confined to the leading native species, about the claims of which there can be no question, except on



the score that their extreme commonness renders them devoid of everything on the score of novelty. Not but that it is desirable to go as far in the direction of novelty and rarity in the trees chosen for decorative planting as can be done with safety. Yet the only safe course is to confine the selection to kinds that have proved their adaptability to the soil and climate, are noble in appearance, and are long lived. Try all that give a reasonable prospect of succeeding, but never plant a tree that is doubtful in the essentials named in a position where its failure would cause a blank. If the growth of trees was a question of weeks, rather than as it is of years, the case would be different.

T. B.

#### FORMING NEW PLANTATIONS.

MANY practical foresters are now of opinion that in forming new plantations the old system of planting a mixture of several kinds of trees on the same ground, in the hope that if one fails another will succeed, ought to be abandoned, and that each variety of soil, aspect, and exposure should be planted with the kind of tree it is most likely to produce to the greatest perfection. Much can be said in support of this opinion, and no doubt it is a safe one to follow, provided we can with any certainty predict which tree will grow best on each kind of soil, but such predictions are sometimes most disappointing and disastrous in their results, and too often prove the necessity of entrusting the formation of plantations only to those who have a thorough practical knowledge of the subject, and who will carefully investigate every circumstance likely to affect their calculations. But even were we satisfied which kind of tree is most likely to flourish on the ground, the system of planting with that tree alone may be carried too far.

For instance, in districts where little or no demand exists for the early thinnings of an Oak plantation, but where a market is likely at all times to be found for good-sized Oak, it would certainly be unwise to plant the ground most suitable for growing Oak with Oak alone. Oak is slow in its growth, and some other kinds of wood of faster growth, the early thinnings of which would be more valuable, might be mixed with it. In such a case the Oak trees might be planted 18 feet apart, with an Ash between each two, and the ground filled up with Larch to 3 feet apart, which would make two Larches between each Oak and Ash tree. The Larch would be gradually thinned out at such times and in such a way as would best encourage the proper growth and development of the hard-wood, and more especially of the Oak. That cut at the first thinning would make stakes for sheep nets which, in arable districts where Turnips are eaten off by sheep, are always in demand at about 15s. per hundred, or, if in the Hop country, it would make Hop poles. That cut at the second and third thinnings would be suitable for fencing, coal-pit, and other purposes, and would be much more valuable than hard-wood of the same age.

After thinning out all the Larch, the hard-wood trees, viz., the Oak and Ash, would be left in equal numbers at 9 feet apart, and before the Oak required to be relieved of the Ash the latter would be of a suitable size for shaft-wood, for which there is generally a good demand in most districts. When all the Ash has been thinned out, the Oak would be of sufficient size to admit of the plantation being pastured by sheep or cattle without much risk of their doing it damage, and as it is gradually cleared off the ground the pasture would every year become

of more value; in fact the fertility of the land would be improved by the crop of timber taken off it, and the pasture would be a much better one after the removal of the timber than it could have been made before the land was planted. On land suitable for growing good Oak, and situated in England or the Lowlands of Scotland, such a system of making permanent pasture succeed timber would in all probability be more profitable than the French one of natural reproduction.

Where, again, we find ground best adapted for growing Scotch Pine, it would not be advisable to plant that ground with Scotch Pine alone, the early and immature thinnings of which would in some districts not be worth the labour of drawing them out of the plantation. Nearly all ground that will grow Scotch Pine to maturity will grow Larch for a certain period, and wherever Scotch Pine has to be the permanent crop, Larch, the young trees of which are of more value, should be mixed with it to come out in the early thinnings.

X. Y.

#### THE LONGLEAT PLANTATIONS.

At a recent visit to the Marquis of Bath's Wiltshire estate, I much admired the excellent system of tree culture in the park itself and the plantations around. Larch is the only tree used as a nurse for hard-wooded trees; it does not take up so much room as the Firs, and allows a freer circulation of air. If shelter is required, a group of Pine is planted on the most exposed side, taking the Austrian, Corsican, and Scotch Pines as the best and hardiest. If game covert be required, groups of Silver or Spruce Firs, nursed by Larches, answer the purpose better than indiscriminate planting. The hard-wooded trees are planted each by themselves in distinct irregular groups and groves, varying according to the nature of the soil and exposure. The old-fashioned plan of planting indiscriminately probably a dozen or a score of different sorts of trees over an acre of ground, regardless of soil or situation suited to the different trees, cannot be too strongly deprecated. In disposing of the different sorts of hard wood, masses of Beech and Sycamore are planted on poor land and on exposed sites; next to these Wych Elm and Sweet Chestnut; and on the best land and most sheltered situations Lime, Oak, and Ash. For the sake of ornamental and landscape effect, Purple Beech is introduced in clumps amongst the common Beech, the Norway and Red Maple amongst the Sycamores and Sweet Chestnuts; and groups of the White and Lombardy Poplars and American Scarlet Oak amongst the Oak and Ash. The system adopted to ensure almost certain success in planting operations is to buy two or three-year-old plants from the nurseries and grow them on the private nursery, shifting them every two years until they are large enough to plant out. The Larches that were planted out last season averaged about 5 feet high, with the stems nearly as stout as walking-sticks, and fibrous roots like those of pot plants. The hard woods averaged about 7 feet high, with clean stems and good leaders, having all undergone nursery pruning, and none of them having stood longer than two years without moving. The young park trees had stout stems 3 inches or 4 inches through with well-balanced heads and roots a mass of fibres like door-mats. They are lifted one day and planted the next, the roots never being allowed to get dry.

G.

**Oak plantations.**—Filling up plantations with Acorns is a system that may be followed with advantage in a season when Acorns are plentiful, and when from the quantities lying upon the ground vermin are not so likely to attack those planted. These may be dibbled in in all open spaces as soon as they fall from the trees. By paring off the surface with the planting mattock, and afterwards stirring the soil with its opposite end, pointed like a pick, three or four Acorns may be dibbled into each selected spot at a depth of about 2 inches, the ground being closed with the foot. The young plants will require to be kept clean for a year or two, when superfluous trees

may be removed to the nursery, or used for filling up elsewhere. When planted in spring, choose the end of March or beginning of April; but the Acorns used should have been well kept.—A.

#### DECAY OF OLD PARK TREES.

ANYONE interested in tree life and who is in the habit of seeing much of the grounds around the old country homes so thickly dispersed over the kingdom can scarcely avoid reflecting on how much the planters in bygone times have done for those to come after them as compared with the little that is done by those of the present in providing for the future. Where, as in cases without number, the old trees that for generations have been dispersed over the grounds, of which they have ever been the commanding feature, are in a state of decay, with nothing in the shape of younger ones to take their places when they finally die out, the work of providing for the future presents difficulties that often are the cause of its being delayed for time out of mind after the necessity for something being done is seen. In many cases the trees that already occupy the ground are numerous enough, if not too much so, and although some may be far advanced on the road to their dissolution, still it would be looked upon as a sacrilege to remove them so long as they have any life remaining, the result frequently being that nothing is done; yet, if the matter is looked at from a sensible, rather than a sentimental, point of view, few will maintain that to let matters drift on indefinitely is not a mistake. It often happens that where an attempt is made at planting young trees to furnish the grounds after the old ones are gone, little judgment is brought to bear on the work. As a matter of course, the young ones when put in are small, and for a while their presence is scarcely noticeable, but as they grow up, it becomes apparent that the positions they occupy are wrong, as seen from the principal points of view, not unfrequently interfering with lines of sight that cannot be dispensed with.

A case of this kind occurred to me lately. In a large park well furnished with very old Oaks, Elms, Beeches, and others, which, from their appearance, might be supposed to have been for a century in a declining state, consequent on which some forty years back a large number of young trees were introduced with a view to take the places of the old ones as they die out. But, unfortunately, instead of clearing out such of the decayed trees as could be spared and of planting in the rear of those retained such young ones as were further required, the young ones were in nearly every case placed right or left of the old ones as seen from the principal point of view. For a few years the little trees were not much noticeable; but as they grew they began to close up the vistas and open spaces, until the park presented much the appearance of a wood. Needless to say, the mistake was fatal to the future effect being what it should have been without clearing away many of the young trees that had made good progress, and in this way losing the time that had elapsed from their being planted. Yet it was a case in which something was obliged to be done, as with the old and the young combined the whole park was overcrowded, with an all but absence of open spaces as seen from the most important standpoints. In the case in question as many of the least important of the old trees, and such as could be spared without sacrificing effect, were cleared away, which so far made room for re-planting. Young ones were also put in immediately in the rear (as seen from the front of the mansion) of the



majority of the old trees, which, as usually happens, could not be spared. The young ones thus introduced were planted no nearer to those they are intended to replace than would allow them enough room to grow without their branches as they extend being interfered with by the old trees. Such of the trees already mentioned that had been planted with the intention of their superseding the old ones, and which were blocking up the vistas and encumbering the open spaces, were removed so far as necessary to relieve the grounds of their crowded appearance. Many of the old trees were reduced to the condition of hollow shells and had lost many of their limbs.

When anything is done in the way of planting young trees that are to take the place of old ones, the work requires to be well thought out and no half-hearted measures adopted. Yet no one likes the idea of removing old trees, and none the less those who give their mind to matters arboricultural, and who often find themselves in the position of being called on to advise in such cases. But the question simply amounts to this, if, as already stated, no provision is made for the future, the time will come when the effect of the omission will be as apparent as it will be irreparable. Although the necessity for some sacrifice in this direction is often so obvious, that none will dispute it, still it is just the point which the majority of the owners of estates cannot make up their minds to put in practice. Hence it is that the home grounds so often remain in a condition, that in time to come will see them so far denuded of trees as to necessitate sweeping measures, in place of the gradual renewal that would be so much better.

T. BAINES.

**Substitutes for Boxwood.**—In consequence of its scarcity and high price, many substitutes for Boxwood have been resorted to; Maple, Apple, Pear, Mahogany have been experimented upon; but hitherto no wood, metal, or composition has been discovered that possesses the requisite qualities. In addition to engraving, Boxwood is used for scales, rules, gauging-rods, and similar articles of which figuring is made. Anyone that has ever held a carpenter's rule in his hand knows what Boxwood is like. It differs in colour from all other woods, and it is somewhat remarkable that it comes to perfection only in a comparatively limited region of country in the vicinity of the Black Sea. It weighs about 75 lb. to the cubic foot, and is very expensive. Not every one is aware that the wood used by engravers is the growth of those far-away regions around the Black and Caspian Seas, the very names of the ports from which it is shipped being unfamiliar. For all fine engraving Turkey Boxwood is used, and as its quality varies much, some skill is necessary to a good selection. The best is of a delicate, yellow colour, clear and free from spots; it cuts smoothly and evenly, with no crumbling or tearing, but every line cut will be perfect. It is to the use of this wood by artists that the superiority of their designs and wood engravings must in a great measure be attributed.

**Underwood for coverts.**—In my experience I have always found the common Spruce Fir the best evergreen tree for thriving under the shade of larger trees in more open places, also Silver Firs and Austrian Pines. As shrub growth plant the common Yew, Laurel, Mahonia, and Box in clumps, leaving open spaces, as all sorts of game like partly clear ground. Too much Privet is a great enemy of winged game. When planted thickly it soon runs all over the ground, and makes it a thick mass of cover. I have seen acres of Privet in this form where nothing but rabbits would enter.—T.

**The Pine beetle.**—When it is desired to plant immediately after a crop of Scotch Fir is cut down and cleared away, it should be proved whether the ground is in a foul state or not. This can be done by keeping a quantity of the branches when burning up

all the brush, and have them spread over the ground in spring, when it will soon be seen if the Pine beetles are there, and if they are, gather and destroy them during spring and autumn.—J.

#### RAISING SEEDLING CONIFERS.

THERE are two methods by which seedling Conifers may be raised: they may be either sown in pans or boxes and placed under glass, or they may be sown in the open air. In the case of rare kinds, or where but a limited quantity of seed is intended to be sown, the former is preferable, as, owing to the seeds being protected from accidents and variations of temperature and moisture, there is a greater certainty of the seed germinating properly. The pans or boxes in which the seed is sown should be well drained.

The soil should be a mixture of loam and leaf-mould, with the addition of about one-third of sand. The pans or boxes should be filled about three-fourths full, the soil made firm, and then watered; this to be done the day previous to sowing, as it is necessary that the bulk of the soil should thoroughly settle into its place before the seed is sown. On this another layer of fine sandy soil must be put and firmly pressed down. On this the seed should be sown, making the surface firm, and giving a moderate watering. If they be placed where not exposed to drying air and sun, there will be no occasion for subsequent heavy waterings. The consolidation of the soil is an important point as regards this description of seed; at the same time it must not be rendered in any way hard or impervious to the young rootlets. If, however, the compost be not of too tenacious a nature and has been carefully prepared, there will not be much to be feared upon this score. Especial care must be exercised not to over-water just as the seedlings are pushing through, as a little indiscretion in this respect at that period often proves disastrous. As soon as they are fairly up they should be placed where air has free admission, or whole panfuls of young plants will go off in a few days if a free circulation of air be not kept up among them.

If it be intended to plant the seedlings out in open ground a bed should be prepared for them, say 4 feet in width, which will allow of their being easily watered and cleansed when necessary. In planting out, it is extremely important that the young fibres do not in any way go dry. The contents of each pan should be carefully knocked out, and all the roots retained. The best way to plant them is to cut out a small trench several inches in depth, against the side of which each plant should be firmly, but gently pressed, allowing the roots to extend downwards to their full length, covering them immediately with soil. In this way fresh roots will be made in a few days, which will at once strike deeply into the ground. The difference which these few precautions and extra care makes in the growth of the young plants is surprising, for although Conifers are as a rule hardy in character, yet if subjected to careless manipulation they do not fail to show the effects of it in the shape of stunted growth. If once they get into bad condition it is difficult to induce them to start freely again into growth.

Water must be given them when required, and if cleanliness be observed a satisfactory growth will be the result. If sown in the open ground 4-foot beds should be prepared and the soil well pulverised, and according to its consistency it must be made more or less firm for the reception of the seed. The latter may either be sown broadcast or in drills, and the thickness of soil used in covering it will have to be regulated by the size of the seed. When sown it is well to lay some boughs over the beds until the young plants begin to germinate, as they protect the seeds from birds and hot sun. Branches of Spruce answer well for this purpose, but, failing them, any evergreen will do. The ensuing season they may be pricked out in beds in the manner just mentioned.

M. D.

**The Catalpa as a timber tree.**—This, according to Landreth's "Rural Register," has been long known to a limited number to possess wood of an enduring character for posts—as lasting, it is claimed, as the Black or Yellow Locust (*Robinia Pseud-*

*acacia*)—but, unfortunately like it, exempt from insect attacks; indeed, so far as our observation has extended, it is not at all liable to disease, and as the tree grows readily from seed there need be no impediment in propagating it to any extent desired. Fence-rows, boundaries, lanes, the roadside, useless plots of ground, inaccessible knolls, might each be seized upon for planting this useful and ornamental tree. This tree thrives admirably in an impure atmosphere, as is proved by the existence of many good specimens in London which flower abundantly.

**Spruce Fir timber.**—The Norway Spruce will thrive and produce useful timber on boggy ground where few other trees will succeed. In Scotland and in Ireland the thinnings of Spruce sell as readily as those of Larch for fencing purposes and for pit props. For roofing farm buildings Spruce has long been used in Scotland. I need hardly speak of the value of imported Spruce timber for scaffold-poles, spars, masts, white deal, Baltic deal, &c.—C. M. C.

#### WHITE OR HUNTINGDON WILLOW.

THIS Willow (*Salix alba*) is very useful for planting near the sea-coast, either for shelter or ornament, for it flourishes well when brought under the influence of sea breezes, and grows almost as fast as the Poplars, but when planted in many parts of Britain inland it often succumbs from the effect of late spring frosts just as it is developing and unfolding its tender young leaves. This is a great and unfortunate detriment to the tree, and doubtless is the chief reason why so few good and mature specimens can be seen throughout the country. Several fine trees of large size in this locality have died within the past four or five years, owing entirely to severe frosts late in spring accompanied with withering north-east winds. The Willow is also, unfortunately, liable to the attacks of numerous kinds of insects and their larvæ, suffering from these pests both in foliage and stem.

The wood of the White Willow is worth about 1s. 6d. per foot in the wood, and is always in request for various uses, but is mostly in demand for cricket bats, for which purpose there is a continuous and ready sale for clean and good quality butts upwards of 9 inches diameter; and sound, choice, clean, first quality butts of the true White Willow will fetch in the London market from 2s. 6d. to 3s. 6d. per foot. When planted in moist deep soil this Willow grows so rapidly and makes wood so fast, that a profitable return may be had in fifteen to twenty years. It is one of the easiest trees to propagate, as it will grow from the smallest cutting, or take root freely from a stump driven into the ground as large as a fencing stake; but when planted it rarely receives the attention it deserves in the way of pruning and protection from the browsing of cattle. It may often be seen planted in Grass lands by the water's edge, but is usually left to take care of itself, and the consequence is that too often the poor Willow is left to struggle on and fight against numbers of enemies. It is quite a common occurrence to see trees after they have been planted in fields maimed, barked, and even beheaded by cattle, and the consequence is they are either killed outright or linger on as rough pollards instead of growing in a comparatively few years into remunerative timber trees all through a little outlay and attention being denied them for the first two or three years after planting. Excepting the Larch, I know of no tree that is likely to pay better and give a quicker return for an outlay of capital than the Huntingdon Willow in localities where it has been found to flourish and succeed well; but care should be taken when planting to avoid the crack Willow and other rough-barked, coarse, worthless sorts, which are hardly worth cutting for the sake of their timber; and, moreover, it has the advantage of the Larch when planted in heavy soils, for in damp, low-lying situations it is quite at home and thrives the best; whereas the Larch is altogether unsuited for heavy soil in low level tracts of lands. The Willow, however, is a tree that when grown for profit should be cut as soon as it is large enough for the market, and then allowed to grow up again from the stool. It is only a short-lived tree, and after thirty years' growth its life is very uncertain unless it be pollarded; then it may live to a good old age.

H.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## FRUIT GARDEN.

### BLACKBERRIES AS EDIBLE FRUITS.

"ONLY a Bramble cluster, but how beautiful," or words to that effect, would be uttered by many of your artistic readers when their eyes fell upon the illustration contained in *THE GARDEN* (p. 315). And yet I wish its publication had been delayed; for at the time when *THE GARDEN* was on the press, I was collecting information in reference to Brambles which might have accompanied the engraving, as it is more than probable that dwellers in highly-cultivated England are not aware of the value of the Bramble as an edible fruit-producing shrub. If space permitted much might be said for as well as against this graceful, trailing, Rosaceous shrub, for it belongs to a very old family, and claims kinship with the Raspberry (*Rubus Idæus*), which is too well known and appreciated to require description; the Rue-buckberry, the badge of the McNabs; the Cloudberry, the badge of the M'Farlanes; and it has cousins in America. But the shrubs to which I now wish to direct attention, *R. rhamnifolius* and *R. corylifolius*, are indigenous to our soil, and although man has been at war with them no doubt ever since Cain commenced tilling the ground, they hold their own and prosper—nay, more, they clothe the naked hillsides and barren rocks with verdure, and in due course deposit decaying vegetable matter capable of supporting Gorse, and Broom, and Foxgloves, and not unfrequently the quick-growing profitable Larch. Moreover, they adapt themselves to all soils that are not absolutely wet, but prefer the warm, light hedgebanks and hillsides, where, as in this part of the country, they soon cover many acres of waste land, and while tipping the stone walls reared where hedges will not grow with graceful Bramble clusters, they yield a rich harvest to the poor, a source of livelihood to middle men (here called badgers), and furnish rich, wholesome food to dwellers in all the large densely-populated towns in the north of England and Scotland. In many parts of the country, where high farming prevails and long, straight hedges are trimmed to the thickness of one's hand, the Bramble is not allowed to extend; but then even it is known to every child, although it may not be sufficiently plentiful to yield fruit worth looking after. Here, however, the wild, richly-wooded, semi-enclosed nature of the land forms a home for Bracken, bush, and Bramble, certainly not surpassed, if equalled, in any other part of the kingdom. This tract extends for many miles along the Herefordshire spurs of the Malvern range of hills, and the warm igneous character of the soil favours to a great extent not only the growth and fruitfulness of the Bramble to a nicety.

BLACKBERRY GATHERING, unlike Hop-picking, is confined to the natives, and although they do a certain amount of mischief, the owners of the property are not hard upon them, as the money they obtain for the fruit enables them to procure clothing for the winter. The harvest extends over about six weeks, and

during that period, buyers, surrounded by women and children, may be seen at certain spots, where, until within the last seven years, wholesale markets were never held before, buying up the previous day's pickings. The price this year ranges from 1d. to 1½d. per lb. for good sound fruit, free from calyx and maggot, weighed in the "badger's" baskets, which hold about 14 lbs. each. In wet weather the berries are weighed in tubs similar to butter tubs, only smaller. As soon as the rural market is over the buyer drives off to the station and consigns them to his salesmen in the north. The pickers, principally women and children, return to their scathing labour, for it must not be supposed that they can work amongst Brambles without carrying away unmistakable marks of their occupation on their bodies as well as their garments. Men out of work, or who prefer an irregular life, sometimes turn in and earn from 2s. to 3s. a day. A quick boy at the present time can earn 2s. Although the Brambles must be as old as the hills, this trade for transit did not spring up until 1879; and already the quantity sent away from Ledbury Station alone amounts to 30 tons of ripe fruit. This quantity does not, however, represent the whole of the fruit gathered in the neighbourhood, as buyers drive into the stronghold from Evesham and other places and, as a matter of course, consign from other stations. Then, again, a good quantity of fruit is consumed in the neighbourhood, either in tarts or boiled down into jam for use through the winter. Blackberry jam is, however, too rich for many palates, and the people here correct and fortify it by the addition of well peeled and cored Apples. So much for this spontaneous supply of rich useful fruit, which comes in when all other berry fruits (a few autumn Raspberries and wall Currants excepted) are over, thus enabling many a poor woman to renovate, if not renew, her children's wardrobe; and, taken at 1d. per lb., brings into the district a sum little short of £300. This sum, I need not inform growers and others acquainted with the London fruit trade, does not represent more than one-third of the price which it costs the consumer, as I lately heard that good Blackberries were selling in Leicester market at 4d. per lb. Pershore Plums at the same time were selling in Evesham market at 6s. per pot of 84 lbs. But why this difference in price? It cannot be that this wild fruit is better than the Plums. Certainly not; to my taste it is not half so good, but it is a novelty to thousands who have never seen it growing, while the Plum, this year a glut, is better known and has long been hawked through every town in the United Kingdom.

CULTURE.—Having shown that the wild Blackberry of our hillsides is greatly appreciated by our teeming population, and that it comes into use when Plums and Apples are the only kinds of fruit that working men can purchase, many will agree with me in thinking this wild indigenous plant, which neither fire nor billhook can destroy, may be improved and cultivated at a fair profit. The Americans cultivate their Lawtons, their Early Harvests, their Kittatinny's, and others much as we grow Raspberries, and why should not we follow? We do not presume to lead. We have acre upon acre of waste land now yielding next to nothing, in many instances plenty of that which is worse than nothing. Why not, then, give culture a fair trial? Good, well-drained ground, no doubt, would produce the best crops, but poorer land on which the Bramble springs up spontaneously might be enriched and improved by cultivation. The plant could be had for nothing, and labour would not be a heavy item. In America the

canes are planted 3 feet apart in rows, and 8 feet from row to row, for the convenience of getting in between them and cultivating the ground. In this position they are allowed to grow into long natural hedges, from which it is not difficult to pick the fruit, and they profess to cut out the old wood and shorten the young canes once a year. But the varieties grown there differ greatly from ours, as they make much stronger growth and produce finer fruit. There they are perfectly hardy, and they would, no doubt, pass through our sharpest winters, particularly when planted on dry warm soil, where their growth would get thoroughly ripened. These, then, should be tried, and although they might not succeed in every situation their introduction might lead to a union of the Roses, which would result in the production of a race superior to that which lacerated the limbs of contending Royalists on these very hills more than four hundred years ago.

*Eastnor Castle, Ledbury.* W. COLEMAN.

### GOOD AND BAD GRAPES.

THE report on the Grape show at South Kensington published in *THE GARDEN* (p. 277) is an instructive one, as it clearly indicates the relative positions of all the best known varieties of Grapes. It is instructive in a very significant sense, because in most cases the number of entries of each sort is given, and from this one can gauge pretty accurately the position that each variety occupies in the estimation of Grape growers. The fact that Alicante should be placed first on the list is a matter which we might expect, but the fact that seven lots of it were exhibited clearly shows that there are those who prefer to cultivate a large showy Grape even of inferior quality in preference to sorts that are universally recognised as being of superior quality, although less attractive as regards size of bunch. I have no desire to dictate to anyone what should or should not be grown; all that I wish to say is, that the inexperienced should not be induced to cultivate such Grapes, either from seeing them exhibited or from reading reports of great weights of individual bunches, until they have tested the matter themselves, or have previously ascertained whether fruit of such inferior quality would be acceptable on their employer's table, for at best Alicante can only be said to be a third-rate Grape in flavour.

ALNWICK SEEDLING, of which five lots were shown, is, in my opinion, not destined to become a popular Grape. It is not first-class in flavour, nor is it a good setter under a variety of circumstances. In a general way the bunch is much too short and heavily shouldered to be handsome, and not a few growers fail to colour it well. It is evidently rather capricious, and this is being discovered, as only those grow it who are pretty well provided with space, and I maintain that the true test of the popularity of a Grape is when those who have but limited space take to it and handle it skilfully, but the Alnwick Seedling will never attain such distinction.

OF BLACK HAMBURGS only four entries are recorded—a fact which corroborates what I have just stated, viz., that there are those (and the number is not a few) who prefer to grow the most showy sorts even if indifferent in quality to those which are less attractive, but better flavoured. Buckland Sweetwater was represented by five exhibits—a small number for such a well flavoured Grape; why this variety should remain so little known is past my comprehension, for undoubtedly it is the finest early white Grape in cultivation; I say this after having grown it for twenty years. It is superior to Foster's Seedling in two important points, i.e., the berries are larger and the flesh firmer, and it keeps longer in good condition after it is ripe, but I grant that it is somewhat difficult to manage when growing along with other Vines, especially Black Hamburgs, as it requires a little assistance in the way of heat to get it to set regularly. It requires a brisk temperature, and the rods to be shaken in order to get the flowers to set properly, but given this attention and it sets as freely as any other Grape; under



the same treatment as that usually given to Black Hamburgh, it is five or six days later in setting than that variety, and yet the fruit will be ripe ten days before the Hamburgh. Duke of Buccleuch, as was predicted by myself and others after the first few years' trial, has not obtained anything like a prominent position, nor will it ever do so, for in many cases it neither grows nor fruits satisfactorily. One, nevertheless, cannot help feeling a certain amount of regret that such should be the case, for well-grown examples of it have a noble appearance.

**FOSTER'S SEEDLING.**—This is a favourite white Grape, its popularity arising, I presume, from two causes, viz., its suitability for early forcing and its not being a difficult Grape to cultivate—both desirable qualities certainly, but for all that I consider it many points below being a first-class white Grape. For amateurs and young beginners in Grape culture it is especially suitable, as it grows and fruits remarkably well under the same treatment as the Black Hamburgh.

**OF PEARSON'S GOLDEN QUEEN**, only two lots were shown, conclusive evidence that it is not appreciated by many growers. The reason for this is not far to seek, for, although it is not destitute of flavour of a peculiar kind, it is by no means good in that respect, and the bunches which it produces are not handsome. I have grown it large enough to please anybody, but it is wanting in so many qualities that constitute a good Grape, that I had orders to root it out.

**GROS COLMAN.**—This was dealt with in the same way as the last named—viz., rooted out two years ago, for it was so much inferior in flavour to Lady Downes Seedling, that it had to make room for that variety. For my own part I do not complain of the judgment passed upon it; with me the Vine grew well and bore fine bunches, and the berries were very large, but it was deficient in flavour. I have no doubt that it is a good market variety, and I know that on some tables it is regarded with favour by those who care as much for appearance as they do for flavour.

**LADY DOWNES SEEDLING** was represented by six exhibits, not a large number, seeing that it is the best-keeping black Grape not possessing Muscat flavour. The merits of this Grape, indeed, are so well known, that any further notice of it is unnecessary. Mrs. Pearson was quite as well represented as could be expected, seeing that cultivators generally are rather averse to making room for new varieties, and in applying this rule to this Grape the practice is undoubtedly commendable, for from what I can see of its behaviour in plants of it under my care, it is not likely to take high rank amongst first-class Grapes, especially in regard to flavour. Unless it should improve by keeping, a point which I have not yet tested, at present I can only regard it as a Grape of second-rate character. Muscat Hamburgh had only two exhibitors, a circumstance not surprising, seeing that it is so delicate in constitution that to find it growing in a satisfactory manner is the exception rather than the rule. Twenty years ago it was fairly well grown at Cassiobury, Herts, and much more recently I saw it in a garden in Devonshire in good condition; but only those who have inside borders should attempt its culture. Some growers think there is no difference between this and the Black Muscat of Alexandria, but I am not of that opinion. The last-named is much more vigorous in growth and its berries are larger. Muscat of Alexandria was evidently the leading Grape in the show, and very properly so, for there is no mid-season Grape with a Muscat flavour to equal it.

**MRS. PINCE'S BLACK MUSCAT.**—This fine Grape seems to be receiving the attention which it deserves from a wide range of cultivators, sufficient proof that new introductions, if meritorious, are sure to be appreciated. Of course, this variety is not now quite new, and it must be admitted that it has taken some time to gain its position, but now, when it has done so, there is no fear of its losing ground, for it is unquestionably the finest flavoured late-keeping Grape grown. Madresfield Court Muscat: As a mid-season Grape, this is certainly a desirable variety for those to grow who have mastered the exact atmospheric conditions which prevent its cracking, but so few have done so, that it cannot be

recommended as a sort to suit everybody. Well-finished examples of it are very handsome and the flavour excellent.

**WEST'S ST. PETER'S.**—This once popular late-keeping variety appears to be almost neglected, only one lot of it being shown. In its day it was esteemed as a good flavoured Grape, and I never heard a complaint as to its want of vigour, or that it did not bear freely. The fact is, I suppose, we have too many late-keeping Grapes, and so the oldest lose favour through want of room to grow them.

From the above it will be seen that of all the new Grapes introduced during the past twenty-five years only one has risen to anything like a prominent position, and that is Mrs. Pince's Muscat. The large white Grapes raised and sent out from the north have found but few admirers. The Golden Champion is not even mentioned in the report of the show in question. Raisers of new Grapes will, therefore, not need to be told that they must raise a variety of unusual merit if they desire to hand their name in connection with it down to posterity. J. C. C.

### FRUIT TREES IN POTS.

THE fine examples of fruit trees in pots exhibited by Mr. Rivers during the past season have clearly shown the value of this method of cultivating hardy fruits. It is generally believed that fruit culture in pots originated at Sawbridgeworth. Practically, it may be said to have done so, because at the time the Sawbridgeworth experiments were conducted, but little was known of this interesting method of producing good crops of our choicest kinds of fruit. My earliest knowledge of the system was derived from reading Mr. Rivers' book, and by following his advice satisfactory results were obtained; but more than sixty years ago a Mr. Brown, gardener to Lord Cremorne, at Chelsea, grew all his fruit trees in tubs and boxes, watered with liquid manure made from horse droppings and a little soot. He forced French Mignonne, Early Admirable, Millet's Mignonne, Violette Hâtive, Bellegarde and Galande Peaches, but he did not succeed with the Noblesse. The trees were all double-worked to ensure dwarfness. Cherries, we are informed, "if first fairly established in pots, may be forced successfully if not excited too early or too rapidly. They require shifting, especially if they have been fruitful, every second or third year, and, like other potted trees, require mulching and occasional applications of manure water." Such was the advice given by Mr. James Main, a good gardener and horticultural writer. He further states, in the "Horticultural Register," published in 1835, that "plants in pots are certainly more liable to be affected by atmospheric changes than those planted in the ground, and consequently require more attention in watering, and keeping the atmosphere of the house as uniform as to humidity and temperature as possible. But, notwithstanding these facts, the best dessert ever set on a table, perhaps, was at a banquet given to his late Majesty King George IV., when Prince of Wales, by the late Mr. J. J. Angerstein, at his seat, The Woodlands, Kent. Every kind of fruit grown in English gardens appeared in this dessert, each growing on its own living branches or roots, from the regal Pine-apple down to the humble Strawberry. It was early in the season, but the quantity and quality of the fruits were magnificent, and their arrangement on the table in pots covered with Moss was most admirable."

It will be seen from these extracts that the pot culture of fruit trees was well understood at that time, and after reading the cultural remarks given by Mr. Main, I find that there is but little that can be added to them. When fruit good enough to carry off first prizes at the London exhibitions can be gathered from pot trees three years from the bud, it is evident that this system of culture produces satisfactory results. All inclined to follow it should now make preparations for next year. The fruit will now have been gathered from all the trees, even in the late houses, and the trees themselves will be well furnished with bearing wood. Indeed, every bud seems to be a blossom bud. The young wood of the present year is not very strong; it never is so

on our Peach trees. As a consequence there are few treble buds. When Peach and Nectarine trees produce treble buds, I need hardly say that the centre one is a wood-bud, and the two lateral ones blossom-buds. In pruning, the shoots should be cut at a triplet. Weak growths are furnished their entire length with blossom-buds, the only leaf-bud being the terminal one. Should one of these shoots be cut back, no leaf-bud will be found to act as a leader, and the shoot will die back to the previous year's growth.

**POTTING** the trees should now be attended to; the roots are still active, and will continue so as long as the leaves are on the trees. Some of our pot trees are twenty years old, and are growing in 15-inch pots. For some years they have been repotted every second year in the same-sized pots. I simply take a chopper and cut off the mass of roots above the drainage. An inch is also cut off all round, and the tree is replaced in the same pot, or one about the same size. The soil is rammed in all round, and it soon recovers itself even if in full leaf, and in ten days the roots run freely into the new compost. Early in November, or even in October, the trees are set out-of-doors and plunged over the rim in Cocoa-nut fibre refuse. Those not repotted are top-dressed. In order to do this, a considerable portion of the old and exhausted compost is removed, and some new material is substituted. For top-dressing I use equal proportions of good clayey loam and decayed stable manure, and for repotting, two parts of loam to one of manure. If the trees are potted for the first time, three parts of loam to one of manure are used.

**FRUIT TREES** can be purchased in pots—such as will produce a crop next season; and those beginning to grow them for the first time would do well to start with fruiting trees. I now purchase what the trade term "maidens," that is, trees that have made one season's growth from the bud. They are usually very strong, and have at least a dozen side branches on the main stem. If we want to produce a bush tree, the main growth is cut down to within 15 inches or so of the union between bud or graft and the stock. If a pyramid is wanted, about a third, or at least less than a half, of the leading growth is cut off, the side shoots being cut off to within an inch or two of the stem at the top, but leaving them as much as 9 inches long at the base, the intermediate shoots being left longest as they get near the base, and shorter towards the top. J. DOUGLAS.

**5392.—Preserving Walnuts and Filberts.**—We preserve our Walnuts and Filberts by filling some clean 6-inch flower-pots with the nuts and placing a piece of slate on the top of the pot to keep out damp. The pots are then taken to an odd corner out-of-doors and covered 9 inches deep with sifted ashes from the garden boilers. When we want a dish of either kind we take it from this store. In this way the nuts keep until spring so fresh, that the skin comes readily from the kernel; in fact they keep good until they begin to grow. The shells then burst and they are no longer of any value for table use.—J. C. C.

**Apples on the Paradise stock.**—Everybody does not want Apples in large quantities, small trees, bearing a few dozens of fruit each, being more suitable in some cases than large trees, bearing as many bushels. Usually the fruit on the small trees, too, is of superior quality compared with that on large ones. The Paradise stock is a surface-rooting one, and should be planted where this characteristic belonging to it can be encouraged and made the most of. To dig among and over its roots would be ruin, and many have failed with it on this account. A mulch during summer is very advantageous. The trees may either be planted in lines by the side of the paths, 4 feet to 5 feet apart, or have a plot devoted to them. The plantation will always be full of interest. Little pruning will be required beyond a little thinning and regulating of the growth in summer. The best time for planting will shortly be here, and the ground might be trenched over and prepared now by all who intend planting. The following list of varieties has been found to succeed well under ordinary conditions of culture, viz.: Irish Peach, Worcester Pearmain, Mr. Gladstone, Stamford



Pippin, Hoary Morning, Besspool, Burghley Pippin, Lemon Pippin, Rymer, Annie Elizabeth, Scarlet Nonpareil, Yellow Ingestrie, Cellini, Blenheim Pippin, Cockle Pippin, Dumelow's Seedling, Rhode Island Greening, Early Harvest, Cox's Orange Pippin, and Peasgood's Nonsuch.—E. HOBDAV.

### DAMSONS AND BULLACES.

THESE may certainly be classed amongst neglected fruits, for although largely grown in Kent and in some other fruit-growing counties, they are almost unknown in others, yet they are a far more remunerative crop than many so-called choice fruits; for, however plentiful Plums may be, and even when they are a drug in the market, as they have been this year, late-keeping Damsons and Bullaces are sure to sell readily, not only because they come in at a time when there is little variety from which to choose, but because they have such a distinct flavour as to render them especial favourites for culinary purposes. In this locality one may go miles and not see a Damson or Bullace tree, and the impression is that they will not grow. That, however, is a mistake, for a quantity of young trees which I have planted within the last three years grow just as well as they do in Kent. Another drawback to the more extensive cultivation of these useful fruits is that new and improved varieties are but little known beyond the market gardens in which they are made a speciality.

**KENTISH DAMSONS.**—Anyone interested in fruit culture could not do better at this time of year, when the gathering of these fruits is being carried on, than pay a visit to some of the large fruit farms around Maidstone and see the way in which these fruits are treated. It is quite true that they bear good crops as hedge-row trees, but in Kentish gardens they are set out in regular rows like Apple or Pear trees, and carefully pruned, manured, and otherwise well attended to. Only the best varieties are planted, and the crops which they bear would not be credited by those who have only seen Damson trees starved in the ordinary way. It is impossible for any kind of tree to continue bearing heavy crops year after year if it gets nothing to feed upon. The standard or half standard is the form of tree most popular in market gardens, but in orchards on Grass the full height standard is necessary in order to keep the fruit-bearing branches out of the reach of cattle. Pruning consists in cutting back in winter all the strong shoots to about half their length, and thus treated they throw out a thicket of small spray, the fruit on which sets so thickly, as to look when ripe more like bunches of Grapes than clusters of Damsons. As to varieties, I may safely say that the Farleigh or Crittenden Damson is more extensively planted than all other kinds put together; it not only bears more regularly, but heavier crops than any other kind. No picking of single fruits here and there in its case. No; the gatherer strips them off by handfuls at a time, fine fruit covered with a beautiful bloom. The Cheshire or Prune Damson is a large fruit and good for a late kind, but it does not crop like the variety just named. Newer kinds, such as Bradley's King of Damsons and the Frogmore Damson, although apparently excellent, need further trial before they can be recommended for general culture.

**OF BULLACES,** Shepherd's is a large fruited kind, which, under good culture, is hardly recognised as a Bullace. Of this kind I have seen very heavy crops in Kentish orchards, and when well cared for they are sometimes even more remunerative than Green Gages. Damsons

realised 3s. 6d. a half sieve this season, when Diamond, a fine-looking black Plum, fetched only 2s. for the same quantity.

Gosport.

J. GROOM.

### STANDARD PEACHES.

I MUST simply decline to except any of the examples of failure of standard Peaches recorded by "T. B.," because they are either now non-existent or not vouched for either by the name of the place or the grower; whereas I have named mine. White Hill is by no means the only example, although one is as good as a thousand; but I forget at present the names of the other places where standards are grown successfully. There is one place, if I remember correctly, at Trinity, near Edinburgh, where the White Hill example has been copied successfully, but I may be able to tell you more by-and-by. "T. B." is wrong in saying that extension-trained standards is "an old way" of growing Peaches. He can neither produce from books nor any other source such examples of standards as those I have advocated, and I shall accept none that are not vouched for. "T. B." asserts that the best Peach growers throughout the country in a body reject standards; whereas they are universally grown in orchard houses, and sold for that purpose by the trade, the only fault of such standards being that they are too closely pruned and too close and bushy in the top to expose the Peaches well to the light. With regard to "J. C. C.," it is quite possible he may have had to deal "with both tall and dwarf" standards, and neither be trained in the free and thin manner I have described. The height of the tree has nothing to do with the subject. In conclusion, just allow me to show the position in which the opponents of standard Peach trees stand. All of them have admitted that the trees bear abundantly and well, which is an infallible sign of well-ripened wood; the only fault is that the fruit is not sufficiently well coloured or exposed to the sun to be fit for dessert purposes, and we are asked to believe that such trees are being generally abolished for that reason alone. Does anyone, I ask, who has ever seen a standard tree in fruit, who knows the average quality of the fruit from trained trees, so often poor and pale, and who knows the extent to which orchard house standards are grown, believe this assertion? I for one do not, and the plea advanced by your correspondents is the best evidence of its absurdity. Houses of standards may have been abolished at some places, but I do not doubt if the whereabouts of such places and the cultivators could be discovered, it would be found that the standard system was abolished for some other reason than the one stated.

J. S. W.

**White Nectarine.**—I was surprised to learn (p. 313) that this is considered by anyone to be the "very best variety" in cultivation, or, at all events, with which "C. R. S. D." is acquainted. I have met with it in two different gardens, and there was also a large old plant of it in the successional Peach house here when I first took charge of it. The tree was in fairly good condition and perfected good average crops of fruit for two seasons, but the quality was wanting; in fact, the fruits were much too sour, and it was replaced by another sort, better both with regard to flavour and appearance. It would appear to possess a good constitution, as the tree in question had out-lived many other sorts of Peaches and Nectarines planted at the same time. The house had been built over it, and possibly if I had lifted the roots and improved the border I should have also improved the quality of the fruit. Some years ago I was much impressed with the appearance of a tree of white Nectarine growing against an open wall in Sussex. The crop which it was carrying was remarkable for weight and the size of the fruit, but these unfortunately were not of good flavour. Has the old white become confounded with Rivers' white? The latter is said to be of delicious flavour, and to much resemble the white Nectarine, but paler in colour. In my estimation there is no variety to equal Pine-apple for flavour and quality, and if I only grew one variety that would be the sort selected by me. A well-ripened fruit of this variety or of Pitmaston Orange

finds great favour with good judges of fruit, many of which I find frequently prefer them to some of the best Peaches.—W. I. M.

**Pyramidal fruit trees.**—I should just like to see a photograph of the trees of natural growth that have of their own accord grown in the shape of pyramids of the trained type. I have certainly seen large old Pear trees that have run up into a kind of cone-like mound, with unequal sides and drooping masses of branches here and there, but the idea of comparing them with a pyramid of the garden type never entered my mind. I adhere to the statement, and I could, I believe, demonstrate the fact clearly that "artificial training" of a tree in the shape of a pyramid or other and similar shapes does not add to the cropping powers of a tree, but the reverse; and I am curious to hear from "P. G." in what way a pyramid excels a naturally grown standard, be the latter bush or standard, dwarf or tall. It will interest your readers, I am sure, to learn how a large branch comes to bear fewer and worse fruits than a small branch, and that, in principle, is the only difference between a trained pyramid and the naturally-grown tree—under the same conditions.—J. S. W.

### DUKE OF BUCCLEUCH GRAPE.

A PARAGRAPH, the tendency of which is to depreciate this Grape, appeared in THE GARDEN for September 19 under the signature of "S. W." "At the recent Grape show at South Kensington," he says, "the Duke of Buccleuch is reported to have been overthinned" in one case, and "of no special value" in another; while a third reporter finishes up by saying that "the Duke is evidently not a popular Grape." On the strength of these statements "S. W." writes as follows: "What has become of those fine examples of this Grape about which its advocates write from time to time, but which no one can ever discover?" "S. W." cannot have been reading attentively, or he would have seen that the Duke of Buccleuch even during the last three months has taken more prizes than any other white Grape except the Muscat, as the following extracts from reports published will show. On June 30, at Twickenham, Mr. Trussler is stated to have had in his second prize collection of fruit "Fine examples of the Duke of Buccleuch." On July 7, at Ealing and Acton, "Mr. Baird had," it is reported, "in his first prize collection of fruit Duke of Buccleuch and Black Hamburg Grapes." Mr. Baird was also stated to have been "a good first at the same show in the class for white Grapes with some huge bunches of the Duke of Buccleuch, richly coloured, Buckland Sweetwater being second." Another authority says of Mr. Baird's Grapes that they were "Two very fine bunches, good in size and splendidly finished, the first prize being deservedly awarded." On July 16, at Chiswick, Mr. Baird was first for white Grapes with Duke of Buccleuch, the bunches and berries of which were "medium sized, but splendidly coloured." Another report says: "The best two bunches of white Grapes were from Mr. Baird, who had excellent examples of the Duke of Buccleuch, which he admirably finishes in a mixed house." On July 30, in a report of Norwood House, Alloa, it is stated that "the most striking Grape is undoubtedly the Duke of Buccleuch. This season it is looking as good if not better than usual, the bunches being large and the berries magnificent. What a robust grower this variety is even when grafted." On August 1, at Liverpool, it is said, "For two bunches of white Grapes (Muscats excluded), Duke of Buccleuch was the variety that gained the first, second, and third positions, and was very good in each instance, the exhibitors being Messrs. Bennett, Lowndes, and Wallis." On August 6, in a report of Messrs. Rivers' establishment, it is asserted that "The finest young cane out of thousands grown was that of the Duke of Buccleuch." On August 13, at Taunton Deane, Mr. W. C. Rafarel is stated to have been "first with Duke of Buccleuch in the class of three bunches white Grapes (Muscats excluded)." On August 19, at Shrewsbury, Mr. G. C. Glover is reported to have staged some good examples of Duke of Buccleuch, as did also the Rev. W. Sneyd. On August 21, at the Devon and Exeter Show, "Mr. W. C. Rafarel was first



with six bunches of Grapes, distinct sorts, two of which were the Duke and Duchess of Buccleuch; six lots were staged." On September 9, at Edinburgh, "Mr. Kirk showed Duke of Buccleuch, the berries of which were of enormous size, but rather unripe." Moreover, at the same show, "on exhibition were two baskets of large sized white Grapes (Duke of Buccleuch) from Clovenfords, which received a special award for general excellence." At South Kensington, on September 12, I read in one of the gardening papers a report of the very show about which "S. W." writes the following lines: "The handsome-looking Duke of Buccleuch had only three exhibitors, and the fine bunches and large evenly swelled berries shown by Mr. Allan easily secured the highest honours." Need more be said in order to convince "S. W." that he is in error regarding this Grape? WM. THOMSON, JUN.

*Clovenfords, Galashiels.*

### BEST FRUITS TO EAT.

FOR this purpose, like "J. S. W.," I am almost inclined to place the Gooseberry at the top of the list. A dish of ripe, well-flavoured Gooseberries seldom leaves the dessert-table without being partaken of, and it will be readily admitted that there is no more wholesome fruit than the Gooseberry, or one which may be indulged in even to something like excess without bad consequences. If a similar amount of stone fruits, such as the Peach, the Plum, and the Cherry, or even Apples or Pears, were consumed, the result might, to say the least of it, be unpleasant. I have seen a Pine-apple placed upon the dinner-table night after night without being cut, and the same not infrequently happens in the case of the Melon; indeed, Melons are frequently found to be insipid, and few care to eat very much of even the best of them. The Fig is admitted to be an exceedingly wholesome fruit, but some people do not appear to like it. It has even been said that a love for this fruit has, as it were, to be acquired, and, provided good fruit is furnished, I should think it an acquirement very easily attained. Of Grapes we may soon eat more than is good for us, and Strawberries, though delicious, are generally produced too close to the soil to be always quite free from grit, wireworms, &c. But one may eat Gooseberries in the dark without hesitation, and I do not think that I ever heard of anyone suffering in consequence of having eaten freely of them. There are many varieties of Gooseberry, possibly more than are necessary or desirable, and there is great diversity in their flavour, that of some being exquisite, that of the large or show varieties less so, and where flavour is the object in view, the Lancashire show kinds had better be eschewed. Gooseberry trees readily submit to training to a wall or other object, and may be grown in any desired form. Many, however, prefer to grow them upon what may be called the "let-alone system"—a system which I cannot say that I admire, for although abundance of fruits may be produced, the trees become so full of wood, that it is difficult to get at the fruit, which is, moreover, inferior to that furnished by bushes periodically pruned. The most satisfactory plantation of Gooseberries I have ever seen was one in which the bushes were grown in the form of pyramids. They were trained to strong stakes, standing 7 feet high, and the bushes were planted in lines 7 feet apart. They bore fruit in great abundance; the varieties had been carefully selected, and the fruit was of the finest quality. It was quite a pleasure to go amongst them to pick and eat their fruit without having to stoop to do so. P. G.

**Pear Marie Louise.**—Amongst the numerous varieties of Pears that are bearing good crops this year, Marie Louise is second to none, and it has this important advantage, viz., length of time during which it can be had in season. We have trees of it in both shady and sunny aspects; also bush trees, and by gathering a few dozens at a time, we get a much longer supply than from most of the early and mid-season Pears that, as a rule, come into use all at once. Marie Louise, as most of us know, is a very handsome Pear and excellent in flavour; in fact, there are few varieties that possess more good quali-

ties than Marie Louise, and as it is of moderately strong growth, it scarcely ever fails to produce plenty of blossom. We cover it with fish nets when in bloom, and again in the autumn to protect the fruit from birds, as we like to let some hang as long as possible, gathering them as soon as they begin to change to a golden yellow tint.—J. G. H.

### CUTTING PEACHES AT FRUIT SHOWS.

HAVING had more than thirty years' experience, sometimes as a judge, but more frequently as an exhibitor at the metropolitan and leading provincial shows, I have occasionally found it difficult to follow the reasoning of the censors, or to observe my almost unvarying practice of accepting their decisions without a murmur. One indignity, however, I have never experienced at any of the great shows, viz., marring the beauty of a table of rich fruit, and so destroying much valuable produce by cutting, carving, and mutilating one or more of the finest specimens taken from every dish of Peaches, Nectarines, Plums, and Pears placed there for competition. Indeed, had I been told that any committee would have allowed the judges to strike such a fatal blow to their interests by thus discouraging the owners of valuable fruit from exhibiting, I should have received the information with incredulity. Such information, however, would have been correct, as every unfortunate grower who contributed to the magnificent display at Bath the other day can testify. It is usual to cut Melons, and, other points being satisfactory, to make the awards by flavour, but all experienced judges admit that incessant tasting clogs the palate, and soon destroys that fine sense of taste which one would like to retain for the benefit of those who place their productions at their disposal. This mode of judging does not, however, apply to stone fruits, as practical men who know the different varieties can single out at a glance a certain number of the best dishes in every class, when first, second, third, and a reserve can invariably be fixed upon. Had the cutting the stone fruit at Bath resulted in the best dishes being brought to the front, something would have been gained, but when the finest of Bellegarde, Royal George, Violette Hative, and other well-known Peaches were placed second, third, or nowhere, and perhaps as fine a class of Nectarines, including all the cream of the old and many of the new varieties was passed over for a miserable dish which the staging officer ought to have declined, one hardly knows whether the committee or the exhibitors have the first and strongest claim to sympathy. In course of conversation with the judges I gathered that it has always been the practice to cut stone fruits at the Bath shows, and that the American varieties of Peaches had completely fogged or flabbergasted them. But persons who set themselves up as competent judges, and go into the tents doubtless with the best intentions, should either make themselves thoroughly acquainted with the new varieties and their qualities, or respectfully decline the post, which they must feel they are, in these days of rapid progress, unfitted to fill. Thinking some of the unfortunate exhibitors would ventilate their wrongs, I have delayed these remarks; but finding that they have settled down, as a disinterested censor in another class, I venture to direct the attention of the committee to this damaging practice, as neither owners nor growers can be expected to send fine fruit to be mutilated and set aside for samples which are a long way from being the best.

*Eastnor Castle, Ledbury.*

W. COLEMAN.

**Colour no test of quality.**—"C. R. S. D." remarks (p. 313) that good colour in Grapes is no criterion of either sweetness or juiciness, a statement with which most fruit growers will agree. I have had Grapes grown without fire-heat as black as Sloes and blue with bloom, but as sour as a Crab; they colour first and ripen afterwards, but Grapes grown in a strong heat are generally ready to cut by the time they are well coloured. With respect to red Grapes being as sweet and juicy as black ones, that may be so, but the juice is thin and the sweetness is the only quality which it contains. Good colour is a criterion of good flavour in ripe fruit. Flavour being the highest point as regards quality is the

reason that colour is always in favour with judges, who, however, never award first prizes to colour alone. "C. R. S. D." also remarks that heavy colour is often put on at the expense of the keeping qualities of the fruit. Be that as it may, good Grape growers like to get their fruit well coloured and in a thoroughly ripe condition, which improves its keeping properties. Good Grapes, well coloured and covered with a thick, clean bloom, are not only valued for their good eating qualities, but they are held by most people to be one of the chief ornaments of the dinner table.—JAMES SMITH, *Waterdale, St. Helens.*

**Worcester Pearmain** is a very good Apple.

It is in season during the latter part of August and onwards until the end of October. It is a sure bearer, and fruits freely in a small state. The fruits, too, are amongst the most showy of all Apples, and they are very tender and finely flavoured. They may be used in the kitchen or on the dessert table, where their brilliant colour is the admiration of all who see them. I could not name a better Apple for a small garden.—J. MUIR.

**Apricots shedding their fruit.**—Kindly tell me the reason why the Apricots on a tree here always shrivel and fall off just when they ought to ripen.—H. B., *Shropshire.*

\* \* \* An Apricot tree capable of setting, swelling, and carrying its fruit over the stoning process almost up to the ripening stage does not often cast its fruit unless there is something radically wrong at the roots. This defect it is more than probable can be traced to dryness of the border. If your tree looks fresh and healthy, and you are quite satisfied that the fruit swells after it has passed the trying ordeal of stoning, lose no time in making a thorough examination of the border, not merely on the surface, but quite down to the drainage, through which it is possible some of the roots may have passed into a dry or cold acrid subsoil. Should this be the case, the remedy lies in your own hands, and October is the proper time to apply it. Lift the roots and relay them in fresh compost in accordance with the directions contained in my observations on "Hardy Fruit" (p. 264). If the roots have not gone astray, and want of water is the only defect, break up the surface of the border with a steel fork, mulch with short manure and give repeated supplies until every particle of soil is thoroughly moistened. Repeat the watering when the blossom buds begin to swell in spring, and add a little more manure to the mulching. Many Apricot trees fail through lack of moisture at the roots, particularly when a large breadth of foliage is exposed on a south wall, and, as is not unfrequently the case, the borders are cropped with vegetables. Although the intense heat and drought which prevailed in August and September, 1884, did not affect the foliage, the rainfall of the past winter did not thoroughly penetrate neglected south borders; consequently the roots had nothing to fall back upon when the recent drought, which extended over eleven weeks, set in.—W. COLEMAN, *Eastnor Castle, Ledbury.*

5392.—**Preserving Filberts.**—Pack the Filberts in their husks as tightly as possible in an earthen jar, stop all vent holes, make the lid air-tight, and place it in a cool cellar. When a dish of nuts is taken out, care should be taken to press the remainder well down, replace the air-tight lid, and in this way Filberts will keep perfectly sound for two years if required.—T. E. F.

### QUESTIONS.

5399.—Do Muscat of Alexandria and Mrs. Pince grow well together? For any hints in reference to this matter I shall be thankful.—SUBSCRIBER.

5400.—**Achillea umbellata.**—I shall be glad if any correspondent of THE GARDEN will kindly inform me how to propagate this Achillea. I have tried it in several ways, but it always damps off. How long does it take to strike?—HAMISH.

5401.—**Grape failures.**—I have a house filled with Muscat of Alexandria and Mrs. Pince growing side by side. The berries of the latter swell unequally, some being nearly ripe, while others are green and not much larger than Pens, and the Muscats shank. Will some Grape grower kindly say how such mishaps are to be avoided? I lifted the roots of these Vines last spring; there are borders both inside and out, but the roots are outside. The border is 12 feet wide, and I laid the roots in good turfy loam. Should they be lifted this autumn, or early next spring? The Vines are about ten or twelve years old. Gros Colman also shanks.—SUBSCRIBER.



## GARDEN DESTROYERS.

**Lettuce-eating caterpillars.**—The caterpillars sent by "J. C." are those of the common dart moth (*Agrotis segetum*). Watering the ground with gas-water is said to kill them, and watering with soapy water will bring the caterpillars from their hiding places. Laying a ring of soot round the stems of the plants will keep the caterpillars away, and gas-lime answers well for the same purpose, but it must not be allowed to touch the plants, or it will injure them. Soot stirred into the soil with which the plants should be earthed up is very useful when plants have been attacked. These caterpillars can move about very quickly, particularly at night; it is not much use searching for them at the roots of plants which are nearly dead, as they have probably moved to others. Many birds are very fond of these caterpillars, particularly rooks and jackdaws; these birds should therefore be encouraged in gardens, and if seen poking about at the roots of plants they should not be disturbed, as they are only doing so to get at insects which would do harm to the crop.—G. S. S.

**Destroying wasps' nests.**—Dissolve cyanide of potassium in just sufficient boiling water to cover it; keep it in a bottle securely corked. The way in which to use it is to saturate a piece of cotton wool in the poison and deposit it in the hole; in half an hour's time the nest may be safely dug out and destroyed. The method employed here is to insert a piece of fuse in the hole (in the evening), after which stop the entrance, leaving the end of the fuse outside, to which apply a lighted match; in a few minutes the wasps are all suffocated.—W. A. E.

—You have used the solution of cyanide of potassium too weak. The cyanide should be dissolved in very little water—in fact, the less the better, as the solution cannot be too strong. The entrance to the nest should be quite closed with the tow or cotton wool, which should be thoroughly saturated with the solution. Cyanide of potassium is a very deadly poison, and therefore dangerous to use. Why not try gas-tar, which is very efficacious? Dip rags in the tar, and push them well into the hole, and light them.—G. S. S.

—For destroying the nests of wasps nothing is so good as cyanide of potassium. It should be used in a dry state, broken into pieces about the size of large Hazel nuts. In this way it is stronger than when powdered, as the action of air weakens its power, while in the piece it retains its strength. Drop one of these pieces into the mouth of the hole where the nest is and nothing more is required. This plan is much more simple and effective than employing tar or paraffin. It can be used at any time of the day as well as at night, thus saving time. Up to the present we have destroyed forty-eight nests this year, and all within half a mile of the garden.—E. MOLYNEUX, *Swanmore*.

**Hailstorm Insurance Society.**—Allow me to bring before your readers a matter which will greatly affect the interests of many of them. It is well known that during the last few years nurserymen and market gardeners have invested a large amount of capital in the erection of glasshouses, and owing to the heavy cost of insurance, much of this is uninsured against the danger of hailstorms. I am prepared with a scheme whereby every *bona-fide* market grower may insure his glass at 5s. per cent. per annum. (The usual charge for 21-oz. glass is 20s. per cent. per annum.) Not only may the ordinary risk of breakage by hailstorms be met by the premium I have stated, but if taken up heartily by trade growers generally throughout the country, at the end of five years a handsome bonus may be given to every policy-holder, thus almost, if not quite, affording the security of insurance free of cost. I base these statements upon the average injury to glasshouses in this country by hailstorms during the past twenty years. I have the details for working the society, but to avoid trespassing upon your space, will mention only a few leading features in the management. Each district shall have a local committee, them-

selves growers, who shall receive applications, inspect the houses proposed to be insured, and report to a central committee of growers in London, who will occasionally sit to transact such business as may arise. There shall be no paid agents, or commissions, or money received. All work done by committees shall be honorary, and will require only a few hours in each year. All money belonging to the society to be invested in Consols, and when about £5000 or £6000 has accumulated, the interest will cover all working expenses. I know a gentleman, well connected and of considerable commercial experience, who is ready to act as secretary. I may state that I have no personal interest in the matter more than any other grower who may insure his glasshouses. I have stated my views to several of the leading market growers around London, who highly approve of them, being convinced of their soundness, practicability, and advantage to the trade, and who, with myself, are most anxious to have the society started forthwith. But as I cannot converse with many who are growers, I ask, as an initial step, that readers of THE GARDEN who are trade growers, and are favourable to this mutual insurance scheme, will write a letter to me personally that I may be able to judge of the amount of interest likely to be enlisted in the matter.—GEO. BEER, *Chesswood Gardens, Worthing, Sussex*.

## MARKET GARDEN NOTES.

**Autumn** is a busy time with market gardeners; not only is there a great deal of work to be done in the way of storing crops, but also a good deal of cropping, for land in market gardens is allowed but little rest, a rapid rotation of crops being the only way in which money is to be made. Market gardeners are compelled to take land in pretty close proximity to large towns; rents are therefore high, and rates and taxes still higher. While owners of land in rural districts have some difficulty in getting £1 per acre for good arable land, market gardeners give £10 per acre. In this locality, field after field is being devoted to building, and market growers are driven further afield, but they find it better to pay a high rent for land close to the market than to go out into the country where it is cheap, for the fresher the produce the better the sale. It matters little in the case of root crops, like Potatoes, whether they come by sea, rail, or cart, but green vegetables soon deteriorate, especially salads and soft fruits. Market growers, unlike gardeners in private places, have to study, not so much what they can best grow, as when they can dispose of it to the best advantage. Towns differ considerably in their requirements. When London wants the greatest supply, seaside towns are nearly empty, and when the demand for many things is past in London, it is just commencing in seaside resorts; those, therefore, who study the wants of the market most get the best prices for their produce. Early forced Cucumbers were selling in the markets here in spring at from 2s. to 3s. per dozen, but during summer they were worth double these amounts, and most other kinds of salading were proportionately dear. During July, August, and September we get thousands of excursionists daily, and the numbers that come and stay for weeks, and sometimes months, are also great, and the market grower benefits by the increased demand.

**Tomatoes** have been here in great request, *i.e.*, if home-grown, for imported ones have been a drug in the market; although good-looking, they are by no means equal to those of home growth when cooked. Outdoor crops of them on walls are now ripening. Conqueror is a good sort if it has room to grow, and I have seen excellent crops of the dwarf Orangefield growing at the foot of low walls and fences, and supported by a few short stakes. Those that do not ripen out of doors will be pulled up, stems and all. The foliage will be cut off, and the stems hung up in some warm place where the fruit will ripen and keep up a supply until Christmas.

**Winter Greens**, such as Cabbage, Kale, Savoy, &c., are very late this year; the intense drought rendered it impossible to get them out as early as usual, but now that the soil is well moistened, every endeavour is being made to promote growth by

stirring the surface soil on fine days. Veitch's Giant Autumn Broccoli, that was planted out early and well rooted before the drought set in, is now coming into use, fine heads of it realising good prices; in fact, prices have been pretty good for most vegetables for some time past. Cabbages are being planted as fast as ground for them is cleared of other crops.

**Vegetable Marrows** have been especially in request, owing to the scarcity of Beans and late Peas, and those who grew Marrows largely this season got good prices for them. A variety called the Bush Marrow, that does not send out long running shoots, but bears a quantity of fruit in a small compass, has withstood the heat and drought extra well; in the fields it looks like clumps of Rhubarb, forming, as it does, a large tuft of leaves, and each plant yielding great numbers of fruits.

**Apples and Pears** consisting of kinds that must be used at once are very cheap, for, owing to heavy crops and drought, inferior fruit is unusually plentiful. Good samples realise fair prices, but such an excessive crop as that of Pears this year is by no means an unmixed good either for the trees or their owners. Where thinning has not been done the trees must suffer from the weight of crop, and the prices realised will not be more than for a fair average crop. On trained trees on which the fruits have been carefully thinned the crops are regular and good, and the trees look well for another year, as the wood is ripening up brown and hard. The gathering of good keeping sorts is now in active operation, and any that will keep until the perishable sorts are over will well repay the trouble of storing. Preparation of the soil for planting is now being pushed on vigorously, and trees not worth retaining are being marked to be grubbed up. This is important, as in all old orchards quantities of worthless trees may be found, and they take up just as much space as good ones; in fact, a marked difference is sometimes observable in trees of the same kind, some always producing fruits of the finest and highest quality, and from such good kinds only should grafts for increasing the stock of young trees be taken. J. GROOM.

*Gosport.*

## FLOWER GARDEN.

## TUBEROUS BEGONIAS OUTDOORS.

THESE make a brilliant display in the flower garden, and as they vary considerably both in habit and colour, they can be used with much effect in many ways. Used as "dot" plants in carpet bedding they are very effective, as standing singly they have free development both in the way of foliage and flowers. Planted in masses of one colour, be it crimson, scarlet, pink, white, or primrose, the effect can be made to harmonise with all surroundings, or the colours just named may be alternated in one large bed. When properly grown no sort of weather seems to hurt them; in fact, they are the best all-weather plants with which I am acquainted, and now that their culture is becoming to be understood, they have, I think, a bright future before them. Whatever position they may be destined to occupy, there is but one correct way of growing them previous to planting them out, and that is under cool treatment. Many people fail with them because they grow them on in heat till they have become large plants, which is a mistake. In commencing their culture the best way is to purchase a stock of one-year-old corms early in the year, say in March. Place them in shallow boxes in light soil consisting of two parts of rotten leaves, one of turfy loam, one of peat, and mix all freely with sharp silver sand; drain efficiently with crocks and rough leaves; place the corms about 3 inches or 4 inches apart in the soil, and on them lay about half an inch in thickness of compost. If the soil is moist, no water will be required for a time beyond a light sprinkle to



keep the surface moist; place the box in a late vinery just started, or on a spent hotbed for a time till the plants commence to grow, when they should be placed in a light position in a cool house or in a cold frame, keeping them close for a few days. Great care should be taken from this time to keep them carefully supplied with water; never allow them to become either too dry or too wet. If likely to become crowded before the time has arrived to plant them in the beds, transfer them thinly to other boxes, using similar soil to that previously employed, with the addition of a sprinkle of bone dust. Return them to the frame and keep them close for a few days till established, when abundance of air must be given them on all favourable occasions until the lights can be entirely removed. Give them the full benefit of the sun, never shading them. It will not be safe to plant them in the beds before the last week in May or early in June, as a check at that period would cripple them for a long time. In order to make them doubly secure, it is wise to protect them for a week or two at night with tiffany or some similar light material.

A STOCK OF PLANTS can be easily raised from seed, but they will not be fit the first year to produce a show of good bloom. The best way in which to manage them is to sow the seed early in February in heat, grow on the young plants during the summer in pots in the greenhouse until well established. They will thus get strong by the autumn, and if wintered in a shed or Mushroom house, shaken out of the soil and placed in a box among sand, they will be in good condition to be put under cool treatment the following March. An open position should be selected for the plants during the summer, and, if possible, it should be sheltered from south, west, and easterly winds. The soil if at all strong or retentive should be broken up to the depth of 2 feet, in order to allow water to pass away freely; a foot in depth at the top should consist of turfy loam, leaf soil, well rotted manure, some ground bones, a little charcoal, and a good sprinkling of sand. Some may think this preparation not needed, but it makes all the difference in the growth of the plants, and without free growth there cannot be a profusion of flowers. Place the plants in the bed as soon as it is ready, as the soil, being neither too dry nor wet, seems to encourage the roots to make a start. The difference between plants grown in boxes and those grown in pots is, that the roots cannot reach the sides of the boxes and get pot-bound, so to speak, in any way; when grown in boxes, though they ramble away, they can easily be planted with a good ball of earth attached. They should be planted about 18 inches apart, which is much better than crowding them. If the sun should be very powerful during the first two or three days after planting, a light canvas placed over them will be found advantageous.

CARPETING THE SURFACE.—The ground between the plants should be planted with some variety of plant that is used for carpet bedding. The best for the purpose is, perhaps, *Sedum glaucum*, the colour of which contrasts well with that of most other plants. *Sedum Lydium*, *Herniaria glabra*, *Poa trivialis*, and *Veronica repens* are also all well suited for such purposes, but none so well as the Stonecrop just named. The beds are best carpeted for the following reasons: First, distinctive contrast in colour; secondly, the carpeting answers as a mulching and prevents evaporation during summer; thirdly, when carpeted, the blooms do not get splashed with mud in wet weather; and, lastly, the soil is all hidden from view. Should the

weather be dry for several days after planting, a good soaking of water in a tepid condition should be given. Thus treated, the plants will soon make new growth, when abundance of water should be given and occasionally a good soaking of liquid manure; directly after the latter is applied, sprinkle the plants with clean water, which will remove any stains of the liquid from the plants. As soon as new growth is made, they will begin to bloom and will continue to do so until the middle of October, according to the attention paid to them during the summer. If dry, they must have copious supplies of water, and as the growths progress they should be supported by neat sticks, as being brittle they are liable to snap off under strong wind.

CLEARING THE BEDS.—This should be done at the end of the season. Dig the plants up and shake most of the soil from the roots; they should then be placed in sand and wintered in a shed, cellar, or Mushroom house free from frost, no water being required during their stay in this position. These Begonias make excellent subjects for rockwork well exposed to the sun, their drooping habit being very effective grown in that way.

E. MOLYNEUX.

#### BULB CULTURE.

It is customary with some of the advocates of hardy flowers to tell us how easy it is to form beautiful effects with them. So it is; but what I now want to know is this: I have a large bed of Delphiniums, say, which during the summer months was lovely; now there is nothing in the bed but stalks and leaves. With what bulbs or other plants could the succession of flowers be carried on? Again we are told to "carpet" our beds with low-growing Saxifrages, Veronicas, Stellarias, Sedums, &c., but this I find soon leads to the deterioration of even the strongest bulbs. Besides, what after all is the carpeting, grouping, or massing of hardy flowers in beds or borders but our old friend "bedding" under another name? The other day I showed a lovely bed of Violas to a friend. "Oh! no," said he; "pray do not call that 'bedding-out';" if you say it is an artistic group of hardy flowers on Grass it sounds so much better." In a word, are we really making progress, or are we simply arguing in a circle after all? What just now is to be desired is for some pastmaster in the art of hardy flower culture to tell us, say, for example, how to plant a border 200 feet long and 12 feet wide so that there shall be no gaps or failures, but, on the other hand, a continuous flower show from early spring to latest autumn. Let us have a sketch plant to scale, with full particulars as to the plants and bulbs to be employed. Some writers are in favour of forcing bold groups of hardy flowers in place of the "choke-muddle" of the old herbaceous border system. There are plans of such grouping in the "English Flower Garden" which differ in no way from the "ribbon-border" style of bedding, except in irregularity and in name. Of course hardy flowers are used, but so they have been in "spring bedding" from time immemorial. It seems to me that synonyms and new versions of old names too often do duty for the progress and improvement in outdoor flower gardening which we claim for ourselves to-day. It must be distinctly understood that I impute blame to no one, and am, moreover, thoroughly in touch and sympathy with hardy flower culture, but I am led to ask these few plain questions in the interest of those who are now perplexed and annoyed by many failures. Let us drop generalities for a moment and take up the thread of practical detail. Will anyone who has had experience in the carpeting of bulb beds, for example, kindly tell us of their success and of their failure with any particular combinations they may have attempted, especially with reference to the number of years during which any combinations of bulbs and carpeting have endured untouched or unrenovated and fair to see? The dates of planting and time of flowering are in all cases important to know.

Speaking of carpeting reminds me that there are instances in Nature where two or more species of

plants not only look better, but actually thrive better in combination or proximity than when isolated or alone. In Japan, for example, we are told that *Lilium auratum* grows among dwarf Bamboos, and it has just occurred to me that a bed of Bamboos with a few of these Lilies amongst them would be a pretty and harmonious "arrangement" (another synonym for bedding out) on an English lawn. Would Daffodils and Poet's Narcissi be any the less happy among the leafy Bamboo wands in early spring? At any rate, the only really healthy *auratum* Lilies we have here this year (is this not an especially bad Lily year?) are planted among common Brake Fern, the fronds of which shelter, even if they do not shade, the lower part of their stems.

I now wish to say a few plain words to the trade in reference to their bulb supply to our gardens. How many thousands or tens of thousands of Snowdrops, Squills, Crocuses, Hyacinths, and Daffodil bulbs are now being tossed and tumbled about in London warehouses and sale-rooms, which ought to have been in the ground two months or more ago. The bulbs should reach us much earlier than is now the case, say in July or August with the catalogues. It would indeed be a blessing if they came before. If Nature is the great teacher she is said to be, and if gardening is "an art that doth mend Nature," then should the bulb dealers give us our bulbs earlier in the year. Let us, however, go back to first principles, and remember that in Nature bulb transplantation is reduced to a minimum. She has another way, and starts clear by reproducing her bulbs and other plants from seeds, or, in other words, "new lamps for old" is her constant cry. And this brings me to a main question, viz.: Is bulb growing from seeds an impossibility in our English gardens, or are we ever to trust to our neighbours for a foreign supply? I had some Narcissus bulbs from Scilly the other day than which nothing grown in Italy or France or Holland could have been finer, and for really good big roots of many rare Daffodils one must go to Ireland. Again, some of us have not forgotten the Narcissus flowers grown in Middlesex by the acre; indeed, it is questionable whether we might not begin to grow bulbs as a farm crop in many districts in England and in Ireland with every hope and prospect of success. That this can be done in Scilly is past a doubt, and I hope the Onion growers of Sandy and other suitable portions of Bedford and Lincolnshire will try their hands at bulb culture in the near future much more extensively than they now do. The suggestion, however, may well be left to the consideration of those whom it may concern, but I wish to allude to another point of interest to all good gardeners, especially amateurs. For example, one great point in good gardening is, so far as possible, to avoid the mere "middleman" amongst nurserymen, and to purchase as far as is possible from the grower direct. It is easy now-a-days to find out nurserymen who make a speciality of any particular plants, and with the modern "resources of civilisation," such as the foreign sample and our inland parcels post, there need be no great difficulty in obtaining plants from the actual grower of them. Life is not long enough for us to ever see the beauty of plants of the thumb-pot order, so commonly dwarfed and starved ere sent out from London depôts; and one, moreover, should always remember that in many country nurseries the rarest of alpine plants, shrubs, and herbaceous plants may be obtained in spadefuls at the same, even if not actually at a lesser, cost. *Bona-fide* growers, on their part, should advertise more freely, seeing that there are many purchasers always eager to pay fair prices for really good things of flowering size if they only know where they can be obtained.

Another point of interest to many amateurs is the culture of what may here be called

TOUCHY OR MIFFY PLANTS. Who can give us an infallible recipe for producing a healthy patch of *Eritrichium nanum*, for example? Or at what time should *Ixias*, *Sparaxis*, *Babianas*, and *Tritonias* be planted, and what are the main conditions to be observed so as to ensure their successful and permanent culture in the open air of English gardens? Should they be taken up and replanted annually or not? Again, who will tell us how best to secure the great speckled flowers of *Iris susiana* and *I. iberica* in all their



native perfection? When should they be planted? When should they be kept dry? Is not a limestone soil essential to their permanent well-being, and how may the conditions of a limestone soil be best imitated on cold clays or peaty formations? Take the Cape bulbs again; generally no flowers can be much more striking than are these hardy as well as tender, and yet what disappointment do they not bring to amateurs who try, and fail, to grow them. So far enough for the present, but I hope some kind readers who have got beyond the difficulties above indicated will be so good as to give myself and others assistance in a few plain words. LEX.

### SNOWDROPS AND OTHER BULBS.

SNOWDROPS are so lovely springing up in an irregular informal manner under bushes and trees, or in unequal sized tufts in margins of Grass or Ivy, that the wonder is, with the large increase which takes place in the bulbs annually, they do not become more plentiful than they are. They increase rapidly in the fens. I know a clergyman who has his shrubberies full of them; every third year he takes them all up and sells the finest bulbs and replants the small ones. A farmer not far from where I am writing made £30 in one year from the Snowdrops growing in his garden and orchard. The fen soils are especially suitable for all the commoner kinds of bulbs, such as Snowdrops, Crocuses, Squills, and Daffodils; the latter increase very rapidly. In a farmhouse garden a short distance from here broad bands of them are used as edgings for all the garden paths. Out of the garden they travelled into the orchard adjoining, and have established themselves there in considerable force. Daffodils may be moved at any time, at least on some soils. I have lifted them when the flowers were opening and replanted them. I gave them a good soaking of water when they needed it, and very well they flowered. Next year they will doubtless succeed even better.

SNOWDROPS may be planted now. Plant with a dibber if only a patch here and there is planted. If a mass or a thick line is required, draw a drill 3 inches deep and press the bulbs into the soil at the bottom. The dibber is the best thing to use when planting on Grass. Make the holes 3 inches deep, drop in the bulbs and fill in the holes with rich soil. It is best to plant in patches consisting of half a dozen or so in a patch, making the holes close together. No system or method should be used in arranging the patches, as the less formality there is in their grouping the better.

WINTER ACONITES should be planted thickly to make any show. They do well on a shelving bank in a dense mass partially shaded by trees or bushes. They should remain undisturbed for a long time; therefore when planting make the soil as good as can be done conveniently. The larger the bed the more effective it is. Plant with a dibber, as in the case of bulbs, 2 inches apart and 2 inches deep. They have a very lively effect when the trees are leafless in winter in the subdued light of the overhanging boughs.

THE CLOTH OF GOLD CROCUS has a pleasing effect on Grass in spring. I saw last March a lawn of considerable size sprinkled all over with the blooms of this Crocus. In the case of detached lawns, where the Grass can be left unmown till the Crocuses have had time to make their growth, they will go on from year to year improving. There is no reason why the common wild Hyacinth of the woods (Bluebell) should not be more utilised in gardens than it is. It is very beautiful in spring, but comparatively few people see it. Of course, I should be sorry to see the wild flowers of our

woods removed or destroyed, but as regards this Hyacinth there is no danger of that, for it increases rapidly. E. HOBDAY.

### YELLOW CLOVE CARNATIONS.

OF these there is now a fairly numerous group, and they are so much liked for their colour, that it is not at all surprising that they are becoming popular. Having taken notes of some of the best during the past season, I find they make up the following list: Bell Halliday, fine, pure, soft yellow without any markings; flowers of good substance; plants of strong, free, and vigorous growth; Chromatella, sulphur-yellow, a useful variety, but not first-rate when compared with some of the varieties of more recent introduction; Florence (Wallington), a most effective variety, nankeen yellow colour, quite a peculiar tint, flowers very large and full; Lady Cathcart (Lane), pure bright yellow, large, full, very fine; Miss Wheeler, pale sulphur, suffused with white, delicate, and very pleasing; Queen of Yellows, deep, bright, clear yellow, one of the best, form and substance good; Polly (Cheetham), pure pale yellow, flowers large with well-formed petals and a good grower; and Pride of Penshurst, one of the very best of the yellow self flowers, of extra large size and fine form, deep and clear in colour, and excellent in a cut state. Plants of any of the foregoing, from pipings or layers, can be had, and I would recommend anyone having a cold frame to pot them singly in 3-inch pots, using a compost made up of good yellow loam, sand, and leaf mould; the pots should be fairly well drained. A layer of Moss should be placed on the drainage, and the plants potted as firmly as possible. They can then be placed in the cold frame until spring, when they may be planted out in a prepared bed. But it will be necessary to look at them during the winter in order to see that they do not suffer from want of water and to remove any decaying foliage. Plenty of air should also be given, so that they may be kept healthy and clean when required for planting out in spring. This is a matter needing some consideration. These Carnations should be in good loam enriched with leaf-mould, sand, and siftings from the potting bench. This should be dug in deeply and the ground well prepared to receive the plants. Another important matter is to plant firmly, and, this done, to carefully secure any leading shoots liable to be injured by being blown about by wind. R. D.

### NARCISSUS BICOLOR MAXIMUS.

"F. W. B." inquires (p. 308), "Is not the figure in Moore and Ayres' *Gardeners' Magazine of Botany*, vol. iii., p. 289, really N. bicolor Michael Foster or Dean Herbert? and he thinks that one thing is quite clear, viz., that the plate does not represent the N. bicolor maximus or grandis of our present day gardeners." The plate above referred to is a very familiar one with me, and I have frequently compared it with Edward Leeds' finest Daffodil, which is also an old favourite of mine. I believe that the plate was drawn from the Daffodil it represents. The tube is quite correct, and that is the main feature, but the perianth is not very like the original. This was one of the first batch of seedlings raised by Edward Leeds, of Longford, and it has never attained the favour it deserves. In 1882 (*GARDEN*, Vol. XXI., p. 295) I directed attention to it as being a grand flower, very like the ordinary N. bicolor, but differing by having larger perianth segments and a longer tube. That it was not so fine as Horsfieldi, but bloomed a fortnight later. Again, in 1883 (*GARDEN*, Vol. XXIII., p. 452), I spoke of two of Mr. Leeds' Daffodils which had almost become lost—N. major superbus, a very fine yellow Trumpet Daffodil; and N. bicolor maximus, a late-blooming bicolor, with a longer tube than Horsfieldi and Empress, and otherwise nearly equal to those fine Daffodils, and with the valuable distinction of coming into bloom a fortnight later. The plate in the *Magazine of Botany* shows this longer tube perfectly. The corolla in Mr. Leeds' Daffodil has great substance, and the segments of the perianth make up two perfect equilateral triangles, intersected when viewed in front, and this peculiarity is not shown in the plate. The true bicolor

maximus can always be recognised by this marked peculiarity, and it is this symmetrical balancing of the two triangles which makes it so peculiar among Daffodils.

I find it first appeared for sale as a new Daffodil in Barr's catalogue for 1881, and it was described as having a beautifully imbricated perianth. My own stock of this Daffodil came from the wreck of Mr. Leeds' garden at Longford Bridge. I visited it many times from 1880 to 1882 and recovered many bulbs both of bicolor maximus and major superbus, my attention having been directed to the subject by Mr. Hollingworth, the gardener, who had a copy of the magazine with the two plates. There can, therefore, be no doubt whatever as to the identity of the plant, and I have since compared my flowers with those grown by Mr. Barr and Mr. Walker, of Whitton, and they correspond exactly. W. BROCKBANK.

*Brockhurst.*

**The green Dahlia.**—This, the so-called green Dahlia (*D. viridiflora*), has appeared several times this season on the exhibition tables at South Kensington, and one daily paper pronounced the "green flower" to be an invention of the florist. When examined it will be found to consist of a bunch or rosette of green bracts—a conglomeration of the sharply reflexed bracts found on any Dahlia flower; these are developed on the outside of the receptacle, true florets being on the inside. Botanically, it is interesting, but as a decorative plant it has no value, because its true character becomes apparent later in the season, when red florets appear among the green bracts, thus showing its origin, and forming a far from pleasing monstrosity—one, indeed, out of place in a flower garden proper.—JOHN W. ODELL, *Barrow Point, Pinner.*

**Erica herbacea** is useful in many ways, and when in bloom, which it is both in spring and autumn, it is very showy. We have it planted round the edges of taller growing Heath beds, also on the margins of Rhododendron, Ghent Azalea, Kalmia, and other American plant beds, where it serves to hide bare stems. It is also very effective when planted to cover the soil amongst Silver Hollies, and for planting between stones in the rock garden it is also useful. It is not particular as to position, growing well in almost any place provided it is given a little sandy peat to start in. It is easily increased by dividing the roots in spring, and if the weather is very dry at planting time, keep it well supplied with water and shade with Laurel branches for a time if the sun is powerful.—E. M.

**Gladiolus brenchleyensis.**—How effective this Gladiolus is when planted among hardy Heaths, Ghent Azaleas, dwarf Rhododendrons, or round the outsides of large flowering Rhododendron beds, its bright scarlet flowers making such beds quite showy at a time when they would otherwise be dull in appearance. It succeeds capitally in the peaty soil used for the American plants just named. It is also very showy when planted in clumps of, say, five or seven in the herbaceous borders. We have used it this season with advantage in a bed of dwarf Cannas, and also in a bed planted with variegated Abutilons and carpeted with blue Marguerites (Agathæas). The bright colour of the Gladiolus contrasted well with the golden-blotched leaves of the Abutilons. It is grown in pots previously to being planted in the beds, and in all positions except the last two the bulbs were planted early in March about 3 inches deep, using plenty of sand along with them. We lift ours annually when the foliage turns yellow, and lay them in a dry place till thoroughly ripe, when all roots and stems are cut off; the bulbs are then placed in bags or boxes and kept in some dry place till the following March. We have used the same bulbs now for five years, and I think they improve in size of flower-stems; certainly they are as good as when first used, but in our cold heavy soil I fear many would not be if allowed to remain in the ground all winter.—E. MOLYNEUX.

**Phygellus capensis.**—"H. P.'s" note on this plant is quite in accordance with my experience regarding it. It is a plant of neat growth, and easily increased by division of the root. In our strong soil it grows and blooms freely late in the autumn, a time at which it is most useful, as other things then begin to get scarce.—E. M.



## HARDY FLOWERS AT BELMONT.

HARDY and other flowers suitable for the decoration of borders receive at Belmont, near Taunton, more than ordinary attention. Of Gladioli there are some grand clumps, and also masses in various parts of the grounds, and their condition corroborated what I recently stated in THE GARDEN, viz., that, notwithstanding the long drought this summer, Gladioli had borne it much better than most plants of a similar character. Many spikes of their flowers had reached a height of 4 feet. *Tigridia Pavonia grandiflora* is better grown here than I have seen it elsewhere; its flower-stems reach a height of nearly 2 feet, and produce their showy blossoms with the greatest freedom, yet they receive little extra attention. Early in November the bulbs are lifted, and, with the stems and leaves attached to them, are laid in boxes of dry soil and kept in them in some place from which frost is excluded until next May, when they are again turned out into the borders. They are, of course, planted in good soil, and in other respects fairly well cared for. *Gentiana acaulis* is also a favourite plant, a quiet nook being devoted to it. Planted amongst some stones, it looks quite happy. Near the Gentians is placed the charming *Lithospermum prostratum*, which extends itself in all directions over some large stones, and looks perfectly contented with the treatment which it receives, for it is nearly always in flower, the blossoms peeping out from amongst the foliage like so many blue pearls. Amongst flowering shrubs I noticed a pure white-flowered *Althæa frutex*, which must be scarce in gardens, for I do not remember having seen it before. Its flowers, clear in colour, are suitable in a cut state for almost any purpose for which they may be required. J. C. C.

**Bedding Pelargoniums.**—Cuttings of these are, as a rule, scarce this year in districts in which the drought was severe, but the old plants are in better condition for storing than when they have produced a lot of sappy growth, as the little they have made this year is hard and well ripened. The best way in which to treat them is to lift them before frost affects them, and after stripping off the oldest leaves to pack their roots into the smallest pots they can be got into and set them on light shelves near the glass. Give them a good watering to settle the soil around their roots, but as soon as established keep them rather dry. Pick off decaying foliage, and only water enough during winter to keep the wood from shrivelling. Thus treated, they will make much more effective plants next year than one-year-old cuttings, and with a good stock of such plants few young ones will be needed.—J. G.

**Eryngiums from seed.**—In "Notes on Hardy Plants" (p. 307) I see that some difficulty is experienced in establishing *Eryngium yuccifolium*. As I have succeeded in raising and establishing it from seed, I will, with your permission, record my experience. Early in March, 1884, I sowed in a pan of loam, sand, and leaf-mould a mixed packet of *Eryngium* seed, and placed it on a shelf in a cool house, covering the pan with glass and shading it. The seeds soon came up, and, amongst many others, about forty plants of *E. yuccifolium*. Those, when strong enough, I pricked into boxes filled with the compost just named, and in these they remained until the first week in July, when I had them planted in nursery lines a foot apart each way. There they remained uninjured through the winter. In April this year I planted several of them in a new herbaceous border, and now they are large handsome plants, one in particular having sent up a strong flower-spike 7 feet high, and having made abundant foliage over 4 feet long, it is most graceful in appearance. Many of the others are also nearly as good. I may add that the plants were shifted with a large ball, and their roots were not disturbed.—A. CAMPBELL, *Ashford, Cong. Co. Galway.*

**The Chimney Campanula** (*C. pyramidalis*).—This has been very fine with us this year. Many plants of it in the borders have had from six to ten stems from 6 feet to 8 feet high, and covered with flower shoots from top to bottom, thus giving us a succession of flowers for the last three months. The best mode of propagating this species is by means of

seeds, which should be sown in heat in spring. The seeds, being small, germinate better in a gentle warmth in a close frame than elsewhere. The young plants should be pricked off when large enough to handle, and they may either be planted out in borders or be kept in pots till the spring following. Some of them, but not all, will flower the second season, and all the remainder will flower the third summer. Our finest this year are three years old. If a plant flowers freely and bears seed, it may die during the following winter, but this is not a necessary consequence. Very generally when the flowering shoots are cut away early a vigorous growth will spring up from the bottom, which, when strong enough, will flower. In addition to raising plants from seeds, the old roots may be divided, retaining a crown bud with each piece. They make handsome plants in pots when well grown, and are very useful for hall and room decoration, as they have great staying powers. There are two varieties, one with white and one with blue flowers, which seem to come indiscriminately when raised from seed. I have had both from one sowing from seeds saved from the blue-flowered variety.—E. HOBDAV.

**Clematis Flammula.**—For many weeks past this old-fashioned climbing plant has been a conspicuous object trained on the wall of a dwelling house not far from where I am writing, and it looks as if it will go on flowering until frost cuts it down. It must be wonderfully hardy, for it is growing in a rough and poor soil, yet it has reached a height of nearly 20 feet, and the feathery flowers are a sheet of white, quite refreshing in appearance compared with the bare walls of the adjoining houses.—J. C. C.

**Killing weeds on walks.**—"J. S. W." has apparently no faith in salt for killing weeds on walks. I, however, hold quite an opposite opinion as regards its merits in this respect. I have used it for many years on long lengths of walks, and, except to hand-weed along the sides near Grass or Box, we have not spent an hour's labour on our walks for these last ten years. For laying on the salt, I select dry weather in March and April when the barometer reads high, so that the salt can dissolve gradually in fine weather, and has time to find its way down to the lowest roots. Thus treated, our walks are as free from weeds as anyone could desire.—J. C. C.

**Chrysanthemums against open walls.**—We grow a good many Chrysanthemums against walls for furnishing cut flowers, as we find that the protection of a wall makes their production a greater certainty than in open borders, for even in the west of England the frost is so severe sometimes in November as to quite spoil the flowers on unprotected plants. I had our outdoor plants attended to early in March; the old stools were taken up and divided, and the young side pieces were selected for planting again. Some of the old exhausted soil was taken away, a shovelful or two of some rich material was put in its place, and the pieces were replanted. In May we went over the plants and found that many of them had grown a foot or more in height, and with a greater number of young shoots on their stems than were wanted to fill up the space. These we reduced to about half a dozen, and from them about 4 inches of the tops were taken off, thus making them dwarfer. I find that if a greater number of flower-stems are kept they get so crowded, and consequently so weak in growth, that the flowers are small and altogether inferior to those that have their stems thinned out. As the plants advance in growth they are kept close to the wall by a piece of string being stretched before them.—J. C. C.

**Hardy Cyclamens and autumn Crocuses** are amongst the few flowers that have perfectly resisted the late and, for September, exceptionally severe frost. Even the expanding flowers of Japan Anemones have not escaped, and Clematises, which in many instances were at their best, are ruined, so that amidst such destruction it is pleasant to see how bright and fresh both Crocuses and Cyclamens look. The white form of the autumn-blooming Cyclamen is one of the daintiest flowers that grow, and is superior in form to the Persian varieties. It is a mistake to plant these Cyclamens in isolated patches; they should be grown in large breadths, where they cover

some square yards of ground with their handsomely variegated foliage, which, by its ability to withstand uninjured the severe frosts of an English winter, is a never-failing source of pleasure through the duldest months of the year. The immense number of flowers which a number of well-established bulbs produce form a very charming picture of floral beauty, especially when there is about an equal mixture of the white and pink varieties. In a recent number of THE GARDEN it was stated that these Cyclamens like a deep rich soil, and probably they attain larger dimensions thus circumstanced, but they will do very well in a poor soil under trees where but little else will grow, and so far as I can see they flower just as well as when grown more generously. We have here a bed of them under a Plum tree, where the ground becomes as dry as dust in summer; it was in this condition quite three months this summer, but as soon as the autumn rains came, up sprang myriads of blooms, and for two months they will form a bright ornament. Nothing can be prettier than these masses of Cyclamen bloom when lit up by the September sun. As to autumn Crocuses, they are far too little used, for there are so many places where they could be utilised and where few flowering plants will grow. They are of such a robust nature, that they hold their own where the herbage grows rankest, and they are at home in almost any kind of soil.—J. C. B.

**Crown Anemones in autumn.**—The many variations of these, says Mr. Burbidge in the *Times*, are so universally thought of as spring flowers only that, in the interest of a rapidly-increasing class of amateur gardeners, I wish to say that they flower most luxuriantly at the present season in many localities if the precaution be taken of raising plants from seeds sown in the open air in early spring. Gardening has been described as an art "which does mend Nature: change it rather;" and so it comes that in mild localities near the sea this Windflower of the Greeks may add beauty to our gardens in this, the Dahlia season, even if not also in company with the Chrysanthemum and the Christmas Rose. The ordinary method of Anemone culture now practised in most gardens is confined to the autumnal planting of French or Dutch grown roots for blooming during the following spring, and this plan, if not actually "as old as the hills," dates from the days of Shakespeare, Parkinson, in his "Paradisus," published in 1629, indeed, tells us that the spring-blooming Anemones vary as much from seeds as do Tulips; but, so far as I have been able to gather from books, no attempt was made in the olden days to treat the Crown Anemone as an autumnal flowering plant, as is now quite possible. There is no magic in the method I recommend. The woolly seeds are rubbed up together with dry sand or earth so as to separate them thoroughly, and during February or early in March they are sown very thinly on a bed of earth well enriched below the surface with cow manure, the seed and sand being sprinkled on the surface together. After sowing, water during dry weather, and when the seedlings appear thin them so that those remaining are fully 6 inches apart. During July and August the growth of the young plants may be strengthened by the application of weak liquid manure or soot-water. The first flowers begin to appear during September and October, or say seven months after the seeds are sown, and near the seashore or in warm sheltered localities flowers are produced during mild weather all through the winter months, the finest flush of blossoms coming in March and April. This system of obtaining brilliant flowers of the Crown Anemone during the autumnal and winter months is so simple and the results so satisfying, that it seems to me to merit the attention of flower-loving amateurs. In former years our finest Pears were reared from seeds in Belgium; even the garden varieties of our national emblem, the Rose, were reared for us in France, and now our bulbous flower-roots come from Holland. But foreign competition has of late taught us many things, and so to-day we at least know that it is possible to raise the finest of fruits and of flower-roots on English soil. English varieties of Queen Rosa now equal, even if they do not surpass, others; and last, but not least, it is fairly proven that the same statement is true in the case of the double and semi-double varieties of the Crown Anemone.



## MANAGEMENT OF HERBACEOUS BORDERS.

I FIND in practice that these borders cannot be successfully managed on any hard and fast lines. To succeed, the needful operations as they occur must receive attention. It is a standing order with us to thoroughly overhaul our borders in the beginning of November; but with this exception, we have no fixed rule. As near as circumstances will permit, whatever requires to be done, let the season be what it may, is attended to. With reference to the autumn work, we have already cleared off the clumps of Sweet Williams that were exhausted, and the positions where they stood are now occupied with Pinks. The ground was dug up deeply and well broken, and the Pinks planted in it were obtained from pipings put in in 1883. Last year they stood in the reserve border, all the flowers being picked off as they appeared. They are, therefore, now good-sized plants, capable of producing plenty of flowers next year. As our borders are wide, we put three such plants in a clump, as I find single specimens do not make a good show. To make room for East Lothian Stocks, we have taken away some of the early-sown annuals that were sown between the clumps of bulbs, and in their places we have put the Stocks. The spaces, which are about 2 feet across, hold from seven to nine plants. As these come into flower, those with single blossoms will be pulled up; the places that were occupied by Canterbury Bells are being prepared for double German Wallflowers. All these are already prepared, and as large as we care to have them. A check in their growth now does them good, as it hardens up the growth before winter sets in. As we can get time and the plants go out of flower, we shall get out our Sweet Williams, Pansies, Polyanthus, and Canterbury Bells, and a fair number of the single yellow and dark Wallflowers. Some old clumps of Delphinium formosum that are weak through age must be removed, but we have plenty of young stock ready to take their place, only we must find them fresh stations. As they begin to grow early in spring, it is important to get them in their places early in autumn. Patches of Arabis and Aubrietias will soon have to be reduced, as they are overgrowing some bulbs that are near them. Fresh plants of these will have to be prepared for next year, as the old ones are getting weak and naked in the centre. Alyssum saxatile compactum is one of our brightest spring flowers; our plants of it are now a yard across. They must be allowed to flower where they are, and then be removed. In the meantime a young lot will be put in to succeed the old ones. Many of the old stools of Campanula will require attention. I hope soon to take them all up, remove some young pieces from their sides, and replant them in fresh places, throwing the old stumps away. In the same manner we must deal with Phloxes, Veronicas, Achilleas, Dictamnus, and plants of similar character that increase in size of stool so fast, that it is absolutely necessary to reduce them every third or second year, or the flower-stems come up in such numbers that they injure each other. I find that overcrowding weakens them considerably. The double Pyrethrums I like to remain for several years without disturbing them, as the plants require to be of good size to be effective; but, in order to keep them in vigorous growth, I find it necessary to remove the surface soil over the roots and replace it with a rich top-dressing. If this is done every autumn, they will keep healthy and strong. Lilium candidum and the varieties of *L. tigrinum* I take up and replant in August about once in four years. I find this to be necessary, or the bulbs get so thick that the growth becomes weak and the flowers few; at the same time I also either change the position or mix with the soil a little well-rotted manure, to which I find they do not object. Our bulbs, which consist of Hyacinths, Tulips, Jonquils, Narcissi, Irises, Crocuses, Triteleias, Grape and feathered Hyacinths and Snowdrops, are taken up early in November; this is done once in two years. All the largest bulbs are then picked out and planted again. By so doing I find I get a much finer display of flowers than I otherwise could have. Choice plants of double Primroses, Hepaticas, and the dwarf-growing Phloxes should have the surface soil now taken off to the depth of an inch or more, and its place supplied with

some fine rich material. As fast as any annual or other plant goes out of flower their places should be filled with plants that flower in the spring. The white and blue Forget-me-nots, red and white Daisies, Violas, Silenes, Limnanthes, and similar hardy subjects all combine to make the borders attractive at a season when flowers are wanted more than later in the year.

J. C. C.

## NOTES OF THE WEEK.

**Mutisia decurrens** and **Mandevilla suaveolens**.—We have received photographs showing both these plants in flower in the open air in Mr. Ewbank's garden at Ryde. The *Mutisia* is quite luxuriant, and flowering like an Ox-eye Daisy.

**Chrysanthemum Blushing Bride**.—Mr. W. Piercy, of Forest-hill, sends us flowers of a n.w. early-flowering pomponne *Chrysanthemum*, which we consider to be a valuable addition to the list of early sorts. The flowers are globular, of a pleasing soft rose-purple, the central florets being tipped with yellow. It seems to be very floriferous. It is as yet a very scarce sort.

**Dipladenia Brearleyana**.—One rarely sees this plant in good condition, but at Firbeck Hall, near Rotherham, there is a fine specimen of it bearing upwards of seventy fully expanded flowers. It is planted out and trained thinly under the roof of the house, where it has a striking appearance. The flowers of this, and also those of *Allamanda Schottii* (of which there is a fine plant in one of the other houses) are in great request for table decoration.—S.

**Vanda Sanderiana**.—This fine Orchid is now in bloom in Messrs. Low's nursery, Clapton, and as there are several plants with spikes in various stages of development, the flowering period is likely to be extended over a considerable period. Orchid lovers interested in this plant will, therefore, have an opportunity of seeing it, and also other rarities in the way of Orchids, of which this nursery contains a good collection.—E. F. K.

**Double Lapageria**.—Mr. Bedford sends from the garden at Straffan House a specimen of the most double *Lapageria* flower we have seen, there being sixteen instead of the usual six petals. The flower is showier than the single, but while it gains in this respect it loses in form, the single being by far the most beautiful in that respect. In fact, anyone who can admire beauty of form would not wish to see the *Lapageria* doubled.

**Millia biflora**.—I send you a few flowers of this plant. I thought I had better do so before frost finishes them, as our thermometer stood at freezing point this morning (September 28), but, as you will see, the flowers are none the worse. I should perhaps say that the plants are growing in the open ground. We have about four dozen bulbs in a bed, and we have not been without flowers from these plants for the last ten weeks, and there are others yet to open; each bulb is now bearing two or three pods of seed.—TAUNTON.

**National Chrysanthemum Society**.—Mr. Holmes, the secretary of this society, has submitted to us for inspection samples of the silver and bronze medals which have been prepared as prizes to be awarded at the society's exhibitions. Both medals are about the size of a half-crown piece. On one side is stamped "National Chrysanthemum Society," with a central space for the name of the recipient of the medal. On the other is engraved a group of flowers representing the various sections of *Chrysanthemums*—incurred, Japanese, Anemone-flowered, and Pomponne. These flowers are artistically drawn and grouped and beautifully embossed.

**Bignonia Chamberlayni**.—One of the most striking greenhouse climbers that have ever been sent to us has reached us during the week from Mr. Scrase-Dickins' garden at Coolhurst, near Horsham. This climber is now a beautiful sight, festooning a large portion of the roof. Like all the *Bignonias*, the shoots are long and slender and the flowers are borne in clusters from the axils of the leaves. The flowers are about 3 inches long and funnel-shaped, and of a soft primrose-yellow, which tint in contrast with the shining green foliage is very lovely. Why

this climber should be such a rarity is unaccountable, seeing that it was introduced over sixty years ago from Brazil. We doubt if nine out of ten gardeners at the present day would know it, and it is not mentioned in any of the principal nursery catalogues. We hope soon to illustrate it so as to give our readers a better idea of it.

**Clerodendron trichotomum**.—This hardy *Clerodendron* promises to become a more important autumn-flowering shrub than was at first anticipated. During the week we have seen a fine large bush of it in full bloom in Messrs. Veitch's Coombe Wood Nursery, and were surprised to find it such a handsome shrub. It makes a dense round bush covered with big leaves, and each shoot just now is terminated by a cluster of white flowers each protruding from a reddish calyx. The bush in this nursery is growing on a dryish exposed bank in not over good soil. We can imagine what it would be if planted in a sheltered spot in good deep soil. Autumn-flowering shrubs are so precious, that we can ill afford to lose one of them, and any addition to the list will surely be welcomed by all. We have not seen much of this *Clerodendron* about—not one in a private garden yet—but seeing that it may be so rapidly propagated by root cuttings, it should not be long scarce.

**The late frost**.—I read the other day in one of the daily papers that a violent storm was on its way from America, and might be expected to strike our western shores about the end of this month. It has struck us with a vengeance, not in the form of wind or rain, but in a sudden depression of temperature, which has settled all our tender plants and vegetables. The cold wave set in on Thursday, 24th; we had 2° of frost on the 26th, and 7° on the 28th. Dahlias, Heliotropes, Zinnias, and all such tender things are quite black and putrid, and the much-belauded tuberous Begonias as autumn bedders are killed to the ground. *Chrysanthemums* all Tuesday hung their heads and looked as if they could never recover, but a gentle fall of rain during the night from the south softened the atmosphere, and some of them are improving. September frosts generally strike us between the 14th and 24th, but when we get over the last date we often go on unscathed till Christmas.—W. COLEMAN, *Eastnor Castle, Ledbury*.

**Cypripedium kaieteurum**.—This new *Cypripedium* belongs to the small *Selenipedium* group, the species in which are natives of South America, the present one having been recently sent to Kew by Mr. Jenman, of Demerara, who found it growing at the base of the Kaieteur Fall, in British Guiana. It is very similar to the rare *C. Lindleyanum*, differing only in slight botanical characters, which, however, have seemed sufficient to warrant its being described as a new species. The leaves are rather short, over 2 inches broad, stiff, leathery, shining, dark green, with a narrow edging of brownish yellow. The scape is tall, curving, and produces a number of flowers, only one, however, opening at a time; they are medium sized, brown, green, and reddish coloured. As a garden plant, the foliage is, perhaps, the character that would recommend this *Cypripedium*, the flowers falling a long way short of the beauty and remarkable forms of the majority of the Lady's Slippers. Possibly, however, there are those among Orchid growers who would consider this plant a great prize, as its describer surmises, though, to our taste, it is a botanical curiosity, and nothing more. A plant of it has been flowering for some time at Kew.

**Schomburgkia Lyonsi**.—We have received from one of our readers a spike of flowers of this somewhat rare, but very handsome Orchid, and on behalf of those who cultivate but rarely or never flower plants of it we request our correspondent to be so good as to send us a few particulars with regard to the treatment his plants of this *Schomburgkia* have undergone to produce such excellent results. *S. Lyonsi* is a native of Jamaica, where it grows on the exposed trunks of high trees, and from whence it was first introduced about thirty years ago. The habit and leaf-characters of the plant are similar to those of some of the *Cattleyas*, say *C. Trianae*; and the erect flower-scape is produced from the ends of the ripened pseudo-bulbs, as in those plants. All along the scape are long, brown, boat-shaped bracts,



and upon the upper 8 inches or so the flowers are arranged—about twenty flowers on a well-grown scape, each one being 2 inches across the sepals and petals, spreading, oval or lance-shaped, and white, with dots and lines of purple rather regularly arranged. The labellum is recurved, larger than the petals, the edges crumpled, and white dotted with purple, the lower portion splashed with yellow. All the Schomburgkias are “good things,” but unfortunately they are exceedingly shy flowerers under cultivation. The variety sent is much superior to any we had before seen either alive or in coloured pictures.

**Cypripedium Godefroyæ.**—There is now flowering at Kew a plant of this pretty little Cypripedium, and close by it are plants also in flower of the closely-allied *C. concolor* and *C. niveum*. As we noted a few weeks back, there is at Kew a collection of Cypripediums of the *niveum* group which has been imported from Bangkok, Siam, and which were suspected to include plants of *C. Godefroyæ*, as well as several distinct forms of *C. concolor*. Several of the latter have already flowered, as also have some of *C. niveum*, but the first true plant of the much-prized *C. Godefroyæ* has only just now expanded a bloom. This species is of such interest, owing as much to its rarity as to its prettiness, that the following note respecting its discovery and the conditions under which it grows wild is worth recording. It comes from a Mr. Alabaster, who has lately died, and who collected and sent to Kew the plants above referred to. He says in one of his letters: “These Cypripediums were found by me on the cliff of a limestone island near the Bird’s-nest Islands of Chumpon. They, so far as I could see, grew facing the mainland west, and none on the east side of the island. Some were gathered 16 feet above sea level. I saw others at about 80 feet above sea level and intermediate heights. There were very few, and although I visited many of the Bird’s-nest Islands, I found no Cypripediums. At Samroyd (?), 100 miles to the north of these islands, I found *C. concolor* growing abundantly. No. 1 is pure white, with purple or chocolate blotches, not mere small dust-like spots, as in the ordinary *C. niveum*; No. 2 is fawn-yellow, with small purple or chocolate spots. The *C. concolor* is in two very distinct characters of yellow, not dependent on amount of sunlight.” The above short description of the plants labelled No. 1 fits, as far as it goes, the character of *C. Godefroyæ*, and very probably they are that species, whilst the plants labelled 2 are the forms of *C. concolor* above referred to. It has been stated that *C. Godefroyæ* is intermediate between *C. niveum* and *C. concolor*, and there can be no doubt that in a broad sense the three kinds are merely forms of one rather variable species. *C. Godefroyæ* is apparently at least as easy to manage as are its two relations, and no doubt it will in time be made plentiful through division of the plants, as the growths spring up in tufts in the same way as happens in the other small Cypripediums.

#### NOTES ON RECENT NUMBERS.

**Sternbergia lutea** (p. 306) never gives us any difficulty and flowers freely enough each year. I believe the chief secret is not to plant it too deep—at all events many of the Amaryllis tribe if too far from the surface of the ground or pot have a tendency to throw out many offsets and then it is vain to look for flowers. It increases very slowly with us, and I should not be surprised to hear that with those who find it a shy bloomer the increase is very rapid. The bulbs do not throw up a scape until they are of a certain age, but imported roots usually show their beauty the second year after planting. Of course good drainage and all the sun possible are essential to success. The presence of the young foliage at the same time as the bloom is a great point in its favour, and the evergreen character of the leaves during the winter and spring makes it most useful as a contrast with the foliage of Cyclamens for clothing the naked flower-spikes of some of the choicer bulbous plants.

**Colchicums** (p. 308).—Last year we took up a broad edging of the old autumn Crocus, which had been round a big herbaceous bed for a long time, and having in consequence some thousands of bulbs to get rid of, we planted them in all sorts of places and

positions, and I am bound to say, judging by this season’s results, most unsuccessfully. A number were put at the base or in the shade of big trees, under the impression that the masses of colour in the autumn would show up well from a distance, but though the leaves grew very fairly strong, the blooms are the most miserable, puny, colourless things one could find in a garden. I had not realised before the Colchicum’s dislike to shade. We have to thank “G. J.” for the hint of *Tunica Saxifraga* to grow with them, and I shall hope to try it. The bulbs of the Crocuses want to be pretty close together to make a good show, and when sufficiently thick, help to hold each other up a bit—at least till the rain comes, but a very little shade to “draw” them is fatal from the beginning. The leaves are so coarse and graceless for some months in the year, that they are banished from the more select places in gardens, but with something, such as *Tunica Saxifraga*, in pseudo-wild spots, one ought to be able to do something to give satisfaction, especially with some of the newer and finer forms.

**Himalayan Rhododendrons** (p. 318).—That the majority of these are too tender for the open air in most parts of England, and that they soon overgrow our greenhouses if kept indoors, most of us know but too well. There were, however, a number of hybrids raised from them and the ordinary garden varieties some years ago, which seem as hardy as one could wish, and which, though blooming somewhat early in the spring, generally manage to keep clear of the worst of the winter, which the finer scarlets do not always know how to do. We have a number about, which are now large bushes, and the particular campanulate and somewhat drooping character of the flowers renders them remarkably distinct; the foliage varies very much, and I expect they are in all probability seedlings raised from various crosses of which no record was kept. The number of forms of greenhouse Rhododendrons has been largely increased of late years, but with some exceptions the hardy varieties have kept pretty much to the same lines, but with improved colour and floriferousness. There is such a variety in the foliage of Rhododendrons, that clumps might be made which should be effective for that alone. We have some of the tender sorts which have lived out-of-doors for a good many years, but which I do not remember to have seen flower; this autumn they are well covered with buds, so I shall hope for a treat next spring. C. R. S. D.

Sussex.

## GARDEN IN THE HOUSE.

### THE MOCASSON FLOWER.

The illustration given on the opposite page serves to show how beautiful the hardy North American Lady’s Slipper Orchid (*Cypripedium spectabile*) is when intermixed with other flowers and foliage. Not many are so fortunate as to possess the plant in quantities sufficient to be able to cut a bouquet of its flowers; but now that imported roots of it may be bought so cheaply, there is no reason why every garden should not possess at least a little of it. Both for the open border and for pot culture it is, without question, an invaluable plant, and anyone may grow it well who possesses a moist peaty border partially shaded. Strong plants bear stems carrying three and even four flowers, and these vary from almost a pure white to a rich rose-crimson. It flowers in the open air about June, but it may be forced into bloom several weeks earlier. As directions, both for forcing it and growing it in the open air, have been given in THE GARDEN before, we need not revert to them here. The photograph from which our illustration was taken was sent to us some time since, and we should like to know who sent it, the address of the sender having become mislaid.

**Begonia Rex as a window plant.**—This Begonia is generally looked upon as only a greenhouse plant, but I do not know why it should be so. For some years we have had one growing with other plants in a window and now it is rather a striking object. It has sixteen leaves, most of which are in fine healthy condition, although some of the lower ones are dying

away. The largest leaf measures 13 inches by 9 inches. It has had no special treatment, but is kept in front of a small window where there is a good light, but little sun. During the summer the room has no artificial heat, and only occasionally during the winter, so that the temperature at times is low.—D. J. Y.

**Dahlia Guiding Star.**—Where clear white flowers for cutting are in request during autumn, this Dahlia will prove most useful grown as a pot plant, for, under the shelter of a glass roof, the blossoms come white as snow. We take spring-struck cuttings and grow them on out-of-doors during summer, shifting them as may be required into larger pots, but as this variety is dwarf and compact in habit, it does not make very large plants. Pots from 8 inches to 10 inches in diameter suit it well; by the end of August it will be covered with blossoms, and may be transferred to any cool, airy house, where they will open in succession for a long period. They are excellent for church decoration, or the formation of wreaths or other floral devices, and they come in at a blank time between Asters and Chrysanthemums.—J. G., *Hants*.

**Tall Nasturtiums.**—These, thanks to a mild autumn, have been unusually gay for a long time past. They have continued to grow and flower as freely as at midsummer, and few climbing plants are more useful for covering unsightly objects. The Canary Creeper, too, makes excellent screens, and converts the most uninviting fence or hedgerow into a beautiful garden, so to speak, as it quickly covers them with its really handsome foliage and bright cheerful yellow flowers. For indoor decoration, the flowers of these Nasturtiums are most useful at this time of year, when cut flowers of bright colours are getting scarce out-of-doors. Long sprays of the Canary Creeper look particularly well for dinner-table decoration in the shape of festoons, and the flowers of the Nasturtiums, under artificial light, are really charming. I find them most useful in combination with Chrysanthemums, as they supply shades of crimson and orange that go far to make most effective arrangements without the aid of heat-loving exotics. I may add, too, that the flowers do not partake of the objectionable perfume of the foliage of the Nasturtium, and, by associating them with some other kind of foliage, they may be employed for a variety of indoor purposes. I have some self-sown plants that have taken possession of a fence covered with white Jessamine, and the Nasturtiums have entirely covered it, their gay blossoms peeping out amongst the pretty foliage of the Jessamine, and making a most pleasing contrast.—J. GROOM, *Gosport*.

**Floral decorations.**—“H. M. W.” seems to think Lime branches in blossom difficult to arrange. I have never found them so. Perhaps they may be troublesome in any merely formal arrangements, but when suffered to fall naturally in a large vase, and mixed with some lovely flowers of summer, such as the tall white Lily, the Delphiniums of various colours, they are charming, and their exquisite perfume fills a room. Just now the changing foliage of autumn affords an inexhaustible supply for vases and bowls. The slight frosts which have touched the Dahlias and partially withered the Heliotropes have added a brilliancy to the tints on trees and shrubs. The woodlands are never so beautiful as in the early autumn days. True, we know that this beauty is but the precursor of decay and desolation, but while it lasts we must enjoy it without any sad *arrière pensée*. Much still remains to make our gardens pleasant; many Dahlias are left, the splendid Cactus variety among others. Our Sunflowers are very fine, and the Japanese Anemones a mass of snowy blooms. May I suggest that Sunflowers of different kinds look particularly well in a tall vase with some of their own buds and leaves and a branch or two of some autumn tinted foliage? Red Cactus Dahlias may be treated in the same way with the addition of tall spikes of the Anemone I spoke of. Do not forget its own leaves. The arrangement of flowers by professional gardeners leaves generally much to be desired. The eye is often perplexed by a variety of colours jumbled together in a meaningless way. It is really a study, and young gardeners who aspire to be considered men of taste should bestow particular attention on this branch of their art.—W. N.



## POINTS IN GOOD GARDENING.

I WISH some of our really practical amateur gardeners would write down for us what they consider to be their best points or cues in good gardening. At the same time they should tell us something of their soil and climate. A practical amateur may give us in a few words some little bit of practice of his own discovery or usage which may aid us immensely. For example, Mr. Burbidge and others have for years been requesting us to cut our flowers of Daffodils, Lilies, Gladioli, &c., in the bud stage, and to give them water for an hour or two ere they are packed for postage. In transplanting, again, the operation has lost all its terrors since someone told us to water our plants well the day before we uprooted them. This enables them to withstand the shock with impunity, and now we can move plants at all times and seasons with scarcely a failure worth noting. Or again, for example, the Rev. Wolley Dod a few years ago told us to raise our Primulas from seeds, and the result is Primroses by the thousand and many phases of Primrose beauty unthought of and so unheard of before. I wonder how long the worthy scientific people have been observing, examining, figuring, and describing our native slugs and snails. All I know is that the latter have, on their own part, been examining and devouring our choicest plants and flowering stems in the most business-like and practical manner, and it was not until Mr. Wood told us, in three lines of print in THE GARDEN, that wood-ashes baffled them that I for one had any peace. Now, I know that Lily stems, or choice Iris blossoms, or Gentian shoots are quite safe with a cordon of wood-ashes around them. This wood-ash or potash wrinkle has been such a comfort in many ways, that my first point shall be

**BURNT RUBBISH**, a most valuable material in all good gardens. All weeds in seed and all hedge clippings and the general autumnal gatherings of dead stalks should be converted into ashes at once. The chemist tells us that animal manures lack but little of being perfect for the garden or the farm. That little seems to be potash, best supplied by burnt refuse, wood, leaves, or parings of vegetation, or even of burnt earth. The amount of unutilised rubbish about some estates is appalling; such a curse, however, is but a blessing in disguise, and the burning up of all deleterious matter is only another way of refining pure gold by the action of fire! A well-managed yard for refuse ought to be one of the most interesting of all the features of a country garden. To it should be brought all the matter which is inimical to the comfort of living things—all slops, soot, builders' rubbish, and the burnt ashes of weeds, road-scrappings, and ditch-parings, and out of such a Pandora's box of evils one may eventually possess one's richest fruits and fairest blossoms. Another good point is the

**SOW-WHEN-RIPE** plan in the case of all flower, shrub, and tree seeds, and more especially those of our hardy herbaceous and alpine plants, bulbs, &c. Have a good large seed-bed prepared in a sunny yard; enclose the bed with boards 8 inches high, and fill it with the refuse earth from the potting benches, mixed with sand and burnt ballast or old lime rubbish. On this bed sow all your surplus seeds or those of your own saving. Whenever you get a pinch of seed

from a stray plant or from a friend's garden, throw it down on the surface of your bed and sprinkle a little fine soil over it, and trust to Nature to do the rest. Birds may like to take their early morning sand-baths in such a bed, but if you keep it moist, by sprinkling it overnight during summer, the seeds will grow all the sooner and the birds be baffled at the same time. Such a seed-bed is a constant study, and many a pleasant surprise is afforded by such a one in every garden. At first, unless every seed is labelled at sowing time, you will be a little confused between seeds and weeds, but a very little actual practice teaches one much more botany than is in books, and one has the added gain of many a good plant for the garden, or, maybe, for a friend.

**THE TWO PATHS.**—If the soil in which any plant fails to grow strikes me as too dry, I add plenty of

side, and what we want is for amateurs to tell us how they gain their successes, and more especially as to how they have turned a failure into a victory, in the garden.

**SAND FOR BULBS.**—It seems to me that sand is peculiarly valuable in the culture of all tender bulbous plants. Some, indeed, believe that it is to its breadths of warm moist tracts of sand that Holland owes her pre-eminence as a land of bulbous flowers. Be that as it may, however, a deep sandy soil well enriched with cow manure is there the rule in bulb culture, and even here on light dry land we find that all our bulbs are benefited by being entirely surrounded with coarse sand at planting time. Not only are bulbs so treated stronger and more healthy, but we find that they increase in a much larger ratio if sand be present than without it. Many, I believe, kill off their tender bulbs by planting them in earth heavily enriched with crude manures. So far as my own experience goes, no plants like the direct application of manure to their roots—bulbous flowers least so of all. The best plan is to so bury the manure that while the body of the thick roots or bulbs is in direct contact with the sand, only their fibrous roots may reach the manure through a stratum of unmanured soil. Believing that "example is better than precept," I have jotted down the foregoing as to some extent indicative of the little bits of practical help which amateurs can give us out of their experience, and I trust that some of our friends will follow in this direction at their own convenience and in their own way. LEX.



Bunch of the Mocasson Flower (*Cypripedium spectabile*).

fresh cow manure. If it is too wet, I add coal dust and old lime refuse or builders' rubbish mixed together, and the result is that I often succeed where my neighbours fail, although our climate and soil are similar, even if not actually identical. A friend of mine could never grow Kæmpfer's Iris on his dry soil until he scooped out basin-like beds and lined them with rich, sticky, river mud, after which the earth was thrown back. In this the Iris was planted and proved a source of delight to all who saw it. Another friend had broken his heart, so to speak, trying to grow Roses on a light sandy soil. One day a practical rosarian called. "Ah!" said he, "you cannot grow Hybrid Perpetual Roses here; but if you will try Hybrid Chinas and those of the Rosa sempervirens group, at the same time heavily manuring with cow manure, you will succeed." And so it is in most places; there are failures and successes side by

**Window Campanulas.**—I have seen in some London windows, and notably about South London, trailing forms of Campanulas in bloom just as Campanula Barrelieri is described to be (p. 297), and have always thought these to have been Campanula fragilis. The Campanula family is a large one, and no doubt some mixtures in nomenclature are apt to occur, but still it would be interesting to learn whether the beautiful kind, with its large somewhat star shaped and pleasing bluish mauve-coloured flowers on pendent shoots, from 12 inches to 18 inches in length, was Barrelieri or fragilis. August seemed to be the blooming month of the London plants, though probably they had been flowering for a considerable period prior to that time. The fact that this very lovely Campanula thrives so well in London should make it a favourite town window plant. In no case as a basket plant when well grown can it be excelled



for charm and beauty. Of course it should make also a beautiful basket plant for corridors and conservatories. I have seen about South London, also, good plants of the white and blue-flowered *Campanula pyramidalis*, and though these are hardly graceful, yet, stood in their pots beside windows like sentinels keeping guard over the flowers within and without, they have been thought very pleasing and almost beautiful. No doubt there are many kinds of *Campanula* which would make good window plants were they but well known, but they are, perhaps, somewhat neglected. The tufted forms, such as *turbinata*, are beautiful in borders and on rockwork, but for windows creeping or pyramidal kinds are best.—A.

## INDOOR GARDEN.

### ASPARAGUS PLUMOSUS NANUS.

THIS variety of South African *Asparagus* is far from being dwarf in habit, and for my part I am sorry that it grows so much more strongly than I anticipated. Any good loamy soil appears to suit it, but if the loam is fibrous and roughly broken, the roots soon become particularly active, while a little of Beeson's manure as well as a sprinkling of bone-meal greatly improves the colour and general health of the plant. When placed either in a stove or warm fernery and given an occasional shift before it becomes badly root-bound, the young shoots, thrown up in the usual *Asparagus* fashion, attain a length of 10 feet, and they must, therefore, either be trained up pillars or on walls, or on a balloon-shaped trellis, for all of which purposes they are eminently well adapted. For mixing in a cut state with cut flowers either in vases or in bouquets *nanus* is inferior to the lighter and really more plumose *A. scandens* and its prototype, *A. tenuissimus*; but for dinner-table decoration, when this is done principally on the cloth, or for forming a groundwork in vases, the spray of the variety under notice is most effective, and rarely fails to attract attention, owing to its elegance and the rich green hue which it assumes under fairly good culture. Then, again, it is far more durable than any kind of Fern, and will keep fresh for many hours or even days out of water and for weeks in water. I ought not to omit mentioning that all these African *Asparagi* delight in a rather moist and shady position, and are complete failures in a greenhouse, while if much exposed to strong sunshine the tiny leaves soon turn yellow and drop off.

NEAT LITTLE PLANTS in 5-inch or 6-inch pots in my estimation are the most attractive, the growths in this case naturally assuming a curiously flattened and dwarf habit. Unfortunately, they cannot be long maintained at such a size and a fresh stock of plants must be frequently procured or raised. Unlike *A. scandens*, this variety cannot be propagated by cuttings; but may be increased by division or seed. Dividing the old plants is a rather delicate operation, and unless I am much mistaken very few are obtained in that way, and it is by seed that nurserymen obtain their large stock of plants. If I am correct in this assertion, then seed must have been imported, and in this case why not have given us all a chance to purchase some of it? Numerous plants are now seeding freely throughout the country, and one plant, not a large one either, I recently saw exhibited at a show near Bristol had many dozens of plump berries or seeds on it. Our plant that has been growing several months in a rather moist fernery has only set a few berries, and probably from each of these we shall get two sound seeds. Last season we only saved two seeds, but did not sow them till February in this year,

and have obtained one plant. If we had sown the seeds directly they left the plant, I feel certain both would have germinated. They were kept in a dry place (none other than my waistcoat pocket for some time), and they there became quite hard, and too well ripened, in fact. Any kind of seed appears to germinate most quickly and more strongly if sown directly it is gathered, even badly formed seeds when new frequently being able to contribute to the increase of the species, but the seeds of such as *Acacias*, *Cannas*, *Dipladenias*, *Stephanotis*, and lastly, *Asparagus* are striking proofs of the unwisdom of preserving seeds too long in a seed drawer or other dry place.

SEED SAVING.—Many besides myself will be anxious to save all the seed they can of *Asparagus nanus* with the idea of increasing their stock of plants, and my advice to them is to gather the berries when they are near the dropping point, and then, after separating the fairly hard seeds from the pulp, to sow at once in a pan of peaty soil. It should be placed on a hot-bed if possible, or in heat covered with a square of glass and kept uniformly moist till the seedlings appear. After the first tiny growth has developed they may be either potted off singly into 2½-inch pots, or pricked out into a larger pan of light peaty soil, and no difficulty ought to be experienced in growing them to a useful decorative size the same season. Mealy bugs appear to be very partial to it and increase very rapidly on this class of *Asparagus*, and unless they are caught by the hand before they have thoroughly established themselves it will prove a very difficult matter to eradicate them.

W. I. M.

### SHRUBS FOR FORCING.

WHERE shrubs intended for forcing are lifted from the open ground and potted for that purpose, that operation should be performed early in autumn just before the leaves fall; thus treated, the plants get partially established before winter; whereas if potted when the season is well advanced and then taken into the forcing house, although the blooms may expand as usual, they are thinner in texture and less capable of resisting exposure, either in the way of sunshine or air, than those on plants whose roots are in active operation. In selecting plants for forcing, that is to say where required as specimens, either large or small, in pots or tubs, those only with thoroughly ripened shoots and plenty of flower-buds should be chosen. Another point to be considered is the selection of well-balanced bushes, though where required only to furnish cut flowers, this latter point is of little importance, the only thing requisite then being plenty of flower-buds. By some the various shrubs needed for forcing are confined to pots and plunged out-of-doors after the flowering season is over, but the great objection to this course of procedure is the constant attention needed; they are mostly, therefore, planted in the open ground. In any case they must be so arranged as to allow air and sunshine to play freely around them in order to ensure thoroughly well-ripened wood. Where large numbers are forced every year, a good way is to have a couple of sets, thereby giving each set a season in which to recoup itself. This, of course, can be successfully carried out where the plants are all retained after flowering, but where they are forced into flower and then sold it is necessary to obtain a fresh supply each year.

SHRUBS forced prematurely into bloom for the purposes of sale are as a rule but few in number, and consist principally of *Deutzia gracilis*, *Lilacs*, *Rhododendrons*, *Azaleas*, and *Hydrangea paniculata grandiflora*. As this latter flowers naturally quite at the end of summer or early autumn, it follows that it cannot be had in bloom till spring is well advanced, but even then it meets with a ready sale; in fact, throughout the whole summer it is a familiar object in Covent Garden Market. When grown under glass, the flowers become almost white. Where *Deutzias*

are grown in quantity in the shape of little bushes for flowering in 5-inch or 6-inch pots, they are lifted and potted early, and when introduced into the forcing house commence to grow as well as flower. The young shoots produced under these conditions afford a ready means of increase, as they strike as readily as *Fuchsias* under much the same conditions, and if potted off as soon as sufficiently rooted, they can be planted out-of-doors by May, and will make good growth the first season. *Lilacs* are generally grafted or budded, but where required in the shape of dwarf bushes, the best plan is to strike them from cuttings, as suckers from the stock, a great source of annoyance, are thus done away with. *Lilac* cuttings strike in the same way as those of the *Deutzia*, but not quite so readily. Of course, in the case of large-headed specimens, suckers are readily removed, and they are quite as good as plants from cuttings if grafted on a vigorous stock. For small bushes, the Persian *Lilac* is best suited, but all are beautiful and withal easily forced. *Rhododendrons* and *Azaleas*, from their mass of hair-like fibres, can be lifted and potted for flowering at almost any time, as being so dense rooting, they are but slightly, if at all, affected by removal. Some other Ericaceous subjects that flower well in pots are *Andromeda japonica* and *floribunda*, *Kalmias*, and the pretty bell-flowered *Zenobia speciosa*. Its hoary-leaved variety (*pulverulenta*) has the whitish character of the foliage still more pronounced when grown under glass.

VARIOUS ROSACEOUS PLANTS are also employed for forcing, and very valuable they are in private establishments where they get but little shifting about, though by the grower for sale they are not much forced into bloom, as the flowers drop quickly after expansion if too much exposed to changes of temperature. Of this class special mention must be made of the *Almonds*, *Peaches*, and *Cherries*, especially the double-blossomed kinds, as they last longer than single ones, while in addition may be mentioned the dwarf *Prunus japonica* and *triloba*, two very useful subjects, besides the old well-known, but seldom seen (for this purpose), *Cydonia japonica*. *Spiræa Thunbergi*, with little white Hawthorn-like blossoms, borne for some distance along slender, arching shoots, is, though fragile, very pretty, and withal uncommonly easy to force. The *Forsythias* flower naturally very early, and the blooms when under glass, being protected from all adverse weather, are finer and better in colour than those that get no such protection. *Styrax japonica*, with drooping pure white blossoms, is pretty when forced, and it possesses the additional advantage of being quite distinct from other shrubs thus employed. The same remarks apply with equal force to *Staphylea colchica*, which forces readily, though good bushes of it are not very easily obtained. Last spring I forced *Berberis stenophylla* with fairly satisfactory results, and hope, with past experience as a guide, to be more successful next season. Where *Azaleas* are forced every year and the plants confined to pots, an early flowering habit is produced; the growth is ripened off much sooner than that of plants in the open air. To effect this they must not, as is too often done, be turned out of doors as soon as flowering is over; on the contrary, fresh growth must be encouraged and gradually hardened off. T.

The Cotton plant (*Gossypium*).—This is a very interesting plant to grow, and is very beautiful when any of its short-lived glossy flowers are open, but especially so when the pods burst, for their large soft puffs of snowy wool will remain long in perfection if not wetted in any way. I doubt, however, whether it will do as a greenhouse plant, except for a while when the pods are perfected. I grow *Gossypium barbadense* and *G. herbaceum*, and pods began to burst about a month ago; but I have always found that both varieties require a strong and regular stove-heat to grow them well. The handsome Malvaceous flowers only last a day, and generally set for seed, but in a very still, moist air it is safer to dust the pistils with the pollen to insure large, well-filled pods. These remain green for some weeks after attaining their full size, and if the temperature is not a high one, I have found the Cotton of short staple and the seeds not hard and black. The plants like a rich,



light soil, with plenty of water and drainage. They are very liable to red spider, and a brown scale is fond of fastening upon the ripe and half-ripe wood. They cannot bear these two enemies. If plenty of heat is not available, seed may be sown in early June for fruiting the following season. Old plants will live from year to year with a spring re-potting if they have not exhausted themselves with pods. Seed is easily obtainable under its botanical and even English name.—F. D. HORNER, *Burton-in-Lonsdale, West-moreland.*

#### RED AND WHITE LAPAGERIAS.

THESE may be grown in pots and trained on wire trellises or along the rafters or up the columns of a house, but they are most effective when trained along the roof of a cool house. While growing they should be tied near the light and freely and frequently syringed; but as their flower-buds make their appearance, or, at least, when the most forward among them have attained the size of an ordinary Pea, the syringings should gradually be lessened until they are entirely discontinued; the shoots should then be untied and allowed to hang loosely from the roof. A good example of what can be done with Lapagerias is shown in the Exotic Nursery, Chelsea, where, at present and for a couple of months to come, they will form the chief attraction of the place. There, instead of being grown in pots, or having their numerous fleshy roots restricted to boxes of various dimensions, they have unlimited room. They are planted in a large, but comparatively shallow, border, barely 18 inches deep, the bottom of which is formed of a mass of clinkers and brickbats, deposited there with a view to ensuring perfect drainage, for, although requiring a plentiful supply of water at the roots, Lapagerias greatly suffer from water becoming stagnant around them for any length of time. On the drainage is laid a thin layer of peat turves, then a compost consisting of half peat, roughly broken up, the other half being coarse silver sand and good fibrous loam. In this the Lapagerias were planted five years ago, about this time, and they have ever since made growth which astonishes all who see them. At first their wood was small and wiry; now shoots, the size of one's thumb, may frequently be met with; yet they have had no manure whatever applied to them in any shape or form; they have only been treated liberally with water during their growing season. The house in which they do so remarkably well is quite a cold one, the temperature in winter often being allowed to get as low as 35° before any heat is applied; and that this is sufficient for them is abundantly testified by their luxuriant growth and healthy leaves, which are perfectly free from insects. Their blossoms, too, are produced in abundance; in some cases, as many as thirty-two of them may be counted on a single wreath. The red and white forms being planted alternately, the effect produced by them intermixed is charming in the extreme. Moreover, this mode of planting has had the advantage of demonstrating as plainly as could possibly be done that, whatever may usually be said to the contrary, the white form is not of a more delicate constitution than the red one. Growing side by side, as they do, there is no difference whatever between them either as regards vigour or floriferousness. When in full bloom, as they are now, it has been found best to keep the atmosphere of the place dry by constant ventilation, and also by avoiding to wet the floors, walls, &c. The dry atmosphere is conducive to the flowers lasting much longer than if at all subjected to damp, by the action of which they are readily affected, particularly the white ones. The knife should only be used with caution, for there have been this season on wood which flowered last year, and which were entirely deprived of foliage, clusters of flowers, from six to ten together, and these by no means the worst either as regards colour or substance. S.

**Burchellia capensis.**—This old-established plant deserves to be more extensively grown than it is, as it requires no special treatment to insure success. Many regard it as a stove plant, but anyone having a greenhouse who can manage to grow an

Azalea will succeed with this under similar treatment. We use for it a compost of fibry peat and loam with a little coarse sand well mixed. Cuttings taken off now will strike root freely in about three weeks' time if placed within a case in the propagating house, and will make bushy plants for flowering the following summer.—W. H.

#### ARISÆMA TRIPHYLLA.

THIS pretty little Aroid is commonly known as Arum triphyllum, under which name it is figured and described in various botanical works. The name Arum has done, and continues to do, duty for a lot of Aroids which are as distinct from true Arums as an Orchis is from an Odontoglossum. The Arisæmas were all called Arums by the older botanists, but now-a-days we call by that name only a few small bad-smelling plants, of which our own Lords and Ladies and A. italicum, A. palestinum, A. Dracontium, and the big spathed, ugly-looking A. Dracunculus are in gardens the most familiar. The Arisæmas have lately attracted a good share of attention, owing to the beauty and curious shapes of many of them. A good collection of kinds is cultivated at Kew, and is annually an attraction. Recently two or three new additions have been made to the cultivated species, and are as distinct and beautiful as those of long standing in gardens. A. laminatum is one of the new additions; it appeared at Glasnevin a year or two ago, and has



*Arisæma triphyllum* at home.

since been nicely in flower at Kew. The purple colour of the upper half of the spathe-blade and the white and green of the lower portion are particularly pretty in this species. Another new arrival is A. fimbriatum, recently introduced by Mr. Bull; it is distinguished by the long, hair-like filaments which clothe the spadix. Of the older better-known kinds we need not speak here, as they have been frequently noticed in the pages of THE GARDEN within the last year or two. So far as we know, all the garden Arisæmas, except the little species represented above, are natives of the Old World, most of them coming from the Himalayan regions, where their often large tubers are sometimes used as food by the natives in times of scarcity. A. ringens (syns., A. Sieboldi and præcox) is a Japanese species, which will thrive out-of-doors with us in a warm, sunny border. A. triphylla is, however, a native of North America, from Canada to South Carolina, and is, therefore, quite hardy with us. Some idea of the treatment it requires may be gleaned from the picture of it here; it likes shade and moisture during summer, and as little water as possible in cold weather, as when very wet the tubers are apt to rot away when at rest. For this reason it is always advisable to take the tubers out of the ground in autumn and place them in sand in a cool frame, or where they will be protected from excessive moisture. The leaf-stalks are erect, a foot long, green, blotched with purple, and bear three leaflets, each about 3 inches long by 1½ inches wide. The flowers are borne upon stalks as tall as the leaves, the spathe being about 5 inches long, curved over at the top and deep purple, broadly

lined with white. They are developed early in summer, the whole of the plant above ground perishing long before the approach of winter. B. W.

#### SOME GOOD PILLAR PLANTS.

IN many large conservatories, pillars or columns are used somewhat extensively for supporting the roof, and if clothed with suitable plants they form not the least attractive feature of the structure. There are a great number of plants more or less fitted for the purpose, the best of which are the following:—

**HABROTHAMNUS ELEGANS.**—This is one of the most striking pillar plants which we possess, especially in large and lofty structures, where there is plenty of room in which to develop itself; it blooms more or less continuously nearly throughout the year, and its large clusters of brightly coloured fruits are almost as attractive as its handsome blossoms. If planted out, but little attention is needed, the care bestowed upon ours being limited to thinning out weak and useless growths, or in shortening back shoots that may have overrun the space allotted to them.

**CESTRUM AURANTIACUM.**—As a companion plant to the above, none is better than this; it may, generally speaking, be described as a counterpart of the Habrothamnus, except that the flowers are yellow. Indeed, it has been lately placed in that genus. Even in the shape of comparatively small plants it is invaluable, owing to its blooming in winter; but when seen as a large specimen, it is indeed a sight to be remembered. It may be readily increased by means of cuttings put in at any time during the growing season.

**PLUMBAGO CAPENSIS.**—Where liberally treated, this soon covers a considerable space, and, under anything like favourable conditions, it is a most profuse bloomer, the whole plant being during summer quite a mass of delicate blue blossoms. It also grows and flowers well in a temperature rather above that of an ordinary greenhouse.

**ABUTILON STRIATUM.**—This is a vigorous, tall-growing species, with handsome lobed leaves and large drooping yellow flowers with brownish crimson veinings. From a fine-foliaged point of view alone it is handsome, while the flowers are both distinct and showy.

**A. VEXILLARIUM.**—This is altogether different in character from the last, the leaves being small and entire, while the habit is slender and straggling. The flowers are also wholly different from the class of Abutilons that are now so popular, being narrow and contracted in outline, the most showy portion being the bright crimson calyx, whence protrudes the yellow corolla. It is also known as A. megapotamicum. There is a variety in which the leaves are irregularly mottled with yellow.

**CLIANTHUS PUNICEUS** and its variety magnificus are handsome pillar plants, especially when laden with their clusters of brilliant lobster-claw-like blossoms. The light pinnate foliage is by no means unattractive, even when not in bloom. In planting the Clianthus, it should be borne in mind that the leaves are liable to the attacks of red spider if kept too close or dry. A good syringing tends greatly to prevent its effecting a lodgment on the leaves.

**FUCHSIAS.**—All the free-growing kinds are grand objects when employed for covering pillars, and to the ordinary garden varieties may be added some of the distinct species. Among garden kinds there is a good deal of variety, some having a white corolla with coloured sepals, and others light sepals and a coloured corolla, while there are also flowers with both sepals and corolla dark in colour. Of these there are double-flowered varieties as well as single, but the last are the more floriferous. F. Dominiana, an old hybrid kind, with long blossoms, is also well suited for the purpose. Of species, the hardy F. gracilis quickly covers a considerable space, and flowers in great profusion. Its variegated variety also acquires very distinct markings when grown under glass. F. dependens is well suited for training in this way, and F. corymbiflora, with drooping clusters of long, bright crimson-coloured



flowers, contrasts strikingly with the minute foliage and blooms of *F. microphylla* and *thymifolia*.

**RUSCUS ANDROGYNUS.**—The leaves are the principal attraction in this *Ruscus*, the flowers being small and insignificant; yet, for all that it is a fine rapid-growing subject, and its ample dark green foliage is so ornamental, as to merit greater attention than is usually bestowed upon it. This *Ruscus* forms a stout rootstock, from whence are produced Asparagus-like shoots, varying in size according to the strength of the plant. A large-sized shoot grows very quickly, and is furnished with long pinnate leaves of a leathery texture that will resist any amount of draughts and exposure without injury.

**MELIANTHUS MAJOR.**—Like the last, the inflorescence of this adds but little to the attractiveness of the plant, its principal ornamental features being the large pinnate leaves of a glaucous or bluish colour. It grows rapidly, and is of a soft, tender nature; the unpleasant odour of the young leaves is by no means a desideratum; a pillar thoroughly clothed with it is nevertheless very ornamental.

**CLEMATIS INDIVISA.**—The pure white flowers of this kind are borne in great profusion during the earlier months of the year, and at all times the dark green foliage forms an attractive feature. It is a plant that makes rapid progress, and soon covers a considerable space.

**LONICERA SEMPERVIRENS MINOR.**—This Honey-suckle is hardy in many localities, but it is seen at its best when treated as a greenhouse plant, as during the summer months it is profusely laden with clusters of bright scarlet, tube-shaped blossoms. Besides the above, there are the strong-growing varieties of *Passifloras*, *Tacsonias*, and both the green and variegated forms of *Cobæa scandens*; but in the case of all these, they are more to be regarded in the light of climbing plants as fit for draping roofs rather than pillars.

As pillar plants for places of less extent than those above mentioned there is a very great choice, some of the best being *Brachysema lanceolata*, with silky leaves and bright crimson Pea-shaped blossoms borne during the winter; *Chorozemas*, the strong-growing kinds of which are well suited for training up pillars or screens, and flower freely when so treated. *Hibbertia dentata*: The large golden blossoms of this are borne during the winter, and at all times the bronzed foliage is pretty. *Mandevilla suaveolens*: This has large white *Convolvulus*-like flowers, which are showy, and quite distinct from most subjects so employed. *Sollya heterophylla*: The bright blue flowers of this climber supply a colour that is almost wanting among plants of its class. *Rhynchospermum jasmoides*: The pure white Jasmine-like flowers of this are very attractive, and are set off by the deep green of the foliage. *Solanum jasminoides floribundum*: This variety is more profuse in blooming than the ordinary type, even small plants being quite a mass of flower. Swainsonas of sorts are all pretty pinnate-leaved plants, with a profusion of large Pea-shaped blossoms, varying in colour from white to rosy purple. Abutilons of the less vigorous class are also well suited for pillars in a smaller house.

Several kinds of *Kennedias* and *Jasmines* may also be used for the purpose. The stronger growing *Pelargoniums* of the zonal and Ivy classes are very showy when treated in this way; and with a temperature a little above that of an ordinary greenhouse the *Heliotrope* will flower throughout the winter. *Bougainvillea glabra* does best when trained at the end of a house, especially if it faces the south, as then the wood gets thoroughly ripened, which will insure a good display of bloom. Plants either intended for pillars or roofs should, if possible, be planted out but the place must be properly prepared, and not, as is often done, just a hole dug out and the plant stuck therein, as then in some soils the specimen is far more unfavourably situated than if in a pot. A good-sized hole should be made and refilled with suitable soil, but above all thorough drainage is essential. In some cases the roots are better confined to a limited area in order to induce floriferousness; but then it is preferable to prepare for them a chamber in the ground rather than to keep them in pots above the surface. —*Fish.*

**The Scarborough Lily** (*Vallota purpurea*) maintains its place as one of the brightest ornaments of the greenhouse about this season of the year. It does not readily submit to root-disturbance; on the contrary, the greatest amount of bloom is obtained from plants that have been in the same pots or pans for years, and frequently so tightly wedged together, that the bulbs in the centre are lifted partially out of the soil by sheer pressure from those around them. The compost best fitted for this Lily is a good open, yet fairly holding, loam, to which may be added a little sand if necessary, in order to lighten it. When required, stimulants may be readily applied, in the shape of liquid manure. I remember a certain amount of correspondence taking place in *THE GARDEN* as to obtaining perfect seed of this Lily, the subject at issue being whether seedlings had been raised in this country or not. That this Lily can be thus increased I proved three years ago by raising a crop of seedlings, many of which are now in flower, and, on the whole, there is nothing particularly interesting in the experiment except the fact that *Vallota* plants can be thus obtained; the seed was saved from an unusually brightly-coloured variety, but the bulk of the progeny is inferior to their parent both in tint and in substance and shape, a few only being equal to the original, but none superior to it. The seeds were sown as soon as ripe in pans of light soil and placed in a warm part of the greenhouse, where they quickly germinated, and when large enough were potted off and shifted into larger pots when necessary. One grower of my acquaintance obtains a fine display of flowers from a prepared bed in a cold frame, which has been planted some years, and is now nearly packed full of bulbs, most of which flower. The frame is so situated that the plants get plenty of air and sunshine, which tend to ripen the bulbs and insure a good show of bloom. —*H. P.*

**New Zealand Speedwells.**—Not the least ornamental among these are the hybrids, great numbers of which now exist in gardens, many of them being characterised by unusually free-flowering qualities and very handsome blossoms. They are the most beautiful plants in flower about this season of the year, and in mild situations will bloom throughout the winter, while even if injured by frosts unless too severely they quickly recover. Good sized bushes of them may be used for greenhouse decoration. From their dense style of rooting these *Veronicas* may be planted out in spring and lifted in autumn just as the buds are on the point of expanding without injuring them in any way, provided they are kept somewhat close and shaded till they have recovered from the check. From the long list of names of kinds now in cultivation a good and distinct half dozen may be found in *Celestial*, light blue, centre white; *Lindleyana*, deep purple; *Display*, light crimson; *Belle Fiancée*, deep pink; *Reine des Bleus*, rich blue; and the dwarf-growing *Blue Gem*, and if desired the variegated-leaved variety. Though cuttings of *Speedwells* strike root readily, they are much retarded if allowed to flag, as it is some time before they recover. If needed seedling plants can be easily obtained, as seeds are produced in quantity, and artificial fertilisation is by no means difficult. —*ALPHA.*

**Solomon's Seal for forcing.**—Nothing excels *Solomon's Seal* as a decorative plant in, say April, with its long arching spikes of leaves and myriads of drooping grey coloured flowers. The dense green hue of its foliage, too, contrasts strikingly with, say, some brightly coloured *Amaryllis* or *Spirea japonica*; the scent yielded by its flowers is also very agreeable. Its cultivation is so simple, that it is to be regretted it is not more grown for indoor decoration than it is. Here, as in many other places, it grows wild in the woods, from which when the stems turn yellow we dig up the roots, cut them in lengths of about 3 inches, pot them in good soil in 5-inch or 7-inch pots, according to convenience and the purpose for which they are required. We then place them in cold frames, just keeping them moist about the roots. Early in February they are placed in heat, a few at a time. A vinery just started suits them well, and when growing freely remove them to cooler houses to harden sufficiently to withstand the effect of living-room temperatures, as they are very useful for house

decoration, or wherever they may be most needed. Copious supplies of liquid manure when in free growth assist the development of both the flower-spike and foliage. After blooming we plant them out in the reserve ground, and allow them to stay there to complete one season's growth, when they will come into use again the following year. —*E. M.*

**Erica melanthera.**—Though by no means so howy as many of the other South African Heaths, this is still a pretty little kind, and at Kew is employed somewhat extensively in the embellishment of the greenhouse No. 4. Owing to the freedom with which it flowers, the whole plant appears to be a mass of little pinkish blossoms, against which the tiny black anthers stand out conspicuously. Another point in its favour is the length of time during which the blossoms remain in beauty, and the slight, but peculiar and delicate, perfume especially apparent in early morn after the house has been closed during the night. Besides, it is one of the hardiest of its class, and does not at any time require the extreme care that some kinds do. —*ALPHA.*

## GARDEN FLORA.

### PLATE 512.

#### PRUNUS TRILOBA.\*

THE beautiful deciduous shrub herewith figured is not the least meritorious of the many fine plants introduced from Japan and China by the late Robert Fortune. It first reached England in 1856, and in the following year was described by Dr. Lindley. Later on Carrière made the species into a new genus, his reasons for doing so being the differences in the habit of the plant, and in the wood, leaves, and flowers. The young fruits, too, have many carpels, which are thickly clothed with hairs, in this respect approaching *Amygdalus* and differing markedly from *Prunus* as generally understood. These fruits never developed to any extent, and always fell off when young until 1883, when a number were ripened in the garden of Dr. Chaumier at Bléré, in France. They were figured and described in the *Revue Horticole* for 1883 by M. André, and the following notes are taken from that publication: Fruits solitary—owing to the abortion of the other carpels—pendulous, shortly stalked, almost globular, with a skin at first sight smooth, but in reality clothed sparingly with short, silvery, silky hairs. When perfectly ripe they had the appearance of a small, golden-yellow Apricot, coloured with deep red on the sunny side, and the flesh had a taste intermediate between that of the Apricot and the Plum. The seeds of Dr. Chaumier's plant were, of course, sown, and it remains to be seen whether the seedlings will produce single flowers or double ones like the parent. At present only the double-flowered condition, with its abnormal or monstrous carpels, is known. In young plants and in strong vigorous shoots the leaves are frequently decidedly three-lobed, but in old bushes this character is by no means constant.

**PRUNUS TRILOBA** is perfectly hardy, but in many places flowers more freely when grown against a wall than when treated as a bush in the ordinary shrubbery border. It forces readily, and year-old plants raised from cuttings frequently produce a number of large rose-coloured blossoms. There appear to be two forms in nurseries; one of these passes under the name of *Amygdalopsis* or *Prunus virgata*, but it only differs in its slightly paler flowers, which open nearly a fortnight later (under precisely similar

\* *Prunus triloba*, Lindley, in *Gardeners' Chronicle*, 1857, p. 216. *Amygdalopsis Lindleyi*, Carrière, in *Revue Horticole*, 1862, p. 97. *Prunopsis Lindleyi*, André, in *Revue Horticole*, 1883, p. 367. Drawn at Kew May 9.











conditions as regards soil and situation) than those of the plant here figured. Another plant met with in gardens also bearing the names quoted in the previous sentence belongs to a totally different species—the Japanese *P. Mume*. It only remains to be said that *P. triloba* begins to produce its wealth of handsome blossoms in March and April before the leaves appear, that it is one of the most beautiful of spring-flowering shrubs, and that it is worthy of extended cultivation.

G. NICHOLSON.

Royal Gardens, Kew.

## ROSE GARDEN.

### WALL ROSES.

No one can be said to have a complete collection of Roses unless a wall is well furnished with them. We have a sheltered wall between two forcing houses covered with *Gloire de Dijon*, and here we gather our earliest and latest blossoms; and Roses of various kinds on another south wall were in blossom long before the Roses in the borders opened a bud. This is one of the advantages of having a wall planted with Roses; they come early and stay late. *Maréchal Niel* gave us some very fine blooms. The plants on the wall are on their own roots, having been raised from cuttings, but they are not so vigorous as when budded on the Brier. We have a plant of the *Maréchal* covering the back wall of a vinery. It flowers very well in spring, but does not produce a single blossom afterwards. We have another plant in a large pot in a cold greenhouse trained very near the glass, and this plant has bloomed from early spring till now. Every spray of young wood carried a golden blossom, some of which were very fine. It is a dwarf budded on the Brier, and is about fifteen years old. Long ago it showed symptoms of canker at the collar, but a top-dressing of rich loam and manure checked this disease. And every season now we add to the top-dressing, being enabled to do so by means of a zinc collar inserted round the edge of the pot.

I have used various kinds of artificial manures in top-dressing this and other Roses in pots under glass, and I find all more or less beneficial. Everybody cannot get liquid manure when they want it, but most people can get Clay's, Amies', or Standen's manures, which I mix with the soil in potting or top-dressing. I have said a good deal in connection with the *Maréchal Niel* Rose; but W. A. Richardson is an equally great favourite here. When it first came out I planted half a dozen of it on our Rose wall, and last spring we cut great quantities of its blossoms. It grows freely and produces blooms in profusion, which in the bud state are charming, and it flowers very early, quite as early as the *Gloire de Dijon*, but it is uncertain in its colouring, especially in dry, hot weather. We find that a heavy mulching and a good supply of water have great influence in keeping it right. Another fast-growing and very useful sweet-scented wall Rose is *Jaune Desprez*, a kind which produces a large number of buds till quite late in the autumn. In colour they are bronzy yellow, but rather changeable in tint. *Aimée Vibert* is also an old, but very useful wall Rose. It grows rapidly, quickly covering a considerable space. Its flowers, which are small, are borne in clusters and pure white. *Lamarque* is another old *Noisette* Rose and very good on a wall. Climbing *Devoniensis*, being a very fast grower, requires a high wall. With me it has been rather a shy bloomer, but its blossoms are very sweet and beautiful.

For planting against a low wall in a warm, sunny position, the Teas are very beautiful and useful. They should be heavily mulched and well watered in hot summers.

E. HOBDAY.

**Good late-blooming Roses.**—Where Roses were completely crippled by drought they are now blooming freely, and many of the blooms are as good as far as regards colour and substance as those produced earlier in the season. The following are among the best I have seen during this autumn; many of them have also found their way into prize-winning stands, and may therefore be considered suitable for all classes of growers. Of Teas, the best are *Alba rosea*, *Bouquet d'Or*, *Marie Van Houtte*, *Madame Lambard* (very free and good), *Comtesse Riza du Parc*, *Princess of Wales*, *Catherine Mermet*, *Souvenir d'un Ami*, *Niphetos*, *Rubens*, *Madame Margottin*, and *Etoile de Lyon*. Hybrid Perpetuals—*Avocat Duvivier*, *Captain Christy*, *Duchess of Bedford*, *Countess of Oxford*, *John Hopper*, *Queen of Queens*, *Alfred Colomb*, *Duke of Wellington*, *Camille Bernardin*, *Marshall P. Wilder*, *Marie Baumann*, *A. K. Williams*, *Le Havre*, *La France*, *François Michelon*, *Comtesse de Serenye*, *C. Lefebvre*, and *E. Y. Teas*. The old Bourbon *Souvenir de la Malmaison* is not often seen on the exhibition table, but in my opinion there is not a more useful sort grown. It appears to succeed best on its own roots, and may be readily increased either by cuttings of ripened wood or by division. With us, on a rather heavy soil, it is the first to bloom, and usually continues to give a good succession till severe frosts set in.—W. I. M.

**Rose Duke of Teck.**—This has not only been the brightest Rose of the year, for its colour has been and is now, at the end of September, of the most vivid scarlet-crimson, but it has also grown vigorously and blossomed more freely than most of the dark varieties of Roses. It is undoubtedly a gain in its line of colour, especially as it possesses a vigorous constitution. Our plants of it are budded on the *Manetti* stock and planted deep—that is to say, with the point of union buried under the surface of the ground. The soil is fairly heavy, and was well manured before planting and dug up two spits deep.

—J. C. C.

### PLANT COLLECTING IN NEW ZEALAND.

By F. N. ADAMS.

AT the mouth of the Moa River is a flat patch of fertile land. Here were collected the large seed capsules of *Mimulus radicans* and the purple berries of *Pratia macrodon*; patches of *Celmisia spectabilis* covered the road. Crossing the river, which runs very swiftly, we took the newly-formed road through the bush up to the Moa Creek camp, which we heard was six miles up the river at the junction of the North Creek. As we passed through zones of Beech, *Celery Pine*, and *Pitch Pine*, we saw the smoke of a fire ahead, which proved to be the camp of the roadmen. About two miles farther on we saw the light of the Moa Creek camp.

Here we were welcomed with the true hospitality which the dwellers in tents have always given to strangers. Next day we met a prospector who knew the country. He took us over the Moa River, and showed us the habitats of *Gleichenia Cunninghamii* and *Dracophyllum Traversi*. This *Epicrid* grows 30 feet high, towering above the other parts of the bush, its long branches extending horizontally, bearing a tuft of leaves at the extremity, from which rises the bloom like that of a Pine-apple. It is certainly the most remarkable tree of the alpine flora. Many young specimens were collected; those about 2 feet high are very handsome, with filiform leaves drooping like those of a *Dracæna*. There is another variety *D. longifolia*, but its leaves are smaller and more imbricated. The tree was met with up to the snow, so that its hardy character cannot be doubted. The prevailing timber tree on the Moa is *Libocedrus Bidwilli*, the Incense Cedar, the Kawaka of the Maoris. The tree attains to 30 feet or 40 feet in height, its conical top and dark green foliage being visible

above the surrounding bush. The bark, which peels off easily in spring, is utilised by miners in various ways. Like all Cedars, the wood is dark red, and splits readily into slabs, but as the centre of most of the trees is hollow and the wood very soft, it is not of much value as timber. The wood of the other variety, on the contrary, *Libocedrus Doniana*, which grows in the North Island, is hard and valuable. The Ribbonwood (*Plagianthus betulinus*) is easily distinguished from the surrounding forest trees by its golden leaves; the tree is deciduous, and its leaves had been touched by frost. On our return to the North Creek I went in search of *Ranunculus Godleyanus*. I had been told that the Yellow Buttercup grew at a considerable elevation up the N. Creek, so following that creek, which flows into the Moa River a few chains above the camp, on either side were spurs of the Cascade range covered with forest up to the snow-line; at intervals were small waterfalls pouring over precipices among large boulders that had rolled down. *Ranunculus Lyalli* was plentiful on the banks, *Veronicas* lined the margins of the bush, while fine specimens of *Angelica gingidum* occurred some 2 feet across. The miners called it *Aniseed*, because the leaves and seed have a similar flavour. Horses are very fond of this aromatic herb, and eat it greedily. I crossed the N. Creek on a temporary bridge which led to the reef, on the slopes of the mountain; it is situated 1600 feet above the creek, and can only be worked in fine weather. *Dracophyllums* grew on the slopes in abundance, their peculiar heads standing up clear of the bush. We also saw mountain Lilies growing under the sides of boulders and burnt scrub, whilst others grew on the vertical faces of rocks, the roots wedging themselves into the crevices. *Ourisia macrocarpa* grew in patches 2 feet or 3 feet across, its bold, dark green foliage, purple underneath, and large trusses of white flowers rendering it one of the finest of alpine herbaceous plants. We found the best patches growing in peaty soil, with water trickling among their roots, on the sides of watercourses. The other variety, *O. macrophylla*, we found growing in similar situations, but its leaves and blooms are smaller. Some fine plants of *Aciphylla Munroi*, 8 inches high, were noted, evidently the male variety. After some hard climbing, this rare *Aciphylla* with red midribs and spines was met with, and half a dozen specimens collected. A large *Aciphylla* with dark green leaves also grew among the boulders. *Carmichaelia odorata* was apparently very local; it was out of bloom, but the miners said it scented the air in summer. Straggling plants of *Edelweiss* (*Helichrysum grandiceps*) now appeared, showing that we were not far off the yellow mountain Lily. Scrambling over some loose boulders, we caught sight of what appeared to be *Ranunculus Godleyanus*, about 300 feet above.

*Celmisia coriacea*, the Cotton plant, grew in abundance at this elevation, its silvery foliage and graceful habit making it conspicuous. Of *C. petiolata* we saw a few plants growing in boggy ground. In shady places, *Ranunculus Lyalli* was in full flower, and on one plant there must have been fifty expanded blooms. Several smaller varieties of *Ranunculus* grew among the stones. We at length reached *R. Godleyanus*, named after Mr. Godley, the pioneer of Canterbury. It has dark green foliage and shining yellow flowers, borne on flower-stalks like those of *R. Lyalli*. With a prospector's pick we dug the plants out of the shingle, composed of broken slate, water continually running at their roots from the melting of the snow above. As they were covered with snow and ice, it was difficult to get them out even with the help of the pick. Some very fine specimens of this rare plant were collected. We saw also the large white flowers of *Veronica macrantha*, likewise a new *Gentian* with white flowers and pale green leaves in the shape of a rosette. Of these both seeds and plants were collected. On the way, too, a variegated sport on a plant of *Senecio Bidwilli* was secured.

Next morning broke brightly, and we made sure of a good day's collecting in Happy Valley and Rebel Creek, which flows into the Moa a short distance above our camp. *Senecio Lyalli* with pure white flowers and dark green foliage was growing near the water. This valley lies due south, and the ice had



but recently melted, so that vegetation was springing up. At one place in a bed of broken rock and shingle there was a grand alpine garden. Both the yellow and white Mountain Lilies by the thousand were in full bloom, interspersed with the white Groundsel (*Senecio Lyalli*); *Ligusticum piliferum*, with its ornamental foliage, was dotted about among the Lilies, and even the little *Montias* were represented in this natural garden. The most graphic description would fail to give an adequate idea of the purity and beauty of these alpine flowers, when seen in their natural habitat in broken ground among rocks and boulders piled up in every conceivable position as the glaciers and floods have left them. Only one variety of *Aciphylla* grew in this cold valley which the sun never enters; everything was frozen. On a cliff we saw a fine patch of *Edelweiss* far out of reach, also large plants of *Ranunculus Godleyanus* just coming into bloom. *Polystichum cystostegium*, the alpine Fern, adds much to the beauty of the scenery, its green fronds contrasting finely with the rocks. On a bank of shingle and rocks were small patches of the pretty annual *Euphrasia antarctica*; *Raoulias* were represented by several varieties, *australis* and *subsericea* being the most prevalent. Mosses and Lichens grew on every rock, but few were in fruit. Of *Acenas* there were several species; *adscendens* and *microphylla* occurred very often in the Moa river-bed. *Coriaria thymifolia*, the little Tutu, was plentiful, looking very much like our garden Thyme. *Veronica linifolia*, with its delicate pink flowers, grew in the river-bed; also *V. Bidwilli*, which was in seed.

OF FERNS, in the bush we saw nine distinct species. The filmy class was represented by *Hymenophyllum Malingi*, one of the rarest of the family, which grew on dead Cedars with a north aspect; *H. multifidum* carpeted the ground with its bright green fronds; *H. polyanthos* grew on the trees, but was rather scarce; *H. villosum* was found on bare rocks in very exposed situations; *H. scabrum*, with its long drooping fronds, in damp places; *Alsophila Colensoi*, the Grove Fern, was prevalent, growing very large in the bush; *Polystichum vestitum* was very common, a forked variety of it being also found. The Carrot Fern (*Asplenium Richardi*) and *A. flabellifolium* were scarce. *Cystopteris Novæ Zelandiæ*, one of our few deciduous Ferns, was very plentiful, its pale green fronds making it easily distinguished. Of *Lomarias*, we saw lanceolata, alpina, and discolor. The little *Polypodium australis* grew on dead trees; *Goniopteris penigera* was very scarce. Of *Lycopodiums* *Billardieri* was growing in hollows of the Pitch Pine; and *L. Selago* covered patches on the ground 2 yards or 3 yards across, looking like a bed of seedling Conifers.

On our return journey we made good progress to Lake Selfe, where, during a short halt, we found a terrestrial Orchid, which, with the Water Quillwort, we added to our collection, thence to Christchurch, where we arrived safely and well, satisfied with the result of our trip to the district of the quartz reefs of Canterbury.

**Gathering crops when ripe.**—There is scarcely a garden anywhere to be found in which one does not see wastefulness resulting from not gathering things before they grow too old for use. I feel sure that people do not know how much they lose by not cutting things when ready for cutting, whether they want them for their own consumption or not. Lines of hard Peas, great hard Vegetable Marrows, and Cucumbers ripening seed may be seen everywhere, with the consequent result that the young fruits which ought to keep up a successional supply cease to grow. It would often pay to gather and give them away, if not wanted for home consumption. Take,

for example, a bank of Vegetable Marrows. If a few of them are allowed to get big and full of seeds, the little ones get hard and cease to swell; but cut all when they reach the proper age for use, and the plant is enabled to devote all its strength to the production of the young ones, which are rapidly forced forward in a perfectly tender condition. The fact is self-evident, almost, but it is lost sight of nearly everywhere.—R. W.

## TREES AND SHRUBS.

### THE GREAT SILVER FIR.

(*ABIES GRANDIS*.)

THIS handsome, hardy Conifer, found first by Douglas and subsequently by Jeffrey in the northern parts of California and British Columbia, is said to form a tree of from 100 feet to upwards of 250 feet in height, with a trunk



Home of *Abies grandis* in the mountains of Northern California.

diameter of frequently 5 feet. It is truly a handsome Fir, and one that is particularly well adapted for ornamental planting, the soft, rich green foliage, densely branched stem, and symmetrical habit being recommendations that are rarely all combined in one species. Although introduced upwards of half a century ago, the dispersion of this tree in English gardens has been slow, the number of specimens, even at the present time, being few and far between. Of the seeds sent home by Douglas, and which arrived in this country in 1831, it is well known that few germinated, and still a less number of the plants found their way into British gardens. The only surviving specimen in this country of the first introduction existed a few years ago in the grounds at Elvaston Castle, in Derbyshire, having been grown for some years previous in the pinetum at Hendon.

The largest specimen on the Penrhyn estate, and which I believe had no rival in Britain, must, when size and the number of annual rings are taken into consideration, have been one of the original seedlings sent home by Douglas. This is rendered all the more probable, as it is well known that after Douglas's introduction no seeds of the true *A. grandis* were again sent until 1859, when Mr. Bridges discovered it on Vancouver's Island, so that plants raised from these seeds could at present only be twenty-five years old; whereas in the tree in question, after being felled, I counted thirty-three annual rings, but several of the outer had been destroyed by the workmen when preparing the tree for sawing. This fine tree, which I need hardly add, stern necessity compelled us most reluctantly to remove during the early part of the present year, measured, exclusive of the broken top, 72 feet in

height, was 26 inches in diameter at butt end, and contained 73 cubic feet of timber. I measured some of the annual rings near the bark and found them to be on an average 1 inch in thickness, which of itself speaks highly in favour of the tree as a rapid timber-producer. During the past ten years this tree had repeatedly lost its leading shoots, but these were quickly substituted by side branches until five years ago, when, during the memorable "Tay Bridge gale," nearly 10 feet of the leader was broken over, which considerably marred the beauty of this otherwise handsome tree. When felled and stripped of its branches, the balsamic fragrance, from the great quantity of resin the tree contained, was distinctly perceptible at a considerable distance—further than I have ever noted even in the case of the Douglas Spruce—and the circumstance was commented upon amongst the woodmen employed in removing it.

As regards nomenclature, this as well as several others of the Californian species of *Abies* are in the most unhappy state of confusion, but now that cones have been produced in this country, it is to be hoped some of the differences will be cleared up, and the identity of several closely-allied species fully established. In not a few collections of Coniferae, *Abies concolor* is incorrectly named *A. grandis*; the same may also be said of *A. magnifica*, *A. lasiocarpa* or *Lowiana*, and others; indeed, so closely connected in general appearance are these three species, that M. de Kirwan includes them as one, although now their specific identity is pretty surely established.

The branches of the true *A. grandis* are usually arranged in flat, horizontal tiers, with the tips slightly upturned and, more particularly the branchlets, glabrous, and of a light, pleasant green. The leaves are of unequal length, arranged on the lower branches in double, and those near the top in treble, rows, the lower series of leaves being longer than the upper, or from 1½ inches to fully 2 inches in length. They are usually bifid at the ends, but this I have noticed is more particularly the case in the foliage of the branches near the top of the tree, channelled above, and with two silvery lines beneath.

The cones are bronzy green, 4 inches long by 1½ inches diameter, almost cylindrical, usually in pairs—although I have occasionally noted clusters of from four to seven—and seated



close to the stem, or, in other words, devoid of footstalks. The bracteas are entirely hidden by the overlapping scales.

The bark is smooth and of a dull green when young, but becomes dark grey and rough as the tree advances in age, and filled with receptacles of clear, highly fragrant resin. In most of the *Abies* tribe cones are, at least in this country, produced for a number of years previous to male flowers, but from my own observations of *A. grandis* the reverse of this is the case, pollen being freely produced for several years before the appearance of cones. Both the male and female cones are usually produced on the upper branches near the top of the tree.

When viewed from a distance, *A. grandis* bears a slight external resemblance to the Douglas Fir; indeed, on close scrutiny, we have more than once been amused to hear those who pretended to know the Coniferæ well pronounce it as a very fine and healthy specimen of *Pseudotsuga* (*Abies*) *Douglasi*.

The soil in which *Abies grandis* does best at Penrhyn is an open loam with a good coating of decayed vegetable matter on the surface, and where it never suffers either from excess or want of water. Two other specimens growing within a short distance of where the large specimen above referred to stood are in excellent health and growing apace, which the bright foliage, well furnished stems, and rapid rate of growth clearly testify. One of these trees produced a number of cones this season for the first time, and from which the annexed illustration was taken. As male flowers were also produced freely, we have every reason to anticipate a crop of well filled seeds.

*A. CONCOLOR* is readily distinguished from the true *A. grandis* by the irregular arrangement of the former's leaves and by the upper and under surfaces being of the same colour. The cones are produced singly, are usually larger, and the seeds much weightier than those of *grandis*. It is also more liable to be cut by spring frosts, which latter is quite noticeable even when the trees are growing side by side and under similar conditions in every way.

*A. LASIOCARPA* (syns., *A. Lowiana* and *A. Parsonsii*) differs essentially from *A. grandis* in the larger incurved foliage in which the silvery green of the under surface is distinctly displayed. It is perfectly hardy in this country, and does not start into growth nearly so early in spring as *A. grandis*, this being more particularly noticeable when the trees are growing side by side, and forming a distinct point of difference between these otherwise nearly allied, though perfectly distinct, species.

AS A TIMBER TREE it would yet be premature to speak with any amount of certainty regarding the value of *Abies grandis*, as no trees have in this country arrived at maturity. The wood of the large tree referred to above was, however, of excellent quality, being weighty, resinous, and the concentric rings firmly packed. When cut into boarding the wood very nearly resembled in appearance our common Silver Fir, but was, perhaps, darker than that timber generally, of greater specific gravity, and of firmer texture. Under the tools of the carpenter it works well and takes a good polish, but from the rapid rate of growth the graining is somewhat rough, although perfect in delineation.

A. D. WEBSTER.

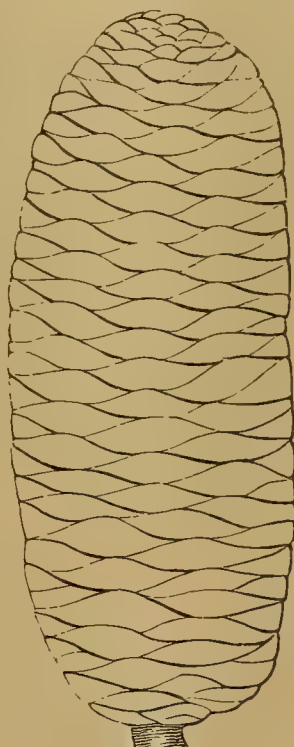
*Penrhyn Castle, North Wales.*

growth it is so graceful, so distinct from all other forest or hardy trees, as to render it eminently fitted for purposes of isolation. A large well-developed tree, so placed that its natural habit is fully displayed, forms a very pleasing feature in the garden landscape, not only when in full leaf, but also during the winter months, when, denuded of foliage, its characteristic features are more fully revealed. The graceful spray-like pendulous growth and silvery bark show up charmingly against the fresh bright turf of a well-kept lawn, a tree dotted here and there about pleasure



Seed and scale of cone of *Abies grandis* (full size).

grounds doing much towards relieving them of their sameness, and, where Evergreens are largely employed, somewhat sombre aspect during the dull months of the year. There are, however, a variety of ways in which the Silver Birch might be employed. It has a very pretty appearance when so placed among coniferous trees and evergreen shrubs that they form a background to it, in such a manner that the head of the Birch stands out clear and well defined, whilst the white stem is, as it were, framed in verdure. In parks, good use might be made of this tree by grouping it here and there in such a manner that the bright stems would be distinctly visible when the foliage was off. I may mention, however, that there is considerable variety amongst the Silver



Cone of *Abies grandis* (natural size).

Birches—some having the bark much more silvery than others, and having consequently, from an ornamental point of view, a much higher value. It is a pity that seeds should be saved from inferior varieties. Were a vigorous selection made, choosing only those trees remarkable for their clean white bark, a great improvement would in the course of time be manifested, and the value of this tree, from a decorative point of view, would be sensibly increased.—J. C.

**Himalayan Hornbeam.**—This species (*Carpinus viminea*) is rather striking, as it has long

pointed leaves, with long tail-like prolongations. Judging from the elevation at which it grows, it would probably prove hardy in this country, and, if so, the distinct aspect and graceful habit of the tree would render it a decided acquisition. It is a moderate-sized tree, with thin grey bark and slender drooping warted branches. The blade of the smooth leaves measures from 3 inches to 4 inches in length, the hairy leaf-stalk being about half an inch long. It is a native of the Himalaya, where it is found at elevations of from 5000 ft. to 7000 ft. above sea-level. As in our common Hornbeam, the male catkins appear before the leaves, and the female flowers develop in spring at the same time as the leaves. The hard, yellowish white wood—a cubic foot of which weighs 50 lbs.—is used for ordinary building purposes by the natives of Nepal.—G. N.

***Pyrus americana fastigiata*.**—This is the best tree among the pinnate-leaved *Pyruses*, having an elegant pyramidal habit, flowering freely, and producing bunches of bright red berries in autumn.—G.

***Ilex heterophylla magna*.**—This is one of the finest of all the green-leaved *Hollies*—strong in growth, and with foliage reminding one of that of a well-grown Bay tree. This and *Ilex balearica nigrescens* are perhaps the finest green-leaved kinds. The last-named is a remarkably vigorous and ornamental *Holly*.—A.

**The Sweet-scented Laburnum.**—During the coming planting season this fine form of the common *Laburnum* should not be forgotten. Probably many are not aware that there is a variety of *Laburnum* (*Cytisus Laburnum fragrans*) with very sweet-scented flowers. Good varieties of ever-popular trees like the *Laburnum* are doubly valuable, as we know they are sure to thrive with us.—J. O.

**Double-blossomed Cherry.**—Not many deciduous flowering trees are more beautiful than this, and it is so hardy, that no weather injures it. It will grow, too, in any kind of soil or situation. The purity of its white flowers is, moreover, not the least of its merits. They are much liked in a cut state, even for button-holes. It is most effective when grown as a standard on stems about 5 feet in height; it also looks well in the shrubbery border in the form of a bush.—J. C.

***Lonicera Standishi*.**—For the sake of its deliciously fragrant white flowers this Chinese *Honeysuckle* is well worth a place in the shrubbery. The flowers have the unmistakable odour of Orange blossoms. *Lonicera fragrantissima* is another Chinese *Honeysuckle* well worth attention. It is like *L. Standishi*, and although the white flowers are not particularly showy, they fill the air with their fragrance. When well established it blooms very freely, against a wall or in sheltered positions often flowering about Christmas.

***Andromeda floribunda*.**—Few perfectly hardy flowering shrubs are more beautiful than this, with its white flowers, borne in crowded panicles of dense racemes. The neat habit and dense mass of dark evergreen foliage are also not without charm even in themselves. Just forty years ago Loudon wrote, "It was introduced in 1812, and being extremely difficult to propagate, is still rare in collections. . . . Plants some years since were ten guineas each, but they may now be had at a guinea. The plant is very prolific in flowers and is extremely beautiful." The height of the plant in its native habitats is, according to the work just quoted, 2 feet or 3 feet, but in Dr. Asa Gray's "Manual" it is stated to vary from 2 feet to 10 feet.

**The Sugar Maple (*Acer saccharinum*).**—This tree, which is not much known in this country, is one of the largest American trees, attaining a height of 50 feet to 80 feet. The sugar-yielding nature of its sap is well known. Its wood, for many purposes of manufacture and for fuel, is unequalled. When grown in open ground, it forms a broad-based, round-topped head of dense, dark foliage, clean and usually free from insect depredations, and, taken all in all, probably stands at the head of American ornamental trees, at least for the Northern States. It is of slow growth, and requires care in transplanting until it

**The Silver Birch in parks.**—I have often felt surprised that this tree should not be more extensively planted in pleasure grounds, parks, and on large estates generally than it is. In manner of



becomes well established, after which it will richly repay all the labour bestowed upon it. There is a variety of this species called Black Maple, said to be so-called from a darker colour of the foliage, which differs slightly in the form and pubescence of the leaves, but not sufficiently to constitute a distinct species.—G.

**Thuja occidentalis aurea** is a fine form of a well-known and one of the hardiest of all Conifers. It has a robust growth, an upright habit, and a suffusion of golden colour over the foliage. In autumn it assumes a bronzy hue, and gradually changes to a golden one, retaining this till late in spring. The variegation being of a partial character, it does not decay in parts like the various variegated Conifers in which large portions of the shoots are wholly blighted.—A.

**Chinese Arbor-vitæ** (*Biota orientalis*).—This is one of the commonest as well as one of the most useful of the Coniferæ. Like so many others which are widely cultivated, a considerable number of sports and seedling forms have originated, and are largely propagated under distinctive names. Many of these forms—the most important and distinct in habit, colour, &c.—are described in Veitch's "Manual." In its native countries, China and Japan, it forms a low tree or shrub of pyramidal, or, not unfrequently, of columnar habit, and sometimes attains a height of 25 feet. Even in cultivation in Europe it rarely exceeds the limits just mentioned. The Chinese Arbor-vitæ, or any of its numerous forms, can be readily distinguished from its American ally by its denser habit; the type has foliage of much brighter green than that of *B. occidentalis*. Loudon states that *B. orientalis* was introduced to this country in 1752, and that date is also given in Veitch's "Manual." It seems to have been first brought to Europe by French missionaries about the middle of the eighteenth century, but that it was known in English gardens before the date given by the two works above-mentioned is evident from the following extract from a letter dated February 1, 1743, from the Duke of Richmond to Mr. Collinson, which shows the high estimation in which the plant was held nearly a century and a half ago. "I am sorry to find by Miller that I am not likely to have the Chinese Thuja. I own, if it belonged to anybody that would sell it, I should be foolish enough to offer ten guineas for it because it is the only one in England that can match that which I have already."—G. N.

**The Lombardy Poplar.**—To say that wherever the Lombardy Poplar is planted it adds a new and striking feature to the landscape is but commonplace praise. It gives it dignity as well as freshness and novelty. Posted on knolls in a flat or fenny country, it is welcome as a lighthouse at sea to the bewildered mariner. A few well-placed groups of this Poplar lift up the entire landscape into a higher level of art. The Lombardy is almost equally striking in valleys. I have looked down on some noble groups and single trees from bridges, and the effect has been as good almost as gazing up to them from afar on knolls. As a rule they are far too often rowed and isolated. The trees should be grouped more or less irregularly as to distance and number, but the great thing is to have more of them planted anywhere and everywhere where there is room for them. And they need little room, and may be planted nearer to buildings than any other trees, and they look better against bricks and mortar than any others, the Italian

Cypress not excepted. I wonder the Lombardy Poplar has not been more planted in cemeteries; it would look infinitely better than the usual run of evergreen coniferous trees so often found in a state of lingering death in such. Its form also admirably adapts it for association with monuments, tombstones, and chapels. Most of our landscapes are in want of more Lombardy Poplars, and even if in the haste to plant a few should get into wrong places, such mistakes are easily rectified. Few trees grow so fast and with so little injury to other trees as the Lombardy Poplar, while hardly any are more easily cut down.—F.

**Colutea arborescens.**—Under the name of Bladder Senna this European shrub has long been known in English gardens. It is a species of rapid growth and of the easiest cultivation. Scarcely any situation comes amiss; in the mixed shrubbery its yellow, pea-shaped flowers are produced freely enough from June almost until the arrival of frost in autumn, and the large, reddish, bladder-like pods also add no little to the peculiar aspect and beauty of the plant. In some places it attains a height of 12 feet, but it can easily be kept within the desired bounds, as it flowers well enough even when cut back a good deal yearly. *C. arborescens* is probably the hardiest of the Bladder Sennas, succeeding well in some places

sary, but unless the side shoot or shoots are shortened in, the plant will grow one-sided, and much of its beauty will be lost. I find that this Conifer strikes readily from cuttings. Frosts, moreover, never injure it in any way, but constant attention with the knife is necessary in order to ensure good leading shoots. Of course, some grow well and need no attention in this respect, but my experience is that the majority will require pruning. That such is also the experience of others I am satisfied from an examination of several beautiful specimens received from different nurseries, nearly the whole of which showed the scars where the side branches had been cut back.—T.

#### AMERICAN TREES IN AUTUMN.

Now that deciduous trees and shrubs are once more beginning to attract the attention which they so well deserve, and which was diverted from them when Conifers became such favourites, instead of the monotonous sombre green of the Pines and their allies, we may expect to see more frequently the delicate tints of early spring furnished by the swelling leaf buds or opening blossoms, the manifold shades of green during the summer months, and the brilliant colouration assumed in autumn by many of the fine deciduous trees from North America and Eastern and North-eastern Asia, which were much more generally known at the commencement of the present century than they are now.

If planters would but note the wondrous autumnal changes in the foliage of many deciduous trees and plant accordingly, they could easily create such effects as would as much surpass the ordinary haphazard style as a picture by a "Turner" would be superior to another painted by a schoolgirl. With care, too, the summer tints might be made to thoroughly harmonise, so that at all times the individual beauty of a tree might be enhanced by judicious contrast. Trees with totally different habits might also be



Coning branch of *Abies grandis*, from a tree at Penrhyn, North Wales, September 1, 1885 (one-fourth natural size).

in the north of Scotland, where *C. cruenta*, with its orange-red blossoms and glaucous leaves has not been able to withstand the severity of the winters. *C. arborescens* was known to the old gardeners, Parkinson, in his "Paradisus," speaking of it as the "greater Bastard Senna with bladders." In a wild state it is found throughout Central and Southern Europe.—G. N.

**Hardiness of the Wellingtonia.**—Many seem not to understand how it is that the foliage of the Wellingtonia becomes browned in this country during winter. It is unreasonable to suppose that the young of a plant that has been thus tenderly nurtured for perhaps thousands of years are unlikely, when grown in Britain, to submit to less tender treatment. They require shelter from cutting winds, and must have it, for it is more frequently the effect of wind and exposure than of cold. In its native mountains it has to endure a much greater degree of cold than it ever experiences here; but, tall as it is, it is so completely immured in the deep glens of the Sierras, that wind seldom reaches it.—S. G.

**Thujopsis dolabrata.**—The fault I find with this beautiful Conifer that it does not produce good leaders, or perhaps I should say, it is rather too prolific in this respect, and has a great tendency to throw up several leading shoots, which, unless cut back, causes it to assume the shape of a low bush and not that of a beautiful pyramid. This character of pushing up side shoots that usurp the place of the leader is often shown when the centre shoot has such a start that it would be thought no further care was neces-

chosen, so that, even when leafless, the tracery of the branches would be a source of artistic enjoyment. My remarks are, however, confined to autumnal tints and to trees and shrubs which are most noticeable at the present moment. Many of these are somewhat uncommon, all are strikingly handsome, and even the common one deserves to be more generally known and appreciated.

For truly gorgeous colouration in autumn some of the American Oaks bear off the palm. Perhaps the most beautiful is the Quercitron Oak, of the Eastern United States (*Quercus tinctoria*), the fine, deeply-lobed foliage of which, in autumn, exhibits a lovely combination of dark glossy green, crimson, and reddish brown, the green occupying generally the central portion of the leaf. *Quercus rubra* (the Red Oak) and its varieties are especially noteworthy; in these the redder tints of the decaying foliage are more unalloyed with other shades, so that in the sunlight the leaves brighten up and glow as if they were on fire. *Q. alba* (the White Oak) is a noble tree with large leaves, brownish red being the prevailing shade in autumn. The Chestnut Oak (*Q. Prinus*) and its varieties, with their large, Chestnut-like leaves, are hardly less beautiful than the Quercitron and Red Oaks, and assume autumnal colours in which bronze and reddish-purple predominate.

Totally different in colour and habit of growth are the Hickories, two of the most showy in autumn being the Pig-nut Hickory (*Carya porcina*) and the small-fruited Hickory (*C. microcarpa*) from the Eastern United States; both have Walnut-like foliage,



and the large leaves of the first die off a uniform rich golden yellow. The Yellow Wood (*Cladrastis tinctoria*), from Kentucky and Tennessee, is one of the handsomest of the flowering trees of the Locust kind; in early autumn it is clothed with large pinnate leaves of a fine orange-yellow. The Bird Cherry (*Prunus Padus*), particularly when planted in open ground, has leaves tinged with rosy red when dying, and one of the prettiest effects I have ever seen was a fine group of Bird Cherries with a background—a few yards away—of dark, glossy, evergreen shrubs.

THE JUNE BERRY (*Amelanchier canadensis*), although not possessing the delicate tints of the last-named, wonderfully enlivens the autumn shrubbery with its red-brown leafage. The Red Mulberry (*Morus rubra*), from the Eastern United States, is very conspicuous in October on account of its sulphur-coloured, prettily-lobed leaves; it is a small tree, and, with a background of dark green such as that afforded by the Evergreen Oak (*Quercus Ilex*), is most striking. The Blue Beech (*Carpinus americana*) is a small tree from 10 feet to 20 feet high; its decaying leaves exhibit a charming combination of green, golden yellow, light red, and crimson. The South European *Acer Opulus* furnishes us with a mixture of purplish, orange-scarlet, and brown tints. The Cherry Birch (*Betula lenta*) of the Northern and North-eastern United States makes a fine object when covered with clear, golden yellow foliage, which is especially attractive in sunlight. The Black or Sour Gum, or Pepperidge—for under all three names is *Nyssa multiflora* known in its native haunts, the Eastern United States—has fine, bold, glossy leaves, assuming in early autumn a brilliant orange-scarlet colour; an accidental combination of this with a specimen of *Ptelea trifoliata*, with its lemon-yellow, pinnate foliage, produces a very happy effect.

THE SILVER-LEAF MAPLE (*Acer dasycarpum*), which, on account of its rapid growth and beautiful foliage, is much planted as a shade tree in the United States, is one of the finest of deciduous trees; in early spring it is covered with myriads of reddish flowers; then its handsome leaves, green above, silvery-white below, turn in autumn to a golden yellow. The Red Maple (*Acer rubrum*), more compact in form and less rapid in growth than the preceding, is also very ornamental in autumn, and in spring its deep red blossoms render it conspicuous and beautiful. The Sugar Maple (*Acer saccharinum*) is one of the noblest of American trees, and is much valued both for its wood and for the beauty of its form and foliage; in summer its leaves are a light green, but in autumn are a clear yellow. The Tulip tree (*Liriodendron Tulipifera*) is one of the largest and most beautiful of North American trees; as an ornamental tree it is at any time hardly surpassed, but in October, when its foliage is suffused with a rich golden glow, it is especially striking, a fine specimen making quite a feature in the landscape. The brilliant autumnal colours of the Sweet Gum (*Liquidambar styraciflua*) are too beautiful to be passed over without notice; rich orange-scarlet, crimson, and yellow give place in some individuals to a dull purple, the long-stalked, star-like leaves, when well coloured, being especially handsome. This tree retains its rich leaf-colouring for some weeks.

**The Rose Acacia** (*Acacia hispida*).—There are few more desirable hardy flowering shrubs than the subject of this note. In British gardens it is generally met with grafted on the common Locust tree, a stock on which it grows vigorously. Perhaps it would be an advantage to raise plants from seed, as the branches with their burden of large deep rose-coloured flowers and bold handsome leaves seem more liable to be broken by the wind when they are borne on tall stems. *Robinia hispida* varies considerably, some forms being quite without the hispid, or bristly glandular armature on the branches which suggested the specific name. The Rose Acacia is quite hardy in Britain, and is not very particular either as to soil or situation.—N.

**The Pyracantha** promises to be very attractive during the coming winter; plants which were thinly berried last year are this season wonderfully well covered with them; one plant in particular that covers

the south front of a cottage is already bright with its crop of fruit. The remarkable hardy character of the *Pyracantha* renders it more valuable for wall decoration than many suppose, for it grows and bears its biennial crop of berries in a north aspect as well as it does in a warmer situation, and the fact that it is evergreen enhances its value.—J. C. C.

**The Red Birch** (*Betula nigra*), although perhaps hardly so quick a grower as our native species, is well worth growing, if only for the picturesque effect produced by the red bark during the winter months. In the arboretum at Kew several good-sized specimens present a very marked contrast to the more graceful tree of *B. alba* near them. In the Red or River



Grove of *Abies grandis* in California (see p. 348).

Birch the red bark hangs in thin broad flakes from the stem and larger branches, and imparts a distinct and peculiar appearance to the trees—an aspect as different as can well be from that presented by the chalky-white, smooth trunks and branches of the Silver Birch. The Red Birch, in its native habitats along the low river banks in the United States, forms a medium, or rather large-sized, tree; the wood is light coloured, and does not seem to be so valuable as that of some of the other North American Birches.—G.

**Populus grandidentata**.—Loudon justly considered the Large-toothed Aspen the most ornamental of all the Poplars, on account of the deep purplish red colour of the young leaves as they unfold in spring. The foliage is not unlike that of the British Aspen, but the teeth are much larger and more irregular than in that species. As a rule, *P. grandidentata* forms a medium-sized tree, but it sometimes attains a height of 70 feet or 80 feet, with a trunk 20 inches to 30 inches in diameter; whether it will attain such a size in this country or not I am not able

to state definitely, but it is perfectly hardy, and grows freely enough wherever I have seen it planted. The wood is white, very soft, and light; according to Professor Sargent's catalogue, large quantities have of late years been ground into pulp in Northern New England and Michigan, and used as a substitute for rags in the manufacture of paper.—G.

**Propagating Maples**.—These can be, and are to a great extent, increased both by grafting and budding. Most of the vigorous-growing kinds are budded, and those of more slender habit, such as the beautiful Japanese varieties, are grafted on allied species. Budding is done towards the end of the summer in the same way as Roses are, and, like them, if the bark does not run freely, a good shower or a soaking of water at the roots will frequently remedy this. If young vigorous plants are budded, they may with advantage be somewhat shortened back when it is done. As before stated, they may be layered, but it is not always possible to do this, though it is generally employed for the increase of *Acer palmatum*, which in its turn is used as a stock on which to graft its many varieties that are now becoming so popular. For grafting these small Japanese Maples the stocks should be established in pots, and the plant kept close under glass till a union takes place. Side-grafting is the method generally employed, and it may be done at almost any time, provided stock and scion are in good condition, though perhaps the most suitable season is when the young growth is about three parts ripened. If one possesses plants of any of the varieties large enough to layer without injury, they can then, of course, be increased in this way.—T.

**Pinus koraiensis and P. parviflora**.—In some respects these Pines bear a resemblance to each other. Both are natives of Japan, and both usually contain in a sheath five leaves of a light glaucous colour, and both attain a height of from 20 feet to 30 feet. I think, however, that most cultivators recognise them as distinct species for the following reasons: *P. koraiensis* is of a close, compact, and dense habit of growth, the general outline of which resembles that of *P. Cembra*. The foliage is fine and slender, not unlike that of *P. Strobus*, and is produced in dense clusters at the extremity of the branches. On the other hand, *P. parviflora* is less dense in its growth, and extends its side-branches, which are long and slender, in a horizontal direction, which, as a general rule, are well furnished with small lateral twigs, clothed with rich glaucous foliage, but not in dense clusters at the points of the branches, so that the external outline and appearance of the trees are dissimilar and unlike in all these important points. *P. parviflora* seems not to be so widely cultivated as its merits deserve.—J. B. W.

**Acer macrophyllum** is one of the most distinct as well as one of the most valuable of the larger-growing Maples. It is a vigorous grower, with large bold foliage, which assumes a rich brownish yellow tint in autumn; in spring, the long, densely-flowered racemes of a yellowish colour, developed before the leaves unfold, impart to the tree an aspect quite different from that of any other Maple, or indeed any other hardy tree. The habit is pyramidal, and the tree grows freely even in dry gravelly soils; in richer soils the growth is more rapid. Even for purely landscape purposes the species is thoroughly worth the attention of planters, but it is probable that, if fairly tested, it would prove of value from a strictly commercial standpoint. Professor Sargent, in his "Catalogue of the Forest Trees of North America," says that the distribution of *Acer macrophyllum* is from Santa Barbara, California, to latitude 55° north; in California, in the coast ranges and on the western slopes of the Sierras; in Oregon and Washington Territory, west into the Cascade Mountains. The wood, he says, is valuable, hard, close-grained, and susceptible of a good polish—the best substitute in the Pacific forests for eastern Hickory. It is a tree 80 feet to 100 feet in height, with a trunk sometimes 5 feet in diameter; in California much smaller. From the inner bark mats, hats, and baskets of excellent quality are made; Maple sugar is manufactured from the sap of this species.—N.

**Pernettya mucronata**.—Nothing excels this *Pernettya* for growing in a position where much wind affects other plants. It is a fine subject to plant on



the south-west side, or amongst *Kalmias*, *Andromedas*, or hardy *Azaleas* when growing in a south-westerly aspect. It likewise does equally well as a shelter on the east side of any bed occupied with similar plants. It is very effective when growing near the edge of lakes or other water, or when planted on the rockery, when in bloom with its abundance of white, bell-shaped flowers, and again when it is ornamented with berries which succeed the bloom and having a deep purple hue of colour. It is easily increased by dividing the roots; it prefers peaty soil.—E. M.

## KITCHEN GARDEN.

### TOMATOES.

We have received a very interesting collection of Tomatoes from Sir Henry Thompson, of Hurstside. The remarkable growth in public estimation of this fine fruit certainly justifies experimenters in testing the value of various kinds, many of which we have perhaps undervalued ourselves, because the old, common, large red Tomato always seemed to us as good in flavour, and in other respects, as any of them. However, some of the best of the new kinds have advantages for forcing, and some people prefer the smooth ones. Amongst the most striking of the kinds that Sir Henry Thompson sends are Sutton's Reading Perfection and Carter's Perfection, both very much alike, and Acme, which greatly resembles Dedham Favourite. These two last-named kinds have a pale purplish colour, instead of the fine red to which we are accustomed. Of the different qualities of these, of course, it would not be so easy to speak. Some constant maker of Tomato salad, who had the opportunity of selecting from such a good collection, might be able to tell us.

Mr. Woodfield, Sir Henry Thompson's gardener, writes as follows concerning these and other Tomatoes grown at Hurstside: "Alpha is a variety sent by Colonel Stuart-Wortley among others brought from America. It produces fine fruit, but is not so neat in shape as that of some others. Acme is apparently a good selection of the ordinary Tomato. It does well both under glass and out of doors. Its fruit, though good, is deficient in briskness. Perfection, another American variety, is a grand Tomato, good both under glass and out of doors, and quick in coming into bearing. Green Gage is so well known, that it requires no comment. Criterion, though not so large as some varieties, is one of the best flavoured Tomatoes with which I am acquainted. Conqueror is a good hardy sort, and one of the best for out-door cultivation. Hackwood Park Prolific well deserves its name when grown under glass, being a very heavy cropper, but outside it does not succeed well with us. Vilmorin's Gros Rouge Hâtive is a free cropper and very early. Dedham Favourite is a pretty Tomato, and of good quality, but not so heavy a cropper as some others. Reading Perfection is very handsome, but a shy bearer. Chiswick Red is one of the most ornamental of Tomatoes, its fruit being bright in colour, well formed, and produced in abundance. Carter's Perfection is, however, my favourite, being handsome both in shape and colour, solid, and a thoroughly good cropper. Most varieties of Tomato have done well this year."

**New and old Potatoes.**—All I think who have given the new sorts of Potatoes a fair trial will agree with Mr. Muir (p. 298) that it is advisable to fall back upon the old sorts that were in favour thirty years ago if Potatoes are to be judged by their table qualities, and that is the point on which most people will decide their merits. I grew last season for trial more than thirty of the new sorts, and although such varieties as Cosmopolitan, International Kidney, White Elephant, and several others were remarkably handsome, they were so inferior in quality when cooked, that I have not got one of the sorts now in stock; in fact, I would not find store-room for them, much less grow them another year. I do not wish to condemn as worthless all the new sorts, because there are a few no doubt that are both handsome and good in quality, but there is not one of them that we could

not do without, for after all there are not any more useful sorts than Myatt's Ashleaf for the earliest, White Rocks for mid-season, and Cornish Kidney for late use. Anyone growing these three old kinds will find that they want no others to furnish them with Potatoes of good table quality all through the season.—J. C. C.

### SHOW AND TABLE POTATOES.

"A. D." (p. 323) seems to think that all Potatoes are perfect, and that it is only inferior cultivation which makes some sorts uneatable; but those who have tried and tried again to make large handsome-looking Potatoes of the International type fit for table know how very far "A. D." is off the mark. I know that soil and climate influence some kinds of Potatoes to a certain extent, but there are others universally bad under whatever conditions they may be placed. Gardeners in private places have the best opportunities of finding out the good or bad qualities of garden produce. They do not go by a bushel or a dish of this or that which they may see at a show; on the contrary, they have an all-the-year-round experience upon which to found their verdict, and Potatoes, which are an every-day dish, always come in for a large share of attention. Let me ask if there is a single gardener in the country who has ever heard his employer or his friends pronounce International Kidney to be a superior table Potato? I have supplied this Potato averaging 6 oz., 12 oz., and 20 oz. in weight, and in no instance was it asked for again. Indeed, the larger one grows it the more inferior does its quality become. I am particularising International because it is the leading type of a fine-looking, but deceptive class of Potatoes. It will no doubt, however, be a prominent feature at the coming international show. It always is, and if I knew the winner of the first prize for it I would ask him to send his prize dish to be cooked at THE GARDEN office, in order that the public might benefit by the verdict pronounced upon it, and I hope "A. D." will help me in this matter. Fine-looking show Potatoes no more represent high quality than big Melons do exquisite flavour. Extreme size, shallow eyes, and a smooth coat are the points striven for on the show table, and the most important point—the eating quality—is seldom considered; hence the reason of the greatest prize-taking sorts never being found as main-crop varieties in gardens where the cultivation of Potatoes for the table is the first consideration.

At one time, six years or so ago, I could have pointed out Woodstock Kidney in almost every garden in this parish; now I do not know that it could be found in one. Disease and inferior quality have exterminated it, and yet I do not know of any parish in which Potatoes are better grown than they are in that of Margam. There are eight classes for them at our annual cottagers' show, and the numbers and quality shown are surprising. The newest sorts are no strangers, but although quality is supposed to be about the last point considered by a cottager, it is remarkable how inferior ones drop off; the Radstock Beauty, Porter's Excelsior, and others of a heavy, wet, sticky character are hardly ever seen now. Some of the kinds mentioned by "A. D.," such as The Dean, Chancellor, Hughes' Prolific, &c., as being popular sorts, were sold this season at 1s. 6d. and 2s. per lb., and in my opinion it is too early to speak of the popularity of any Potato at that price. At the International Show in 1883, Sanday's Seedling gained a first prize as being the best new kidney exhibited. It is a cross between Crystal Palace and Rivers' Royal Ashleaf, and one of the best table Potatoes I have ever known, and now "A. D." says it is found to be but the old Lapstone. On what authority does his statement rest, and where is it recorded? Here the two seem to be perfectly distinct; but should the two be identical, it will be discouraging to many to know that they recently bought the old Lapstone at the high price of 1s. 6d. per lb. "A. D." will have little difficulty in noting which kinds are the most striking at the international show, but all he may say as to the best will simply be gained from observation, and this is the most untrustworthy and useless of all ways of judging the quality of Potatoes.

J. MUIR.  
*Margam, South Wales.*

**Mushrooms without spawn.**—I lately saw Mushroom beds bearing excellent crops made on a somewhat novel plan; no spawn had been used, the cultivator trusting to the material to produce spawn spontaneously. The beds were formed like Celery trenches—i.e., a trench about 2 feet wide and 1½ feet deep was taken out in April; the bottom was well broken up with a fork to ensure good drainage; then the trench was filled with road-sweepings consisting of horse manure and grit. This was trodden in firmly and covered with about 2 inches of soil, which was beaten down hard and left entirely uncovered. The Mushrooms began to appear in August, and during September were produced very plentifully. In October a covering of litter was applied, and the cultivator assured me that he had never failed to obtain a crop, although he had never used any spawn.—J. G. H.

**Celery White Plume.**—Having noticed several accounts in THE GARDEN respecting this Celery, which grows white without earthing up, I was induced to give it a trial. So far I quite agree with all that has been said in its favour, and I very much regret that our main crop is not White Plume. I spoke to several large growers of Celery about it last spring, but they had no faith in it, and, of course, have grown none of it. Since seeing it here, however, their opinions concerning it have altered, each and all of them being now loud in its praise. In this neighbourhood it will be extensively grown next season. There is only one green head in a row of it 40 feet long, and only one that has "bolted." It has had no earthing up, as the head herewith sent will show.—R. MCINTOSH, *The Abbey, Great Grimsby.*

\* \* A very well-blanching and handsome head. As we thought it possible it might appear blanching without losing the acid quality, which the common practice of thorough blanching forbids, we tried it carefully, both in the raw and cooked state, and found that even when well cooked it retained the acid quality. We think, therefore, it is far from deserving the character of an "improvement."—ED.

### WORK DONE IN WEEK ENDING SEPT. 29.

#### SEPTEMBER 23.

FINE, but very cold. Sweeping and clearing up generally. Thinned out wood of Peach trees on walls from which the fruit had been gathered and marked several trees for removal to other stations soon as time can be spared for the work. By early autumn transplanting not a fruit of next year's crop need be lost if the plants be carefully lifted and as carefully replanted and tended in the matter of surface covering with manure. Pears that are not yet ready to gather have to be kept netted over; of course, only the walls and smaller trees of the choicer sorts can have such attention; the largest trees have to take their chance; and one would think the birds would be content to practise their depredations on these alone; but it is not so, the largest fruits attract them most. Gathered the following kinds—Beurré Thoin, all Beurré d'Amanlis, a few Glou Morceau that were falling prematurely, Passe Colmar, Flemish Beauty, Hélène Grégoire, Calabasse, and Hacon's Incomparable. Finished the propagation of all tender bedding plants, and the following are now being put in cold frames, where they strike and winter very well—*Gnaphalium lanatum*, *Leucophyton Browni*, variegated Thyme, and *Violas*. Offsets of hardy succulents and Sedums are being planted thickly on a dry sunny bank.

#### SEPTEMBER 24.

Again fine. Work much the same as yesterday, and in addition gathered a large quantity of Apples. As showing how large the crops are hereabouts, the cottagers are selling them at 2s. the bushel, the money being wanted to pay their Michaelmas rent. What a fall from 15s. a bushel that one season I paid these said cottagers. Planted out another lot of Cabbages on the ground that has just been cleared of Onions, the preparation required being only to weed and draw drills 2 feet apart. Cleared all old leaves off Cabbages to let daylight into the sprouts, which will be quite as valuable as have been the original heads. Brussels



Sprouts will be served the same way when they are sufficiently dry to get amongst without wetting the men's clothes. Earthed up Celery. Indoor work is principally propagating. Got in Azaleas, Camellias, and a few other greenhouse plants that have been out for the summer. Potted the first lot of *Spiræas* for forcing. Put most of the *Pelargoniums* that have hitherto been growing outside, or in cold pits, into Strawberry house for winter flowering. The *Begonias Knowsleyana*, *insignis*, *castanifolia*, and *parviflora alba* are just coming into fine flower, and, like the *Pelargonium*, will continue flowering the winter through.

## SEPTEMBER 25.

Again fine, but unusually cold for the season. Apple gathering and the kitchen garden jobs begun yesterday, have been continued to-day, and have also begun our first piece of trenching. Our soil is a hungry sandy loam, but plenty of depth, so we trench deep and put in every scrap of manure we can get together, and no description of ground could possibly produce better crops. Pulled up old Pea haulm, and after clearing the ground, put out a few rows of late Curled Kale—a crop that in former years we have found fill up a gap between the end of mid-season Broccoli and the turning in of the latest kinds, and oftentimes this late planting has also made it unnecessary for us to begin using the young spring Cabbages till they were really fit for use. Late Vines are having all the lateral growths cut back to the hard wood, or, in other words, to the fruiting part of shoots. There is thus plenty of light and a freer current of air round about the fruit, so damping off is reduced to a minimum point. The wood, I may state, is all ripe, and the Grapes too where this is being done, as, of course, the operation ought not to take place till these are assured. We still use fire-heat—in fact, always do till the fall of the leaf, and even in damp or very cold weather. Figs are still bearing abundantly, and as we wish them to continue so doing, we keep on heat in this house also, which, whilst it aids the ripening of the present fruit, is aiding the maturity of plump eyes and ripening the wood generally, without which there would be little fruit next year. Got indoors winter-flowering Tree Carnations, sweet-scented Geraniums, Myrtles, and such like plants.

## SEPTEMBER 26.

Winter all at once—4° of frost, and during the night a shower of snow. One almost despairs of our climate; certainly I never remember a year of such sudden changes; but it is useless to despond, and so we set to work and take up a few of the choicest plants from the flower garden, and prepare coverings of thick tiffany to cover over some of the beds this evening. The only plants that are injured are *Coleus* and *Alternantheras*, and once more we vow that they shall be banished from the garden, a resolution that will most likely be forgotten when the weather is not so cruel as now. Dahlias, usually the tenderest plants, have escaped with but here and there a blackened leaf. The loss of Vegetable Marrows and dwarf Beans represents the entire damage in kitchen garden, but their loss has made us alive to the prevention of injury to others, and so all our Broccoli that are opening flower have had their leaves bent over them. A quantity of Runners has been gathered, and which will keep fresh for many days by occasionally sprinkling them; but roots we are having housed and all the earliest Carrots. Gathered all Pears and Apples that were ready. Not much time could to-day be spared for cleaning up, and only really the worst was done. We have been equally busy about the houses, getting plants under cover, and preparing temporary coverings for *Pelargonium* cuttings that are still outside. Put in Peach house Tomatoes in pots that have been grown outside for the purpose of supplying late autumn fruit. Also cut all the ripe fruit from outside plants, and laid them on cool vinery shelves till required for use. Watered Pines, trimmed Melons and Cucumbers. At this season the latter are cropped very thinly indeed, which is the only way to keep the plants in a bearing state throughout the dull days and long nights that we are fast approaching.

## SEPTEMBER 28.

There was a repetition of frost yesterday morning

(2°), but to-day has been warmer and drying. Finished earthing up Celery, and continued the other kitchen garden jobs named a day or two back. Again trimmed up flower-beds, for I do not yet despair of having a week or two of summer weather during next month. The mixed hardy flower borders now play the most important part in floral beauty. The Japanese *Anemones*, *Michaelmas Daisies*, annual and biennial *Sunflowers*—one of the latter deserves particular mention; it came to me from the Messrs. Sutton, of Reading, under the designation of Sutton's Miniature Sunflower. The plant is of a branching habit, and has rich, glossy, small foliage, and the flowers are an exact counterpart of the flowers of *Rudbeckia Newmanni*, except that they are about a third larger. So much are the flowers of the two alike, that several men who know hardy plants have asked whether or not it was a *Rudbeckia*. It has furnished a profusion of flowers for over three months. The Messrs. Sutton should make it better known and give it a better name. We give every possible moment we can spare to the preservation of neatness in these borders and to the keeping the plants—tall, slender-stemmed kinds—tied to supports. House work has been preparing for the winter, getting all plants under cover that need protection from frost, and pushing on the propagation of hardy plants. Gave to Strawberries in pots still more space. Our endeavour is to keep the foliage of one from touching that of its neighbour. Runners and small crownlets we keep closely pinched off. The heavy rain of late has about settled the spider that was on them, but it has also had a detrimental effect in that the excess of moisture has caused some of the plants to break into renewed growth; whereas we would have preferred that the plants had been content with the plumping up of their crowns only. This growth we shall check by keeping the plants on the dry side as to moisture, and remove every bit of sucker that seems likely to develop into side crowns. Finished cutting back laterals in late vineries. Potted Hyacinths, Tulips, and Narcissi, and plunged, for root formation, in Cocoa-fibre refuse.

## SEPTEMBER 29.

A change to summer. Heavy showers during the early morning. Mowing with scythes round trees and edges of shrubberies, which will be the last mowing for the season. Rolled the walks—the best way of securing good walks and of making it difficult for weeds to grow on them. Weeded and gave a thorough clean up to hardy fernery and subtropical garden; a few Castor-oil plants, *Wigandias*, *Cannas*, &c., were a little injured by the frost of the 26th, and the black foliage we cut away and made all look as nice as under the circumstances it was possible to do. Lifted and replanted two or three of the trees in early Peach house; they had grown too strongly for one to feel safe as to their fruiting satisfactorily next year. We have now no fear, as they have abundance of small fibrous roots still in such active condition, that they will take hold of the soil at once. I ought to add that all long woody roots were cut back to within 2 feet of the main stem. Top-dressing of the entire border with fresh loam has also been done, of course all loose surface-soil being first scraped off. The whole is now covered with dry straw, which enables us to utilise the space for plants. Other work has been the getting under cover of soils for potting, and mixing and throwing together leaves and litter to renew the bottom-heat in Pine pits before the weather gets too cold to expose the plants whilst the work is being done.

## HANTS.

## HARDY FRUITS.

THE drought of eleven weeks' duration having been followed by a very substantial rainfall, the ground is now in excellent condition, and wall trees generally are sufficiently ripe to favour the immediate commencement of root-pruning and rearrangement where this is considered necessary. In heavily manured and highly cultivated vegetable gardens it is hardly reasonable to suppose that fruit trees occupying limited spaces on the walls can be kept in a healthy, fruitful condition for any length of time where root-lifting is neglected. But by taking the matter in hand while the earth is charged with warmth and the

leaves are hanging on the trees, the most luxuriant growers can be kept within bounds without in any way endangering the quantity or quality of the succeeding crop of fruit.

## APRICOTS AND SWEET CHERRIES

are the first on our list, as they start early in the spring and ripen up their wood early in the autumn. The first is subject to canker, the second to gumming—two evils that are greatly intensified by allowing the roots an unlimited run in rich deep borders; but by timely lifting and relaying the roots in sound, friable loam, free from manure, the healthy condition so often met with in cottage gardens can be secured by gardeners who are obliged to devote their best borders to the production of rich succulent vegetables. Assuming, then, that these trees have been heavily mulched through the summer to feed and swell up the fruit, the first operation will be the removal of this surface-dressing quite down to the main staple of the border, then, guided by the size and age of the trees, with spades and steel forks throw out a semi-circular trench some 6 feet from the boles, cut all the strong woody roots at this distance, work well inwards close to the drainage to ascertain that none of the roots nearer home have struck downwards, and carefully preserve every small fibre and rootlet to be relaid in a horizontal position near the surface. If in preceding years the roots have been lifted and relaid, a good portion of the closely trodden wall path full of invaluable rootlets can be left undisturbed, as constant traffic and rich mulchings invariably draw them upwards to the surface. Turn all the roots upwards over the top of the undisturbed portion of the border, damp them with the syringe, and cover with mats to keep in the moisture. Correct the drainage, fill in with the best of the old compost, tread firmly, as all stone fruit trees delight in a strong resisting calcareous loam, and commence re-laying in a layer of fresh soil free from manure, but corrected if needful with burnt earth or old lime rubble. Cut away all injured or unkind roots, dress off the points of the fibres as the work of relaying proceeds, and add fresh compost to prevent them from lying in clusters. When all the roots have been relaid and lightly covered, wash the soil home with a plentiful supply of water, but on no account tread or ram, as the water in its downward course will solidify and hermetically seal every tender rootlet. Syringe the tree if the weather is bright and the foliage shows signs of drooping, proceed with the next, and so on until every tree on the wall has been lifted, root-pruned, and watered. If the weather is fine and the superfluous compost lying on the border is dry, allow the final filling in to stand over for a day or two, or until such time as the partially-puddled compost has become firm and sound enough to tread upon. Then return to the first tree, fill in with spades, compress the soil evenly with the feet, and mulch with short manure to keep out frost and drought during the winter.

## PEACHES AND NECTARINES,

although backward in the spring, are now well advanced, and quite fit for undergoing similar treatment as soon as other claims will admit of their being taken in hand. But, unless it has already been performed, there is another operation which should precede root-lifting, and that is summer, or, correctly speaking, autumn pruning. Every tree, as soon as it is clear of fruit, should have every shoot that is no longer wanted cut away to let in light and warmth, otherwise hard brown growths, studded with bold silver-coated flower-buds, cannot be expected. The foliage, be it understood, should be carefully washed and preserved, not brushed off with a switch in accordance with olden custom, as its retention will greatly assist the trees in their effort to form new rootlets. Then will follow the removal of every particle of mulching and rich top-dressing, and finally root-lifting and relaying in fresh compost consisting of calcareous loam and old lime rubble. In high and dry gardens enclosed by lofty walls favourable to extension training, the annual root-lifting of Peaches may not be absolutely necessary, but in a low damp situation like our own, where attention to every trifling detail is imperative, I make a point of root-lifting every autumn, and many years have elapsed since we missed having a full crop of fine fruit; the trees make clean healthy wood, and the



foliage is invariably free from spot or blister. Many who see and admire the trees ask for the secret. The secret consists in the performance of every operation at the right time, and as nothing succeeds like success, my autumn and winter treatment may here be explained in a few words. All my permanent trees having been lifted two or three times during their youth, to give the roots a horizontal position, from which they never depart, a semi-circular trench is opened round them early in October, each year a trifle further away from the boles, and quite down to the drainage. It is generally found that each strong root cut back the preceding autumn has thrown out a number of fibres capable of doing useful work, but instead of relaying them full length, they in their turn are shortened back to within 9 inches of the point whence they started. The trench is then filled in with new loam free from manure, upon the principle just described in my paper upon Apricots. Early in January the trees are loosened from the wall, every shred and nail is removed, the branches and twigs are well-washed with soap and water, and they are then tied out to stakes for the two-fold purpose of retarding the blossoms in the spring and enabling us to apply the old red brick wash during the winter. This consists of quicklime toned down with soot, a little linseed oil or Russian fat to set the colour, and a few pounds of Venetian red, thoroughly mixed in an iron furnace, dissolved and diluted with boiling water. By keeping the trees a few inches away from the walls the sap is kept in check, but when the flowers begin to show colour and nothing more can be gained, the knife is passed over them, a trifling operation to smooth down imperfect cuts and remove any shoots that were overlooked at the autumn pruning. All hands then set to work with new shreds and nails and the trees are secured to the walls with as little delay as possible. If the winter has been dry, the borders are at once well soaked with the hose and the wall paths are made clean and passable by the application of an inch or so of clean sifted lime rubble. To many this mode of management may appear tedious and unprofitable, but when it is borne in mind that spider and fly are placed at a discount, earwigs and woodlice, which formerly destroyed two-thirds of our fruit, are unknown, and one has the pleasure of manipulating healthy trees well furnished with fruit, the balance most decidedly draws to the system which enables the cultivator to overcome climatal obstacles in gardens not particularly favourable to outdoor fruit culture.

#### THE ORCHARD.

The early varieties of Apples and Pears will have been gathered from wall trees and pyramids in sheltered gardens, but October is the busy month in well stocked orchards. This year, unfortunately, the elements have been sadly against us, for not only was one of the finest displays of blossom ever witnessed crippled by adverse conditions in the spring, the long continued drought prevented the thin set of Apples from attaining more than half their normal size; then came violent storms of wind and rain, which decimated the crop when the fruit was nearly fit for gathering into the store room. The consequence in this part of the country, it is hardly necessary to say, is very serious indeed, as much of the best of a bad crop of fruit has been destroyed, while that which remains cannot possibly attain its usual flavour. These not unprecedented mishaps must not, however, prevent us from devoting our most careful attention to the residue, as every Apple will be wanted and many thousands of pounds will be paid to our cousins for produce to make up the deficiency. Early and late Apples which precede and succeed the great glut from America command the best prices. The first should be got off without delay. Late varieties, carefully hand-picked as they become ready, should be placed in a cool, well-ventilated store-room, to undergo the preservative process of sweating before they are finally put away for the winter. The choice varieties can then be placed singly on the shelves, where they must be looked over occasionally, or they may be packed in clean earthenware pans or vessels, where, partially or entirely excluded from air and light, they will keep fresh and plump until the end of their particular season. A gentleman who owns very large orchards in this neighbourhood stores many of his best late-

keeping Apples in barrels of fine, perfectly dry sand, immediately after the sweating process is over, and he assures me that no other method which he has tried answers so well, as they come out fresh and sound when similar varieties well stored on shelves have shrivelled and outrun their season. His information is thoroughly reliable; the process is very simple and inexpensive, and I avail myself of this favourable opportunity for making his method known to those who have not already tried it.

#### PEARS

In this district are more plentiful than they have been for some years past, and many varieties both on wall trees and standards have attained their full average size, a fair proof that a well-drained soil, free from stagnant moisture, is essential to the successful culture of this most valuable of all hardy fruits. If this were not the case, a drought that has so seriously crippled the Apple crop would tell on Pears also, and we should have a number of small, scabby fruits that would not pay for gathering. The fruit is, however, remarkably clean, and, judging from the way in which fully-developed specimens part from the trees, there exists but little doubt that we shall find them quite up to the best standard of quality. Should this prediction be verified, owners of old-established orchards and others engaged in the formation of new ones should satisfy themselves that the ground from which they are now gathering or expect to gather good fruit is efficiently drained to a depth that will clear the subsoil roots of cold, stagnant water. When the ground for new orchards has been well drained, let the whole surface be trenched and broken up as deeply as the subsoil will allow, but avoid bringing the bottom spit to the surface unless it be for the purpose of burning; no manure will be needed except in soils of a poor gravelly nature, and then it is questionable if its application as a mulching after the trees are planted will not be the most profitable mode of using it. When the time arrives for planting, set out the stations in lines running from north to south, allowing plenty of room for the full development of the forms which the trees are intended to assume, plant on the surface, and let them be well staked to secure them from wind-waving. Restrictive growers plant pyramids and bushes from 9 feet to 12 feet apart, but this style of training involves endless trouble in pinching, lifting, and spur-pruning, and ultimately the removal of a portion of the trees, while others who allow more room for natural development and confine their pruning to the thinning of the branches secure the best results both in size, quantity, and quality of the fruit at a tithe of the cost, as extension-trained trees on healthy stocks soon grow themselves into a fruit-bearing condition. In days gone by, when land was dearer than it is now, and planters thought suffocation secured protection from cutting winds and spring frosts, an unnecessary expense for trees was incurred at the outset; strong-growing kinds of Apples and Pears outgrew and over-topped their weaker neighbours; a struggle for existence followed, and many of the most valuable varieties soon became worse than useless. If anyone doubts this assertion, a day's journey through this and the adjoining fruit-growing counties will convince him that hundreds, nay thousands, of acres of orcharding have been injured by over-planting. The remedy is simple: cut down useless and worn-out kinds, graft or thin out the heads of those worth retaining, and thoroughly drain and top-dress the ground. Fruit of good quality must be grown; and the Americans and Canadians are already a long way ahead, and owners must either face the expense of putting their orchards in order, or submit to being beaten out of their own markets.

Eastnor Castle, Ledbury.

W. COLEMAN.

**Mendelssohn and flowers.**—Mendelssohn delighted in the open air and beautiful scenery. When he was twenty he stayed for some time at Chester, where he was entertained by a Mr. Taylor. He loved afterwards to tell of the charm which the meadow and brook, the trees and Grass had for him there. He spent much time in sketching and painting; but his head was full of music, and everything

suggested a musical idea to him. He was very fond of Carnations, and he set a bunch of them to music in the album of a daughter of his host, with a drawing of the flowers over the notes; not forgetting to set some delicate arpeggios in the music for the scent of the flowers. On seeing the younger sister with some bell-shaped flowers in her hair, he said the fairies might dance on the trumpets, and he set them to a capriccio.—*St. Nicholas.*

**Peaches on dead wood.**—I was surprised the other day to see fine ripe fruits of Walburton Admirable Peach growing on wood that was quite dead. I do not think it was capable of drawing up one particle of sap, and yet the fruits were quite equal to those growing on clean healthy wood with a good leading shoot. This is the first time in which I have met with such a case. I have known them to partially swell and drop off prematurely, as doubtless many others have, but what, except the fruit itself, could draw up the sap in this case is a question worth asking.—*G. M. K. H.*

#### OBITUARY.

**M. Edmond Boissier**, the author of the "Flora Orientalis," and one of the founders of our Jardin alpin d'Acclimation, died on the 25th ult. at his residence, Valeyres (Vaud). He was not ill very long, and worked in his garden till the last. He cultivated with great success alpine and oriental plants, and M. W. Barbey-Boissier promises to continue the work so well done by his father-in-law both as regards maintaining the garden and collections.—*H. CORREVOY, Geneva.*

**Faling Horticultural Society.**—On Wednesday, the 23rd ult., the exhibitors at the shows of this society dined together at the Lyric Hall, Ealing, in celebration of the twenty-first anniversary of the society. Mr. R. Dean, the hon. sec. of the society, presided, supported by the president, the Rt. Hon. S. H. Valpole, and many leading subscribers, together with a large number of cottagers and gardeners, numbering in all some 150 persons. Advantage was taken of this gathering to present a testimonial and illuminated address to the chairman. The presentation was made by Mr. E. Fountain, gardener to Miss Wood, Haugh Hall, Ealing. It consisted of a massive marble fourteen-day clock relieved with real bronze mounts and standing 21 inches high, with visible escapement and striking the hours and half-hours on a cathedral-toned gong. In the centre of the base of the clock is affixed a handsome gold plate bearing the following inscription: "Presented by the gentlemen's gardeners and cottagers exhibiting at the Ealing, Acton, and Hanwell Horticultural Society's shows to Mr. R. Dean, for many years the honorary secretary, as a mark of their esteem and respect, September 23, 1885."

#### LATE NOTES.

**Carpeting Crocus beds.**—What creeper is the best to carpet a bed through which Crocuses, Scillas, Snowdrops, Anemones, and Aconites could push their way?—*H. C.*

\**Arenaria balearica* is a good plant for the purpose.—*Ed.*

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*H. Edwards.*—1, *Adiantum hispidum*; 2, *Davallia dissecta*; 3, *Adiantum Sanctæ Catharinæ*; 4, *Aspidium falcatum*.—*C. L.*—*Polygonum filiforme*.—*J. W. A.*—1, *Quamoclit coccinea*; 2, *Pteris cretica albo-lineata*; 3, *Ophiopogon Jaburan variegatum*; 4, *Crassula lycopodioides*.—*A. R. B.*—Next week. *Anon.*—1, *Desmodium penduliflorum*; 2, *Abelia rupestris*; 3, *Gnidia ericoides*.—*W. Oliver.*—*Solanum acanthodes*.—*F. T. Gadd.*—*Rhamnus catharticus*.—*F. C.*—*Quercus falcata* probably. *J. Kitson.*—*Abies grandis*.—*Aristophanes.*—*Rhamnus Frangula*.—*H. B. Johnson.*—*Echium vulgare*.—*Miss Bullar.*—*Bartonia aurea*.—*Mrs. Leach.*—*Rose* appears to be *Aimée Vibert*. Name of *Berberis* next week.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only under the above condition is observed. Unpaid parcels not received.

**Names of fruits.**—*Nine Years' Subscriber.*—1, *Duchess of Oldenburg*; 2, *King of the Pippins*; 3, *Early Julien*; 4, *Summer Thorle*.—*J. C.*—1, *Brabant Bellefleur*; 4, *Emilied Heyst*; 5, *Braddick's Nonpareil*.—*A. H.*—1, *Kerry Pippin*; 2, *Non-such*; *Pear, Hesse*; *Plums* much decayed, probably *Corse's Dictator*.—*C. G.*—1, *Blenheim Orange*; 2, *Yorkshire Beauty*; 3, *Rymer*; 4, *King of the Pippins*.—*Sanguinea.*—1, *Beurré d'Amanlis*; 2, not known; 3, *Seckle*.—*E. H. F.*—1, *Easter Beurré*; 2, *Louise Bonne of Jersey*; 3, *Beurré Diel*; 4, *Ne Plus Meuris*. Others next week.



## WOODS & FORESTS.

### THE PROPOSED FORESTRY SCHOOL.

ALTHOUGH the question of the desirability of such an institution as this has now been brought prominently to the front, very little interest appears to be shown in it by those mostly concerned. Mark Twain, in publishing his map of Paris, said that the greatest commendations of the work were received from those who knew nothing of map-making, and I think the same may be said of the proposed school, as the writers who say most about it—I now refer to the press generally—are those who have no stake in the question and know but little of it.

There must be a reason for this want of interest. If it is that the parties concerned do not believe in the project, their silence is explicable, but if, on the other hand, they believe there is some good to be got out of it, the present time is the one for suggestion and discussion. The gentlemen who constitute the parliamentary committee are representative enough as far as they go, but, notwithstanding this, they cannot entirely give expression to the views of the great body of landowners. What one would like to see would be a really spirited discussion in these pages of the pros and cons of the matter. An important question that I have never yet seen fairly answered is, what more it would be possible to learn on the subject if a school was established than could be gained now, if the interest, it is alleged there is in it, took a practical shape. If it was necessary to turn out foresters to order as much alike as a gross of bobbins from a bobbin manufactory, there may be something said for the uniformity gained by educating men at a school, but with forestry this is just the evil too readily fallen into. Somebody has argued that the existing race of foresters would not make good instructors for a coming one, but why not I cannot see.

If there is anything bad in the present practice, can it be better rectified by the establishment of a school than by the intelligent discussion of the moot points amongst foresters themselves? I think not. Then, again, with forestry students. It must not be assumed that the young men who would enter upon the study would have no more notion of what is right or wrong in the practice than children who just go to school to learn their alphabet. If there is not enough individually in a learner to be able by comparing one method of working with another and judge for himself which is best, there is not much hope of his attaining anything more than mediocrity in his work. Forestry is essentially a business as much as any other profession usually so denominated, and if it was feared the results would otherwise be desultory, why should not a system of short apprenticeship to competent men be resorted to? It is the real work in the woods respecting which the knowledge is wanted, and participation in and constant association with this work is the only means of attaining proficiency. This being so, what would answer the purpose better than a term of pupilage with such as make it their life-work? It may be objected that the adoption of such a course does away with the opportunity of acquiring a knowledge of what is by courtesy termed the higher branches, such as botany, physiology, and the like. Not necessarily, as for those who desire to attain a greater degree of accomplishment in these subjects there is apparently no reason why some of the educational machines

already in existence should not be made to do the work. Take as an instance the South Kensington science classes. These now exist, to some extent, all over the kingdom; so if Government is anxious to help in the work, why not in this way? If an additional subject, which would embrace as much as may be the theoretical matters with which it is necessary for the forester to become acquainted, was placed on the list, it would, at any rate, form a fair test of how far the interest in the subject reaches. Some such plan as this may be set about with comparatively little trouble, and may lead to good results if thoroughly competent men could be found to make the test of knowledge a real one. Whether this would be the best method, of course, is open to question, but that it is desirable that the why and the wherefore should be more looked into before any great step is taken, none will probably deny.

J. N. BLUNT.

### EVILS OF MIXED PLANTING.

In planting, as in almost every branch of rural economy, we should study to adopt all the operations of Nature. Nature seldom if ever plants more than one kind of tree in the same district. It is generally well stocked with only one kind of tree. In England Nature has her forests or plantations of Oak and Beech, and we believe that before the lowlands of the middle and southern counties were brought into cultivation, the greatest part of them were covered with Elm. Because, however, the Elm takes possession of good deep land, it was rooted up to make room for the production of food for man, and it is now found only in hedgerows, while woodlands of Oak and Beech, because they prefer poor clay and thin calcareous soils, have been allowed to remain. In Scotland the natural forests are of Scotch Pine (*Pinus sylvestris*), and here there is no mixture of any other sort of tree. In Norway, Sweden, Poland, Russia, and America there are numerous forests of various species of Coniferæ as well as of deciduous trees, and here also there is no mixture, each species generally occupying an entire district.

There are two reasons for planting trees of only one sort together. The first is, because, as the different forest trees differ, as we have seen, in their choice of soils, that which is adapted for any one of them would not do for a variety. The other is this: Some trees are more hardy and have a greater tendency to throw out lateral shoots than others. This, when the wind arises, causes them to lash and irritate the stems and leaves of their more delicate neighbours, thereby retarding their growth. If deciduous and evergreen trees are mixed together, the latter soon obtain the mastery, as when either Spruce or Scotch Pine or Silver Fir is planted among a variety of other trees in a plantation their lateral limbs, growing very strong, will not only occupy the ground allotted to them by the planter, but will also extend in every direction, and in course of time usurp the space allotted to its more tardy neighbours. When, however, a plantation is composed solely of any one of these Conifers, each tree being placed under like conditions, the trees will grow up side by side as if there was a mutual understanding that each should only occupy its own portion of ground; and if this allotment be very limited, tall straight trunks will be produced with very few and short lateral branches. What applies to the Scotch Pine in this respect applies also to any other kind of tree. If, however, in planting we select those trees which resemble one another in their tendency to throw out lateral branches, there

cannot be the same objection to their growing together that there is to the mixture of trees varying in the amount of this tendency—thus the growth of the Oak and the Spanish Chestnut, the Elm and the Ash, the Beech and the Sycamore, the Larch and the Poplar and of the Scotch Pine, the Spruce and the Silver Fir; in fact, all the evergreen coniferous tribes are similar as regards both rapidity of growth and character and their propensity to throw out lateral limbs is equal; these, therefore, may with propriety be planted together. If, however, all are intermixed in one plantation we shall find that the Scotch Pine and Spruce, &c., will occupy most room and have the superiority over the others forming trees with large heads and a great quantity of limbs. Next to these as regards the vigour of growth will be the Larch, then the Beech and the Sycamore, then the Oak and the Spanish Chestnut, then the Ash, the Elm, and the Poplar.

### HEDGEROW AND FIELD TREES.

I AM afraid this discussion is drifting from bad to worse, as now, instead of having hedgerow trees which at any rate will produce something, we are to have Holly hedges with young Holly trees shooting up at intervals, and grafted with more rare and beautiful varieties. Now, this is almost too much for one's equanimity when discussing the practical question of timber growing for profit. There is, however, one or two points in this latest contribution to the controversy which my unfortunate paragraph appears to have brought out, and that is what we may term the negative fact, that hedges do not thrive so well under trees. This I do not deny, and especially when the trees are very thick. The other point is that of planting groups of trees in the corners of fields, and when possible so arranging them that the four corners of adjoining fields form one plantation. With this I agree, but not that evergreen trees are the best to plant. This may be if ornament and shelter were the only things to be thought of, but as this must, where land has to be given up from the plough or pasturage, be to some extent subservient to the chance of getting some return, such deciduous trees as are of value in the market should be grown, and underwood of Hazel or some other useful wood be established. Unfortunately for the Evergreens, they do not figure well as usable timber. With regard to the wider question, it seems as though I must nail my colours to the mast. This I would prefer to do, as, notwithstanding the outbursts of indignation against my views on the subject, I see no reason to change them. A striking commentary on the value of such high-flown language as your correspondent quotes (p. 328) is the fact that hedgerow trees have not been stamped out by the "progress of science" during the last thirty years, and are not likely to be for many thirties to come.—D. J. YEO.

—“Second thoughts are sometimes best.” It is no doubt very gratifying to see that Mr. Yeo does not persist in his defence of hedgerow trees, for his last communication is as unreserved a condemnation of them as well could be. Yet Mr. Yeo will, I hope, not be offended at my saying that his latest views scarcely agree with the first. Mr. Yeo fails to disprove that land overshadowed and impoverished by hedgerow trees does not, as I stated, command as high a rent as where not thus injured, and says that to sustain my views I should specify instances where this has occurred. This I could easily do, and multiply them, but a little reflection will, I think, show Mr. Yeo that to do so would be an unwarrantable proceeding on my part. Such matters as these are for landowners and their tenants to arrange between themselves, and not for others to speak of individually. Mr. Yeo seems scarcely to grasp the question as regards shelter; the land, or, in other words, the crops it bears require no shelter from trees, and are the reverse of being benefited by their presence. To stock of all kinds some shelter is an advantage, or rather a necessity; but a length here and there of high uncut hedge is vastly more effective than trees.—T. B.



## TWO CLASSES OF FOREST TREES.

FOREST trees, whether of the same or different species, may be classed—according to their external characters, induced by the circumstances under which their growth has taken place—into two great divisions. The natural propensity of a tree is to spread its foliage to the light; when, therefore it is solitary or on the outskirts of a forest, there being no obstruction to this propensity, a large head is formed abounding in limbs with numerous small branches and thick foliage. This, then, may be taken as a specimen of our first class, the solitary tree abounding in branches and limbs of various sizes. When, however, trees are situated close together, then that it may surmount the obstacles which oppose its lateral growth, each increases in length, and expends but little of its sap in the formation of limbs. Here, then, is an individual of our second class, the tree of the thickly wooded forest having a long trunk and few limbs.

These, then, are the two classes between which we have to judge. The answer to the question as to which is most valuable might doubtless be easily and correctly conjectured, for it is well known that the value of timber depends not so much on the total solid contents of trunk, limbs, &c., as on the length of scantling. Thus it may, no doubt, be perfectly true, as was before stated, that, other things being equal, of two trees, that which was isolated, and therefore fully exposed to the action of heat and light, and also a much greater extent of field for the supply of its food, will, in the course of a given number of years, increase in solid contents one way and another more than the one which is situated in a closely wooded plantation, having a limited extent of pasturage for its support. Yet this difference in the amount of growth does not compensate for the difference in the value of the growth per cubic foot and per acre. Trees that grow close together soon lose their lower branches, and the trunk, though it does not increase so much in diameter, increases greatly in length, and the timber is much finer than that of isolated trees. The limbs and heads of trees, where they have been allowed to grow solitarily, may be considered as about three-fourths the weight of the whole, while in trees raised together in a plantation they not unfrequently bear so small a proportion to the whole as one quarter only.

**Selling timber to railways.**—What "Yorkshireman" speaks of with regard to the monopoly in supplying timber to railways no doubt still exists in some instances, but on most of the large lines it is a thing of the past. In the case of the line of which I know most contracts are arranged by public tender, and decided upon by the directors themselves. Of course, even in these cases the heads of the departments have to be relied upon to some extent, as knowing more of the credentials possessed by the parties tendering, but on the whole the contracts are meted out to such as supply the requirements best in price and quality.—D. J. Y.

**Origin of natural forests.**—The formation of forests obviously commenced in small groups, which afterwards spread over an area of greater or lesser extent, the size and form of the groups being necessarily regulated by circumstances. A seed carried by a bird or some other means was dropped in the midst of a barren waste. It grew and became a tree. After a time trees attain their maturity and bear seed, which is scattered around them. This also springs up, and a clump or plantation is thus formed around the parent plant. The plantation will increase annually in extent, and in this way natural forests are formed. They will probably consist of the same kind of tree if the soil and subsoil be uniform, or they may grow in masses of different trees, varying with the nature of the soil and of the climate. The slowness of this

natural productive process evidently precludes the possibility of our imitating it; for although we cannot adopt all the details of Nature's practice, we can and we should admit the correctness of the principle upon which she acts. Thus, we should plant thickly together, although we may not take the same method of putting our seed into the ground, and the only variety we should admit into our woods ought to be, as with her, that dependent on a variety of soil and situation.

## MEASURING GROWING TIMBER.

To those unaccustomed to measuring growing timber, says Mr. A. Peebles in the "Scottish Arboricultural Society's Transactions," it will appear a laborious undertaking to measure and value two or three thousand growing trees. It is not so difficult, however, as many imagine, and an expert hand will easily measure from 800 to 1000 trees in a day. We keep a staff of six or eight labourers to show the lots and assist in measuring the timber, and a few days before the sale the whole of them are employed with different parties. Each timber merchant requires two assistants; one carries a long pole marked in feet, and the other a leather strap, which indicates the side of the square. In going to work the man with the pole declares the height of the tree in feet; the man with the strap the side of the square in inches; and the timber merchant refers to his sliding rule for the contents. The measurer has to allow an inch, and sometimes more, for the taper of the tree from where the girth is taken to the centre of the portion he is measuring. Of course this is measuring with a centre girth; but an experienced measurer never goes higher than half the circumference of the butt, and adds the number of feet he considers the tree contains above that point. All these things are puzzling to a beginner, but it is astonishing how accurate an old practitioner's work is. Some contend that it is impossible to give an approximation of the contents of growing timber by means of a pole and strap. They argue that an experienced judgment and practised eye are more to be depended upon. If those using the pole and strap were to discard the eye and judgment there might be some force in this reasoning, but as they do not the whole argument falls to the ground. I speak from experience when I assert that there is seldom a difference of 5 per cent. in the measurements of the various purchasers, and when the lots are afterwards tested most of them are actually within 5 per cent. of the truth.

**How to make wood last.**—A writer in an American paper says: "I discovered many years ago that wood could be made to last longer than iron in the ground, but thought the process so simple that it was not well to make a stir about it. Posts of any wood can be prepared for less than two cents apiece. This is the recipe: Take boiled linseed oil, and stir in pulverised coal to the consistency of paint. Put a coat of this over timber, and there is not a man that will live to see it rot."

**Use for Birch bark.**—M. Peron, a Belgian, has invented a substance from Birch bark which is now used to perfume Russian leather. When the fine bark of the Birch tree is distilled it yields a red oil, nearly one-fourth of which consists of the special phenol or carbolic acid which gives a well-known odour to Russian leather. It is now found that the residue or green tar of the Birch yields neither acid nor alkaloid, and it forms with alcohol a solution of great fluidity, which, however, when once dried, is unacted upon by alcohol. It is this substance which will unite with the most brilliant colours, and is used by M. Peron for treating textile fabrics, and will, he thinks, render them almost indestructible.

**Undergrowth for covert.**—The selection of plants for this purpose must depend a great deal on the number of rabbits near the proposed site for planting and their destructive tendencies in his locality, as I think it is pretty clear there is a marked difference in this latter respect under certain conditions. There is hardly a tree or shrub with us, in a young state, that escapes the teeth of rabbits, arising partly, I fancy, from the fact that the herbage

of the park is coarse, sour and wiry, and consequently not at all to their taste all through the winter months. *Rhododendron ponticum* is the only thing they will not touch, and it is therefore a matter of necessity with us to plant it largely. A large area of ground here has been lately planted with *Rhododendron*, *Mahonia aquifolia*, the *Evergreen Privet*, and the *rotundifolia* variety of the common *Laurel*, with a few plants of *Pinus Laricio* dotted here and there among the shrubs. The latter, which claims immunity from the ravages of the rabbit, has with us been badly attacked, the stem gnawed a considerable distance and side-branches nipped close. The *Privet* has also suffered severely, but will in time make headway, and form good bushes in spite of its foe. The *Laurel* has also been nibbled, but not so severely as the *Pine* and *Privet*. *Rhododendrons* and *Mahonias* are at present unmolested, and with the view to keep up a good stock of the former we are taking up every seedling we can find and dibbling them in thickly in a sheltered spot, where layers of *Beech* leaves in the several stages of decay give us some inches of capital soil. The remarks by a writer in a recent number objecting to such an extensive planting of the *Rhododendron* for covert purposes, were doubtless well meant; but where rabbits are very troublesome, the planter has little choice in the matter. Under any circumstances, however, the varieties of shrubs named will form a dense cover, especially the *Privet* and *Laurel*, even if they are exposed to rabbits. It would be interesting as well as useful if persons in various parts of the country would give their experience of the best covert plants.—B.

## METHODS OF TIMBER-FELLING.

AS the ring of the saw and the axe of the woodman will soon be heard in the woods, the present time is opportune for a few remarks upon the men who perform the work and the methods by which they bring trees to the ground. It is a very common thing to look upon timber-felling and on the men who do the work from a poetical point of view, but when actually engaged in the fray the impression is very different. If the poet, who writes on the subject from the vantage ground of his armchair by the study fire, would only sally forth at day-break on the frosty morning, as the woodman has to do, and bring his ungloved hands into close relationship with the heat-absorbing iron and steel, or even the heavy handles of the axe or the saw, the sentiment would soon disappear, and the man of poetry would return with the impression that the work of the woodman was very matter-of-fact work indeed.

A strong arm, a quick eye, and an unfaltering nerve are among the essential qualifications of the woodman, as if he lacks either one of these his suitability for the work is materially lessened. For the use of the saw and the axe the utmost strain on the muscle is demanded; for safety when the tree begins to totter and fall the quick eye and the firm nerve are required to go hand-in-hand. The lot of the agricultural labourer is often looked upon as about the hardest in this country; but if hard work and a hard lot are synonymous, commend us to the woodman. At the first blush it may appear that the terms agricultural labourer and woodman are almost interchangeable, but this is by no means the case. Each has a certain amount of skill in his particular walk, but an efficient woodman treads hardly on the heels of the skilled artisan. The labour of the latter exceeds that of the former by, perhaps, one-half, and as a matter of justice his pay is generally in proportion. An inefficient woodman is more dangerous than the inefficient farm labourer, as while the latter if he bungles at his work can only impair the value of the crops of the year, the ignorant woodman runs the risk of seriously diminishing the returns from the produce of a lifetime.



So much, then, of the men, but now to the methods. These are generally in felling timber one of three, the two we first refer to being adapted for large timber, whilst the other, though common where the waste is not considered, is entirely unsuited to this country, except in the case of the smallest poles and plantation thinnings. The first, then, is the process of what is locally known as "grubbing," which in more intelligible language may be described as removing the soil around the tree from off its roots, and so barring them that by the axe and the pick they are readily severed, and so the tree falls. This plan has the merit of freeing the soil of the roots and stool as a whole, and in fields where the plough has to follow, or in pastures where every yard of space should be an object, it performs the two operations of felling the tree and lifting out its roots at one and the same time. It is true that after the tree has fallen the bole has to be severed from the roots by means of the saw before it can be removed or used, but with the advantage that the saw cut is in a natural vertical position instead of in the horizontal, and for the workman uncomfortable, position, it would have to take if it was standing. In hedgerows, too, where the tree grows directly in the line of the fence this method is desirable, as it admits of the planting of young Quick or Hawthorn plants, and thus preserve a live fence. Where the stools are left in the ground, this is, of course, impossible, and the patchy appearance of many fences with a rail here and there may be attributed to this cause. The work, however, when carried out in this way entails a greater cost than when felling by the saw is practised, and in the majority of cases the saw is the mode seen in use. So far as mere description goes, there is little to be said about this, the second method, as the sight of a couple of men in a stooping or kneeling posture, with a saw having a handle at each end at right angles to its cutting edge, is tolerably familiar to everyone. To the onlooker it is work which does not demand much skill, and it may seem to some to be a strong statement if we say that it would answer the purpose of the owner of the timber to pay one set of men to do the work if there were others by ready to do it for nothing. The case may be extreme, but we have sometimes met with trees felled by incompetent hands, where more timber—and that at the butt is, of course, the largest and most valuable—has been left in the ground than their wages would come to. The skilled timber-feller knows as if by intuition the exact point at which a tree should be severed, as, in a negative sense, going too low is almost as bad as cutting too high. The only other method to which we now refer is that of the exclusive use of the axe.

As we previously mentioned, where poles are very small and the use of the saw would be inconvenient and unnecessary, the axe is the right tool. Of course, in felling by the saw the axe is an important factor in removing the projecting roots to a line parallel with the trunk of the tree, and for cutting what is technically known as "a fall" on the side towards which the tree inclines; but here, with the larger tree, its use ends, and rightly too. It may be interesting enough to statesmen, and others in search of recreation, to hack and hew the best part of a tree to chips, but to the individual who conserves his property such waste is inadmissible. It is the practice in some parts of the country, even when poles have attained a sufficient size for pit-props, to hew away unmercifully with the axe. We remember some time ago we had a plantation of Larch to dispose of in a district where we were not

acquainted with the method in vogue with the woodmen. On our visit of inspection we found the poles which had been felled all pointed like lead pencils, instead of their butts being sawn off perfectly level, as they should have been. We need hardly add that we had to teach them a very different method, as going as this wood was by weight every chip represented money lost.

*Lyneham, Wilts.*

D. J. YEO.

#### WHEELWRIGHT'S TIMBER.

THERE are few things for which timber is used subjected to more wear and tear than the class of weight-carrying vehicles common to our roads and fields, and at the same time there is scarcely a class of work for which home-grown timber is more uniformly used. If, therefore, any proof of the superiority of our British woods for such purposes was wanted, it is here supplied in a marked manner. Taking the wheel of a vehicle as an instance, in nineteen cases out of twenty we find it is composed of either two or three of our commonest woods. For the nave, on which everything in the wheel depends, we are almost certain to find the Elm used; it is true that attempts have long been made to fit wooden spokes into iron naves, but with no great success. As a wood for the spoke the Oak will probably never be superseded, although occasionally other woods are introduced, some wheelwrights having a high opinion of the Acacia. For the heavier class of work, to which we now particularly refer, the Elm is in most cases used for felloes as well as naves. For continuous wear in towns the Ash or Beech is sometimes preferred, but for country use, where the vehicles damage more from exposure to sun, wind, and rain than by actual work, it is seldom that anything other than the Elm is employed. The primitive wheel was, no doubt, a very different affair to the modern one, and probably consisted of solid planks worked into circular shape. When the modern shape was first adopted we do not know, and it is beyond our purpose to inquire. There is no doubt, however, that it has existed for many centuries, and that from the time the first spoked wheel was made down to the present time nothing has been found to equal our native timber for the purpose. What is true of the wheel is equally true of the other parts of the vehicle, be it a Pickford's van, a timber carriage, or a farm wagon or cart. From the wheel to the pillars carrying the axles, from these to the framework of the bed, and to the boarding itself, for the best class of work not a scrap of foreign wood is, or need be, used. It is the case that some makers affect foreign deal for portions of the boarding, but for really hard wear it is no match for sound British Elm. Unfortunately, wheelwrights cannot consume a very large proportion of the timber here produced, but at the same time the quantity used is not so inconsiderable as may at first appear to be the case. The very durability of the woods to some extent tells against their more extensive use, as it is by no means uncommon to find the remains of a farm wagon which has stood the wear and tear of approaching half a century. All things, however, have an end, and these things, like the "wonderful one-horse shay," must one day be resolved to their original elements. When this occurs, the wheelwright, who is a true conservative, turns to the woods which have been growing whilst the others have been going to decay, evolves a new structure, and thus history repeats itself.

**Planting for heirs.**—Toying with fancy Conifers is neither so pleasant nor patriotic a pastime for the country gentleman as planting large breadths of timber trees with a view to shelter, effect, or profit, and in this respect we think his ancestors were much in advance of him; and yet we now have the advantage of a far richer *répertoire* to cull from than had their fathers for their selection of hardy subjects to embellish the home park or profitably clothe the barren moor or hill-side.

**The Swiss Stone Pine** (*Pinus Cembra*).—This Pine is capable of growing on a great variety of soils

and situations; in fact, I have planted it with great success on all classes of soil, from deep Irish peat bog to thin poor gravelly soil, resting upon granite rock, in the Highlands of Scotland. It has a sharp, conical habit of growth, and is well furnished with short branches from the ground upwards, thickly covered with leaves, slightly twisted, of a rich shining green colour, and from 2 inches to 3 inches long. As a general rule, Pines that are indigenous to high mountain scenery contract their leaves close to their stems and branches during winter more so than in summer, to prevent the lodgment of snow, and this species shows this peculiarity in a remarkable degree. Although it will thrive on flat peat bog at a low elevation, yet its natural home is on the top and sloping sides of alpine mountains, where it propagates itself by natural reproduction, spreading its strong roots in all directions among the chinks and fissures of rocks to enable it to do battle with the elements from all quarters. It is not a fast-growing tree, but its timber is fine-grained, of a slight brownish colour, resinous, and very fragrant. As an ornamental tree, when associated with others of a different exterior appearance, it gives contrast and variety, and is highly effective. *P. Cembra* is indigenous to the Alps and Carpathian Mountains, as well as Siberia, where it is said to attain a height ranging from 50 feet to 100 feet.—J. B. W.

#### ABIES ALBERTIANA.

THIS handsome North American Spruce, in foliage and general appearance of the tree, has a strong resemblance to that of the Hemlock Spruce (*A. canadensis*); it is, however, more conical in its habit of growth than the latter, and as it has now proved to be perfectly hardy and of rapid growth, I consider it a great acquisition to any collection, and perhaps it would not be too much to say that when its merits are better known it will be planted extensively as a forest tree for its timber.

In Ireland I have planted this tree with success on clay loam resting upon a clay subsoil, which contained a mixture of small stones in its composition to give porosity and render it capable of being thoroughly drained. I may, however, explain that the ground was not only drained in an efficient manner, but the subsoil broken up mechanically in order to admit air and rain water to render the mineral ingredients which it contained active and fertile to supply food for the roots. Under such treatment the trees made rapid progress in this class of soil, and are still maintained in perfect health and vigour, and so far give promise of attaining large dimensions.

On the same property I have planted this tree with good results on a soil very different in every respect from that of the former, namely, thoroughly decomposed peat-bog mixed with a small quantity of clay; stiff, ochry clay, as well as that of a whitish colour and mixed with sand, should be avoided, as they are generally of a poor character, and add but little to the fertility of any soil. The best clay for mixing with poor peaty soils is such as can be squeezed into a lump by the pressure of the hand, and, when the surface is wetted, that feels soft and greasy to the touch. In using the clay, my practice has been to lay it down upon the surface of the ground in autumn at the places where the trees are to be planted in spring. Here it remains exposed to frost during winter, and is then in prime condition for mixing with the bog at the time of planting.

In this way I have grown some fine trees of this Spruce in such a soil, and although not in large quantities, yet to such an extent as to warrant us in recommending its culture to others under similar circumstances. These trees are growing at an elevation of from 60 feet



to 80 feet above sea-level, and upwards of 30 miles inland from the same. I have recently examined some trees of the same species growing at an elevation of 926 feet above sea-level and some 40 miles inland from the same. The soil here belongs to a different class altogether from any of the former, being of a light siliceous nature mixed with small pebbles, notwithstanding which the trees are in excellent health, although the foliage is less dense and profuse than such as clothe the trees at a lower elevation.

J. B. WEBSTER.

### HARVESTING TIMBER.

A GREAT deal has been said and written on the planting and management of plantations, but very little has been said on the proper time and mode of harvesting them. Notwithstanding, however, the neglect which this branch of the subject has hitherto sustained, it is one of the greatest importance, as we shall show that heavy losses are frequently due merely to improper management as to the period of bringing the timber of a plantation to the market. Trees should be felled as soon as their growth becomes unprofitable, and this is the case whenever their annual increase of growth is of less value than the interest upon the sum for which they could be sold. It must be evident that, though the value of a plantation may increase £10 annually owing to a yearly increase of bulk, yet it must be our interest to cut it down if, by bringing it to market, we could obtain £15 interest per annum for its value. We by so doing not only gain £5 a year, but the ground otherwise occupied by the wood becomes available for other purposes. It should, therefore, be the object of the forester to ascertain the period when the growth of the plantation is unprofitable. This knowledge can only be obtained by repeated measurements and comparisons of the growth of one year with another. Signs of decay are very easily distinguished, but they should never be allowed to make their appearance in the trees of a well-managed plantation. We often hear it observed of a tree, "it should be cut down, for it has done growing; it is beginning to decay," or "it is dead," whereas it is more than probable that the trees should have been cut down many years, perhaps generations, before, and the proprietor has all this time been sustaining a great annual loss. There are instances in which the loss sustained in this way may be proved to be immense.

The great Spanish Chestnut tree in the Earl of Ducie's estate at Tortworth, Gloucestershire, which in 1759 was  $46\frac{1}{2}$  feet in circumference, cannot be less than 1100 years old, probably much older. Suppose it increased annually the first century  $1\frac{1}{4}$  inches in circumference, 1 inch per annum during the second century, three-quarters of an inch during the third, half-inch during the fourth, one-third of an inch during the fifth, and 30 inches per century for the next 500 years, *e.g.* :—

The First	100 yrs. at $1\frac{1}{4}$ in. in circum. peryr.	125 in.
Second	100 " " " " "	100 "
Third	100 " $0\frac{3}{4}$ " " " "	75 "
Fourth	100 " $0\frac{1}{2}$ " " " "	50 "
Fifth	100 " $0\frac{1}{3}$ " " " "	33 $\frac{1}{3}$ "
First	500 " " " " "	383 $\frac{1}{2}$ "
Second	500 (30 inches per century) " " " "	150 "
	100 " " " " "	24 $\frac{1}{2}$ "
	1100	Divided by 12) 558
		$46\frac{1}{2}$ ft.

Now suppose the tree to have grown profitably for the first 500 years, and to have then been

felled, and suppose that it was then worth and was sold for the sum of £1. Forty periods of fifteen years have elapsed since that time. What an immense sum this £1 would have amounted to had it been placed out at interest during this period. It would have doubled itself at the end of every fifteen years, and this sum thus calculated is independent of the value of the crops that might have been raised on the ground still occupied by the tree. A loss similar to this is being sustained by every proprietor who, owing to his own negligence or that of his forester, allows his plantations to decay before being brought to the market.

There are very few individuals who hear of the progress and growth of what they have planted, and yet there is no other way of securing ourselves against this loss, for although there are many signs which indicate decay in a tree, there are none which point out the period when it has reached its greatest yearly growth. This period will vary with many local circumstances. It will be dependent on the kind of tree grown and on the nature of the soil and situation, being later in those trees which are raised on a soil and in a situation most fitted for it. Thus Oak will grow profitably longer on a clay soil than on any other, Elm on a deep loam, Beech on a calcareous soil, and the Pine tribe in bleak situations—those being natural to them. The only accurate way, however, of determining this period is by the measurement of the annual growth of the tree, and every proprietor of a timbered estate should have his plantation looked over by a person qualified to report on the state of their growth, and all those trees whose growth is unprofitable should at once be brought to the market. Trees, if possible, should be cut down in the month of October, in a year in which there has been a good crop of seeds, so that their places may be supplied by young plants at no expense.

### PRUNING FOREST TREES.

It is not clear from the remarks of Mr. J. N. Blunt (p. 304) whether he is for or against pruning; or whether he would like to poise somewhere betwixt and between what he calls the two extremes. He says: "Some argue that trees should be left untouched, or nearly so, whilst others go in for extensive thinning and pruning. The truth probably lies between the two extremes, but nearer the former than the latter." Mr. Blunt here forms the mean of the extremes, and, after making some random remarks, he says: "Into this, in this connection, it is not my purpose at present to enter." Why not enter into it after so much talk? Why, when having reached the vital point, turn away and leave the question in as great obscurity as ever? Well, why will not Mr. Blunt enter into this? Either because he has not anything new to impart, or if he has anything to say, he knows it will not add much to the sum of knowledge, thus showing his wisdom in his silence. But that is not correct, as Mr. Blunt has something to say about it, for he observes that "What, however, I must take exception to is the statement that timber is in any sense improved in quality by chopping or lopping." Mr. Blunt is not the only one who will take exception, and objection, too, to such barbarous treatment of timber as his chopping and lopping; but wherein does he find such treatment advocated? Those who advocate such treatment deserve to be themselves treated in the same manner. Again, what is the meaning of such a remark as this, "If when a young tree was pruned the growth of the stem was entirely checked, and the growth of the tree directed upwards, there may be something in it," &c.? What may there be something in? They are obviously very meaningless, and are stated rather to bewilder than to enlighten. How could the "growth of the stem be entirely checked," and at the same time the "growth of the tree be directed upwards"? for is not the growth of

the stem the same thing as the growth of the tree, or at any rate concurrent, and not separate vitality? "When a branch is removed, the growth of an infinity of small ones is induced." That may be if the operation is overdone and done at the wrong time. Branches which spring from the epidermis is the consequence of untimely and severe pruning, and is due to the ignorance of the pruner. Still, when secondary branches follow the operation of pruning they are very easily got rid of and do the timber no harm, as Mr. Blunt endeavours to make out.

If the badly-pruned hedgerow Elm timber of Buckinghamshire be that which Mr. Blunt founds his strictures on, it is no wonder they are feeble. Probably the farmers do all the pruning there; and what do they know about the meaning of pruning? What is meant by pruning is having the work done by practical men, who can do the work skilfully—men who know when and where to begin and when and where to leave off; men who have a just conception of the feelings of trees or their sensitiveness to injury.

Mr. Blunt should bear in mind that no subject touching upon any branch of forestry is threadbare so long as it is not finally fixed as to what constitutes correct teaching.

GLENDYCE.

### PLANTING ON PEAT BOG.

IN renovating a neglected plantation on peat bog some years ago in the north of Ireland, the following particulars concerning it may be worth recording: By counting the concentric rings of the trunks the trees appeared to be about eighty years old. They consisted of Larch, Spruce, Scotch Fir, Alder, Oak, Beech, Lime, Horse Chestnut, Birch, Spanish Chestnut, Sycamore, Poplar, Gean, Ash, and Holly. The trees had never been properly thinned, and were growing in an irregular manner, sometimes to within 3 feet or 4 feet of each other, while others had a clear space of some 10 feet or 12 feet. A couple of groups of common Laurel had been planted as underwood, each of which contained about an acre, and as these had never been pruned or cut down they formed a complete thicket, some of them being upwards of 20 feet in height, while others had been laid prostrate by snow in winter, and the tops and branches having rooted themselves into the soft bog they presented an impenetrable thicket, so that in cutting down and reducing their dimensions we had to work our way from the outside to the interior. These Laurels were sold at 10s. per ton, the purchaser to take all shapes and sizes from branches of  $1\frac{1}{2}$  inches in diameter up to the largest sizes, and also to take their delivery on his own hands from the plantation. The quantity cut from the two groups amounted to 40 tons, and realised £20 nett.

In places where the Larch and Spruce were confined they were drawn up into fine clean poles with very little taper, and had attained an average height of from 70 feet to 80 feet; they were very valuable for masts and other purposes where clean, well-matured timber free of knots is requisite. In places, however, where the trees were less confined and had room for development they had grown into fine clean boles with a circumference of about 4 feet above the swell of the roots. They carried their thickness upwards according to their height in a remarkable degree, and for the most part were quite as straight, and surmounted by a fine canopy of spray and branches at their tops. Some of the Spruces were of larger size than the dimensions given above. All the trees of both species were perfectly free from disease. The Scotch Fir had also attained a fair average size, and were in perfect health. Ash and Oak were both small in size and inferior in quality; they are not adapted for planting on deep peat bog, but in places where the bog is but a few feet in



depth, and where the roots can reach a clay subsoil, they both do fairly well, and the quality of the wood is excellent. Birch and Poplar had both attained a fair size and are perfectly at home on bog, but a few trees of both kinds were affected with heart-rot. Spanish Chestnut is perfectly at home on bog, and when allowed plenty of room for development it makes fine specimen trees in such situations; the timber is, moreover, seldom affected by section-shake and ring-shake. It is, likewise, very suitable for growing in such places as a coppice wood. There were, likewise, some fine trees of the common Alder, some of which had attained a height of fully 60 feet, the stems being straight and free of branches for a distance of 40 feet and 50 feet, and as they girthed from 4 feet to 5 feet at a yard from the ground, and carried up their thickness in fine proportion to their height, they were very valuable. None of these showed any trace of disease.

THE BEECHES like plenty of room for development, and in places where not too much crowded there were really some good trees, the largest of which had a clean straight stem of 23 feet in length, and a diameter of upwards of 22 inches at the small end, and was large enough for the making of two beetling beams. These beams are generally 11 feet long and 22 inches in diameter, and are commonly sold at £2. 10s. each, so that the tree was good value for £5, independent of the top. This tree, however, was not cut, and is in perfect health and still making wood. Common Lime and Horse Chestnut are both suitable for bog planting, and in places not too much confined there were some good trees, well furnished with branches and in perfect health. The Sycamore had attained a fair average size, and, except in places where they were too much crowded, presented good timber trees, free of disease and the timber of good quality. This species propagates itself quite freely in such places by natural reproduction, and is a valuable tree for bog planting. The Gean, or common Cherry, is quite at home on peat bog; some of the trees, however, had contracted heart-rot, so that, like the Birch and Poplar, it should be cut when at maturity before decomposition commences. Common Holly thrives admirably on bog, and as it retains its verdure and healthy development in thickets and under the drip of other trees, it was quite at home in this plantation, and has proved to be invaluable for planting as underwood in such positions.

The site of this plantation is about 60 feet above sea-level, and previous to planting the bog had been cut over for fuel, but not to such an extent that the roots of the tree could reach the clay upon which the bog rested, at least with the exception of some trees along the margin, but these we have not taken into account in the foregoing remarks. The bog was thoroughly drained, and a liberal allowance of soil appeared to have been mixed with the former at the time of planting the trees. The foregoing list may be useful as an index of hardy trees suitable for planting on such situations; and although the extent of barren peat bogs in Great Britain and Ireland is of vast extent, still the trees capable of growing and giving a profitable return on such soils will be found to be equal to the requirements.

J. B. W.

**Cutting up firewood.**—It may not occur to all your readers who have quantities of firewood lying by which they do not burn, on account of the labour entailed in sawing and otherwise getting into usable shape, that a cheap and efficient way of preparing it for use is by aid of the circular saw. I do not mean

that they should go to the expense of purchasing machinery for the purpose of cutting up the wood, but where there is no machinery on the estate it is generally practicable to hire a portable threshing engine and a saw bench to have the work done. Almost any kind of circular saw and bench will answer, and very often such a thing is attached to a threshing plant; where it is not it is generally to be hired within a few miles, and it does not want a lot of skill to manage, as cutting up logs of wood is a different operation to cutting out boards to a given size. When men are inexperienced, caution should be taken not to get entangled with the rapidly revolving saw. A couple of days' work with engine and bench will lay in sufficient store of firewood for the winter season for a moderately large establishment. Those who try it will not be disappointed in the result.—D. J. Y.

#### TREE PLANTING ON STRONG LAND.

IN the collapse of poor strong land from an agricultural standpoint, it is probable that the best possible investment would be planting such a mixture of trees as would result, after the nurse trees had accomplished their training work and been removed, in a forest of hard-wood timber, which would eventually pay a handsome rent and interest on outlay. Authorities differ as to the mixture of trees, the preparation of the land, and the mode of planting; we shall content ourselves on the present occasion with describing the practice which we ourselves have followed with advantage.

The first point which we deem of vital importance is thorough surface drainage—a matter that is often entirely neglected, though it is just as impossible to grow healthy timber in a water-logged soil as corn. But we do not require such a depth of dry soil; hence under-draining is not necessary or desirable, because the roots of hard-woods would inevitably enter the drains, and soon destroy efficiency. Supposing that it is decided to plant an exhausted and wet arable field which is not landed—*i.e.*, is flat—the following is the programme we recommend: First, to thoroughly work the land by the process known as summer fallowing, so as to get all the benefit possible from the summer heat. When the land has been thoroughly worked, it should be laid out in either six or eight yards' lands, according to the stiffness of the soil, out of which should be allowed 18-inch top for ditches between the lands. By careful ploughing, the tops of the lands can be slightly raised, and the soil from the ditches can be evenly distributed over the surface. The next point is to carefully dig out the trenches, which should not be less than 18 inches deep, with a 9-inch bottom. If the country is flat, we should contrive outlets by cross ditches every five or six chains; if the land is sidling, the mains can be farther apart. The thorough division of the soil by fallowing, and the dryness secured by the grips, insure a healthy matrix for the young plant; and it is really astonishing to witness the healthy and rapid growth of plants such as Larch and Scotch Fir, which naturally flourish best in a dry light soil, and which is entirely due to the fine condition of land induced by the fallowing processes and the drainage caused by the grips.

It is during the early life of a mixed plantation that the importance of surface drainage is most apparent. After the soft woods are removed, the timber trees will have such a network of roots spread under all the surface that a quantity of the rainfall is absorbed, and it is by giving out the bulk of this water through the leaves that forests possess their beneficial influence in counteracting droughts. The effect of forests on climate and rainfall has been proved by costly experience in India. Formerly large portions of the surface were covered with scrub. This has been largely removed and replaced by cultivated crops, and, in too many cases, little or nothing has been attempted by way of new forests. The terrible droughts of late years, resulting in famine and fearful loss of life, have been greatly aggravated by the absence of a proper proportion of coppice. Even here in our sea-girt isle, the removal of timber, which has been always going on since the earliest times, has undoubtedly affected our climate; but we

are so largely influenced by the sea, that results are not so apparent as over large continents. In America the ruthless war waged against forests has done great mischief, and steps are now being taken in many of the States to control the cutting of timber, and, in some instances, to encourage re-planting.

There is another use in forests, which is much more important here than their influence on rainfall, and that is the valuable shelter they afford. And thus in exposed situations, whilst we may utilise otherwise almost valueless land, and eventually get a substantial return, we may at the same time add considerably to the value of adjoining fields by sheltering them from the full force of the blast. Judicious planting with a view to shelter is most desirable, and this just in proportion to altitude and exposure. On another occasion we shall have something to say as to the planting of hillsides and at high altitudes, as to which desirable work many Scotch proprietors have shown such a good example.

We return from this digression to consider the treatment of the poor clay soil. The first question, after the preparation of the land, is the kind of trees that will pay best. As to the permanent crop, we have not a large selection, *viz.*, Oak, Ash, and Sycamore. The first is the slowest, and in really poor clay will hardly make fine wood. Moreover, being so slow, especially in its early life, there is a risk of its being smothered by the soft woods, although, of course, this should be guarded against by judicious thinnings. Ash offers great inducements at the present time, as such timber is scarce, and often more valuable than Oak. Since 1845, when a great raid was very properly commenced on hedgerow trees, a vast quantity of Ash has been removed, and comparatively little has been planted. At the same time the great development of the implement trade has caused increased consumption; so it has come to pass that a comparatively fast-growing wood, quite equal to a third more production in a given time than Oak, has attained an equal, and in some cases even greater value. Good, clean, tough Ash is much in demand; and it should be borne in mind, as an item in its favour for the case we are describing, that if properly nursed, so as to secure clean growth, it is sure in such a soil to be of good quality, because very rapid growth is out of the question. There is another merit in Ash over Oak, which is the greater comparative value of trees of small scantling. Oaks under 20 feet are of little use, whereas it is just such Ash wood that wheelwrights delight in. It is not a good plan as a rule to mix hard woods, though this is often done. It is preferable to keep them separate, even though we employ them in the same plantation.

There are strong reasons why more attention should be given to the growing of Ash timber, but neither Ash nor Oak are so well suited to bad clay land as the great Maple or Sycamore tree, which, though not a native of the country, might also be called the weed of strong soils, whilst in hardness and rapidity of growth it beats both Ash and Oak all to nothing. There is no fear of its being overpowered by the nurse trees; it will hold its own, and as the trees come to maturity we often get a rare crop of seedlings, which can be taken up and planted out safely for another crop. The quality of the timber is not so close-grained or compact as either Oak or Ash, but trees of large size are valuable for furniture, and especially for turning; and straight, well-grown trees containing 40 feet or 50 feet are often more valuable than Oak of similar scantling. Though less solid than Oak, Sycamore is not a wood that warps to any great extent, and, therefore, is useful for boards. Its clean white or mottled appearance, and its capability of taking a high polish and presenting a satiny appearance, make it valuable for furniture work, and there is every reason to expect that it will maintain a fair market value, which, considering its rapidity of growth, pays well enough. We therefore strongly advise its use for the main crop on poor strong land, in preference to either Oak or Ash.

What are the other materials of our plantation? As they will comprise at least three-fourths of the whole, this is an important consideration, for the permanent crop should not be nearer than 4 yards each way; and supposing the trees are placed 3 feet apart, which is as close as is desirable, it is evident



that a good deal of judgment will be required so as to arrange the different members of the group that each shall flourish. If the lines are laid out 3 feet apart, and the beds are 6 yards wide, and 1 foot 6 inches are occupied by the ditches, we have  $5\frac{1}{2}$  yards available for the trees, and this will accommodate five rows. It will be well to put the permanent crop in the centre row, which will bring the trees rather more than 4 yards apart between the row, by 4 yards in the rows. It will be easy to make the plan so that they shall not be opposite each other.

With well-gripped land, Larches make excellent nurses, and as they do not spread out so rankly, these should be placed on either side of the permanent crop, with a Spruce or Scotch in the middle. The former are much more suitable to strong land than the latter, and we should use mostly Spruce and Larch, with a few Alder and Poplar. The latter are likely to grow too rapidly and overshadow the rest. The rows of plants not containing the permanent crop may be planted at discretion, with Larch as the main crop, green trees being introduced here and there for shelter and variety; but care should be exercised not to have Spruce or Scotch immediately adjoining the permanent crop. Planting should proceed from November to March. If the land is dry, as it must be if properly gripped, the holes may be dug in advance, the cost of holing and planting being from £1 to £1.10s. per thousand, according to size. The soil thrown out gets reduced by exposure to frost. Much depends upon the care exercised in spreading out the rootlets and filling in and treading the soil; the more consolidated the better. However carefully the work is done, it is impossible to get the requisite firmness at the first operation, and therefore it is a very profitable business to go over the work in March, place soil round the stem, and tread firm. Many a loose-rooted plant may thus be saved, and the plants will make a more even start.

However careful we are in the selection of nursery stock and in the mode of planting, a considerable proportion of the plants die, and must be replaced the following winter. If we contemplate extensive plantations, we must prepare by growing the young trees. This is a special business, which pays well under proper care. The seed has to be struck in different ways, according to the nature of the plant, and the seedlings bedded out and moved once before they are ready for use. These, then, are known as stock that has been twice transplanted, and are about 2 feet to 3 feet high, with a considerable root growth.

It is very foolish policy, after incurring so much expense in preparing the ground, and probably in fencing it in, to use any but the best plants, which will have a chance of getting ahead of the weeds, which are sure to prevail. These weeds may become a serious evil if they top the plants, as the latter suffer for want of air; so long as the top of the plant is uncovered, all is well, and weeds tend to draw up the plant, which is desirable.

The question of fencing is most serious, and the cost will mainly depend upon the presence or absence of rabbits. When we have these pests there is no safety, save in placing rabbit wire 3 feet high round the plantation. Formerly we attached the lower side of the wire to Scotch Fir boards 7 inches to 8 inches deep, which we let into the soil; but recently we have discarded the boards, and either bury the wire to the same depth or peg down 6 inches or 8 inches at right angles, which we think is really the better plan, for when the rabbits get on the wire they are much discomfited, and give up their designs. On another occasion we shall describe the growth of the various plants from seed and the mode of planting hillsides.

The cost of making a plantation such as has been described rabbit-proof will not be less, under favourable circumstances, than £15 an acre, and may often reach £20—a large outlay, which, however, will have been well spent if the trees get a good start and grow right away.—*Field*.

**Gathering Fir cones for stock.**—It is now a well-established fact that stunted and decrepit specimens are prone to produce cones more abundantly than vigorous healthy trees. I am not in a

position to say whether the nurserymen in Scotland, who raise such enormous numbers of seedling Pines, gather their seeds from such trees or not; but should this be really the case, it would be well for planters and for those nurserymen who purchase quantities of one-year-old seedlings from northern growers to enquire into the matter. That stunted Pine trees bear cones freely cannot be questioned; but that they are more prolific than fine old full-grown trees, no one really acquainted with the Pine would maintain. This is an important question for landed proprietors and those interested in the commercial value of timber trees.—*OLD FORESTER*.

#### SEASONABLE WORK.

**PLANTING.**—Continue the preparation of ground for new plantations by draining, fencing, and opening pits of sufficient size for the trees to be planted, and in all cases where the subsoil consists of hard till, have such well broken up, which will not only be favourable to the young plants at the outset, but will also have a decided effect on the healthy development of the trees in after life. On exposed situations near the seaboard, barren Heather moors and bleak peat bogs, I have found a screen fence erected on the most exposed points of the plantation to be of immense advantage in the way of procuring shelter for the young trees. Such a screen fence may be erected by planting a line of wooden posts along the line of fence about 6 feet apart; then by stretching four horizontal wires along the fence and attaching them securely to the posts, and warping branches through the former, a useful and efficient screen fence can be erected at small cost. In cases where it was not convenient to procure branches, I have used Heather and Bog Myrtle for warping through the wires, both of which answer the same purpose admirably. In cases where the fence is not to be of a permanent nature, the size of the wire used may be No. 6 gauge, which will be quite efficient for the purpose. The posts may be made from young trees, the thinnings of young plantations, tree tops, or other wood of little value; efficiency and economy should always be the forester's consideration.

**THINNING.**—Assuming that pruning operations have been finished for the season, thinning young plantations should now have special attention, and, in carrying out the work, care should be taken not to overdo it by cutting too many trees out at one time. In thinning plantations, two things should always be kept in view; first, to see that the development of the trees is not retarded by being too crowded, and, second, to see that the health and growth of the trees never suffer by too sudden exposure; so that the work of thinning should go on gradually, always trying, as far as possible, to avoid extremes, by which means the health and vigour of the trees will be promoted, and the most satisfactory results attained. In thinning mixed hardwood plantations, it sometimes occurs that a tree planted for a nurse is beginning to press too close upon a hardwood tree that is to be retained, and, from the particular position of the trees, were the former cut away at once, it might leave the latter in rather an isolated position by allowing it too much space for its size at the time. Under such conditions I have found it a good plan to cut back the side branches of the nurse, and retain it till such time as the hardwood occupied the space thus afforded, when the former can then be removed to better advantage. I have sometimes seen thinning and pruning carried on at one time in the same plantation during autumn and winter, but trees so treated often contract disease, so that the system is not to be commended.

**NURSERY.**—The planting of two-year seedling or bedded Scotch Fir and Larch into nursery rows may now be done advantageously; likewise plant in the same way other hardy species of young Coniferae, as well as other well-rooted plants raised from cuttings, as they will soon take to the soil at this season, and will not be apt to be thrown out of the ground during winter by frost. Seedling Hollies, Barberries of sorts, Rhododendrons, &c., may all be treated in the same way. Collect tree seeds as they ripen, such as Horse and Spanish Chestnuts, Walnuts, and Oaks. These may be sown at once on well-prepared ground,

not of too heavy a texture, in good condition, and free from weeds. The seeds of Beech, Maples, &c., had better be kept till sowing time in spring, as the plants are apt to suffer by spring frosts when the seeds are committed to the ground in autumn. Collect the cones of different species of Picea and other kinds that ripen their seeds in autumn; choose a fine day for the purpose, and store them away in a dry place till wanted in spring. Haws that have been kept in sand-pits for a season should now be sown on well-prepared ground, choosing a fine dry day for the operation. All unoccupied ground should be dug up into rough ridges to keep it dry and admit the influence of frost during winter, but in cases where the soil has become exhausted, a dressing of well decomposed manure mixed with the soil at the time of digging will be beneficial. Turn over and prepare compost-heaps to induce decomposition, so that the stuff may be ready for use when wanted.

J. B. W.

**Band saws.**—The successful use of these saws in this country has a comparatively short history, yet, as someone remarked in a paper with reference to them, the sight of a well-made, well-set, and well-sharpened band saw working on a good machine is as pleasing a thing as a lover of smoothly working machinery could wish to see. It is, therefore, true that for many purposes in the cutting up of the smaller dimensions of home-grown timber, especially in curved lines, the band saw stands alone. As the machine is now constructed, it can be purchased at a reasonable cost, can be driven by a small motive power, and, moreover, when once understood, is easily managed. It is, of course, generally found in connection with other machines, as the kind commonly used in this country would not do the work of the circular, but such as contemplate going in for saw-mill machinery would do well to consider how far it is adapted to their uses. In the matter of portability there is nothing to be desired.—D.

**Value of the Black Poplar.**—The Black Italian Poplar is well known to be one of our fastest growing forest trees, but it is not so highly valued as it ought to be, or it would occupy a much more prominent place in our plantations than it does at present. As a remunerative tree it holds a high, if not the very highest place. I have just sold a small plantation about forty years old, consisting chiefly of this fine Poplar, which I anticipate will realise fully £140 an acre. This is a sum I need scarcely say that is seldom obtained for an acre of timber of any description in Ireland. Some of the trees in this plantation have grown with almost unparalleled rapidity. Many of them have clean straight boles of from 80 feet to 100 feet, and contain from 130 cubic feet to 150 cubic feet of timber. This tree, in my opinion, ought to be much more extensively planted than it has yet been.—D. R.

**Time for timber-felling.**—Often the inferiority of timber, such as its tendency to decay and dry-rot, are wholly due to the timber having been felled at improper seasons and to its subsequent injudicious treatment. To fell trees in March, April, and even in May, as is now often done, is absolute folly. Timber intended for builders, or for the use of coopers and wheelwrights, should never be cut except in December or January, when the circulation of the sap is arrested. November, even, is too early, and February too late to insure its durability. Its subsequent treatment, too, greatly influences the quality of the wood. The tree should be freed from all branches and shoots immediately it is cut down, and sawn into planks as soon as possible, so that these may at once be seasoned by exposure to the air. In this way alone can we obtain wood that will keep well, and every purchaser of timber should insist upon its being prepared in accordance with these directions.—X.

**Douglas Fir for covert.**—With those who preserve game, the Spruce is a favourite covert tree, as pheasants are known to be fond of its friendly shelter, and cannot be seen in it by poachers at night, but as the Douglas Fir sends out its branches in the same horizontal way, it is just as useful for the same purpose, and of far more value in every other respect.—D.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## FLOWER GARDEN.

### PLANTS FOR MARGINS OF LAKES.

It is often difficult to know what to plant on the margins of water, as much depends on the habit and appearance of the plants used for that purpose. Nor must the forms which their shadows have on the water be overlooked. The following I know from experience are fit for the purpose; they are all easily grown, hardy, and require no very expensive preparation of the soil in order to induce them to succeed. *Tritomas* make excellent water-side plants placed about 2 feet from the water's edge; their long drooping leaves hang over and touch the water, and in such positions their richly-coloured spikes of bloom are very effective; they require abundance of moisture at the root, particularly if the water is bottomed artificially; when bottomed with concrete, no matter how near the water's edge the roots may be, no benefit in the way of moisture is experienced, such as would be derived from a clay-bottomed or naturally made lake. Last April we planted a small plant of *T. glaucescens* in such a position, and now it has sixteen stately flower-spikes. This variety comes first into flower, and is succeeded by *Uvaria* and *grandis*. If all three kinds are planted, a succession of flowers may be had. There is but little difference amongst these as regards colour, but *grandis* has the largest flower-spikes. The *Pampas Grass* has a fine effect either in bloom or not. It should be planted 8 feet or 10 feet from the edge of the lake, and during summer be freely supplied with water. The reflection of its long plumes of flower is particularly good. *Arundo conspicua* is another plant well adapted for such a purpose, and it comes into bloom at the same time as the *Tritomas*. It is, therefore, best planted in close proximity to them, the contrast in the way of colour between the two being good. *Statice latifolia* succeeds well near water, especially if planted close to the margin, where its lovely blue flowers are produced in profusion. Plants of this variety can be easily raised from seeds sown in pans on a gentle hotbed in spring; when large enough to handle, they should be planted out on a border and allowed to remain there till they have reached a good size, when they may be planted in their permanent quarters. The double-flowered *Caltha palustris* is also a suitable plant to place near the water's edge, or, if necessary, partly in the water; its golden yellow flowers are freely produced and are very showy in spring and summer; it is easily increased by dividing the roots. Some of the Bamboos, such as *B. Metake*,

are hardy and look well when planted close to the edge of the water, on which the reflection of their graceful forms is charmingly effective. The New Zealand Flaxes (*Phormium tenax* and *P. tenax variegatum*) are specially adapted for planting near water, either amongst rocks or otherwise, but the more elevated the better. They are easily increased by dividing the roots; if planted among rocks, they should rise out of a carpet of *Herniaria glabra*, or some such carpeting plant. *Hypericum patulum* (St. John's Wort), when planted in a mass, is also strikingly pretty when in bloom; it grows freely, and if only for its foliage effects it is well worth a place close to the margin of water. A little peat added to the soil greatly assists its growth. *Agapanthus umbellatus* is another plant well worth a trial near water. If planted in an elevated position among rocks, it will be much more likely to succeed than when on level ground. It flowers freely in summer, and should be well supplied with water at the roots when making its growth. Solomon's Seal, owing to its long arching stems, is well fitted for planting close to water. It looks best in a bold mass. When so treated the ground should be planted with some carpet plant, such as *Sedum glaucum*, which will look well after the stems of Solomon's Seal have died down in winter. The common Hart's-tongue Fern (*Scolopendrium vulgare*), being evergreen, is also very effective when planted in groups in such situations. The deep green fronds form conspicuous objects, particularly in autumn and during the winter months. *Garrya elliptica*, when planted amongst rocks, and so as to allow its drooping catkins to show their true character, has a graceful appearance. *Bocconia cordata* planted on Grass at a distance of, say, 6 feet from the water makes a capital water-side plant, its handsome leaves and branching spikes of white flowers being very effective. It grows freely, and is easily increased by dividing the roots in autumn or spring. *Lythrum roseum superbum* grows freely when planted on the margin of water, and so used is a grand plant. The same may also be said of *Spiræa Aruncus* and *venusta*, the white and pink flowers of which are very showy in summer. They should be planted either close to the edge of the water, or at a little distance off. They should have plenty of moisture at their roots during summer, in order that they may become portly specimens and well flowered. White and yellow Brooms when planted so as to hang over and almost touch the water look well; a somewhat elevated position suits them best. *Iris foetidissima*, being hardy and retaining its brightly coloured variegated foliage through the winter, is well adapted for planting close to water. Its dark blue flowers are produced freely in summer, and its fruit in autumn is always interesting. For summer decoration nothing is better suited than the various kinds of sub-tropical plants,

such as Palms, *Dracænas*, *Pandanads*, and *Ficus*. The pots in which these are growing should be plunged in the Grass, or the soil should be carpeted with some suitable plant. *Ricinus Gibsoni*, the dark leaved Castor-oil, *R. compactus* (green-leaved), various kinds of *Tobaccos*, *Solanums*, *Wigandias*, *Ferulas*, *Cannas*, *Eucalypti*, and variegated *Abutilons* are all effective plants, either singly or planted in masses. The common yellow and Scotch *Laburnums* also look well near water if elevated so that the drooping habit of the branches and long racemes of golden flowers can be seen to advantage.

E. MOLYNEUX.

### NOTES ON HARDY PLANTS.

WHITE JAPAN ANEMONE, so well known as, perhaps, the best hardy white flower out-of-doors in autumn, may be met with under very different conditions as regards bloom, and many complain that it does not flower freely, though established for several years. It is pretty certain that in order to obtain plenty of flowers, time is required in the case of this Windflower, and that only when the roots grow thick and woody can the tops produce big flowers in quantity. It is given to spreading by means of thread-like underground runners, and these hinder the development of the main roots in two ways: they draw strength from them, and the big leaves of the suckers prevent light and moisture from having full play on the old stools. The results are precisely such as we would have in Strawberry beds if untrimmed, *i.e.*, plenty of leaves and little else. The remedy, therefore, is to be found in doing exactly what is done annually for that fruit, *viz.*, cutting away all runners, the only difference being that one would have to go down with a spade for the Anemone runners. Clumps so dressed flower finely every year, and some such care is absolutely necessary in gardens consisting of deep rich loam. On rockwork the growth of this plant is quite different, much steadier, and on the higher parts it never fails to yield abundance of bloom with a minimum of herbage. It may seem a big plant for rockwork, but that all depends on style. In large rock gardens and in company of evergreen shrubs, fine autumn effects can be had by means of large masses. The *Tritomas* and rambling purple *Clematis* contrast well with clumps of white Anemone. I may add that varieties of this Anemone are being raised. One sent to me was said to be violet coloured, but though a pleasing purple, I can see no violet in it; reddish, rose, and blush-white are all now in cultivation. I noticed a nice batch of this Windflower in the Princes-street Gardens, Edinburgh, the other day.

COMMON FLOWERS.—These, unhappily, are not common enough. What can excel in beauty the Larkspurs, Bellflowers, *Ranunculuses*, *Aconites*, perennial Sunflowers, Day Lilies, St. John's Worts, Irises, and such-like things? Very likely their absence from many gardens is due to the desire to possess something uncommon. September and October are notoriously wanting as regards flowers, and such as we have are for the most part things which have been grown for centuries—Speedwells, Hollyhocks, Carnations, early *Chrysanthemums*, Heaths, *Clematises*, Peas, *Colchicums*, *Pentstemons*, Lilies, &c.; and of course, if they were more largely planted, as well as some of the kinds previously named, we should not be without bloom at the end of the season. Dahlias and a few more tender flowers now so largely cultivated are indispensable, but they not only make a full stop on the appearance of early frosts, but are absolute disfigurements to our borders afterwards; already they are done for here by the sharp frost of September 25.

DOUBLE-FLOWED CALTHA PALUSTRIS.—This is a well-known plant, and it sometimes flowers freely in autumn. It may be relied upon to do so every year with a little special culture, which it is well worthy of, for fresh-looking, orange-yellow flowers in the midst of deep green



foliage in October are always welcome. As with many other Ranunculads, the best results are to be obtained by cultivating single crowns. Thus grown, the root power is vastly increased, and all the other parts are, of course, increased in proportion. Roots divided last winter into single crowns, and set in moist quarters in which the soil was deeply dug and enriched, flowered in spring, and are now again blooming. The leaves are 8 inches across, and the flowers are 2 inches. I should not disturb these until the second year, but a batch will be treated alternately with them, so as to secure autumn bloom.

**FERULAS.**—These may well claim our notice, for they are exceedingly well adapted for the style of gardening now becoming so general. They have a massive habit, even one plant being effective. Fennels, however, such as *tingitana*, *communis*, and the varieties *gigantea* and *conspicua*, are plants of slow growth, and seedlings are three years before they make their mark in the open garden. In the earlier part of the summer some of the forms just named are anything but distinct, but at this season not only do the ripening leaves vary in their port, but some take on lovely tints, which contrast pleasingly with the deep green ones, which shine as if glazed. What handsome material these afford for cutting! The size of the leaves is well fitted for the big flowers most common in autumn, such as those of Hollyhocks, Dahlias, Gladioli, Phloxes, Sunflowers, &c. I find it best to make the soil rich and sandy for the young plants, and to raise it into hillocks 2 feet or more across and 10 inches high. This enables them to grow faster, as well as to show their large arching leaves to advantage, even before they get to a mature age. I also fancy that the tap-roots remain longer sound than they otherwise would do. They can certainly be better examined in winter and fresh soil supplied if needed. Another little attention these useful plants deserve; they are subject to black fly, especially late in summer. One or two applications of strong soapy water will do the ripening herbage no harm, and effectually clear it of this pest.

**GAZANIA LONGISCAPA.**—This is one of the best Composites introduced of late; numerous as yellow-flowered plants of this Order are, one could not refuse this brilliant, almost orange-hued, one a place in our gardens. I wonder if it will prove hardy. *Gazania* is not one of the hardest of genera, and the half-woody and half-succulent character of the stems and thick fleshy roots only increase one's fears. However, it will soon be put to the test; in the meantime, cuttings have been rooted and the young plants will be kept under protection. It flowers all through the summer and plenty of heads are yet opening; the leaves, too, are decorative and numerous, clean-looking, and nearly white underneath. It is one of those things which well deserves a little extra care if needed during winter.

**A COMBINATION.**—A row of the single Sunflower (*Helianthus multiflorus*) faced with another of Fuchsias of the old hardy sort, and then a somewhat broad planting of Colchicums; all these are now in full bloom, and all last long in good condition. The Fuchsia is rather late unless split up at the end of the season and replanted annually. Thus treated, it makes vigorous growth, and the branches are long and not too numerous; therefore light reaches all the wood and brings forth flowers earlier than they otherwise would be. Nothing could look gayier than these plants placed close together. The Fuchsia and the *Helianthus* retain their foliage perfect until severe frosts occur; indeed, till then they possess the freshness of spring, and the so-called Crocuses rather suggest the beginning than the finish of the floral season.

**A BIT OF GOOD BLUE** in October is afforded by *Veronica corymbosa*, the spikes of which are of a rich purple-blue and from 9 inches to 18 inches high. It is a true perennial, but it is when treated as a biennial that the best show of autumn bloom is experienced. Older plants may be induced to mend their manners if given a rich mulching in summer, through which they will soon grow with renewed vigour. This plant should not be overlooked when planting rockwork; the variegated form might seem desirable, but I think the contrast with the splashed foliage diminishes the effect of the flowers.

**EUPATORIUM FRASERI** is a Composite possessing better qualities than we are in the habit of giving it credit for. It is worth growing, and that is more than can be said of many ungainly things which year after year fail to push their flowers ere the frosts cut them off. For several weeks some half-dozen strong plants of it have been white all over with bloom, which at present is still abundant. I am sure all must appreciate so useful a plant, and yet one seldom meets with it. Though from the warm State of Carolina, it is perfectly hardy in the coldest of our winters. I had almost said that it only needed a place in the border among plants of its own stature of from 3 feet to 4 feet, but if it will do with little care, it will also repay high culture—such as making the soil light and rich with manure and dividing the roots in alternate batches biennially. This treatment will be productive of armfuls of white bloom in broadly branched corymbs—just the material for harvest decorations.

**THALICTRUM ANEMONOIDES.**—This is the best possible period in which to lift and divide the roots of this tuberous species. Many would say, "Why not let them alone?" Well, it might be best, but, cultivated in single crowns, even if but 2 inches asunder, they do much better than crowded with dwarf growths and carrying but few or no flowers. When planted thus the tubers develop a healthy group of delicate foliage and well-formed bloom of singular beauty. The sprouts begin to push shortly after the tops have dried up, and so brittle are they, as well as the tubercles, that they should be taken in hand when in their most condensed state; besides, the small portion of fibre which they make leaves no margin for waste, which doubtless there would be later on. Just now the tubers are perfectly formed. Many fail with this little plant, the tubers of which cannot resist too much moisture. The position for it should therefore be well drained, or if it is grown in pots the soil ought to be very porous. I find it to do well in turfy loam liberally mixed with nodules of wood charcoal.

**TRIFOLIUM UNIFLORUM.**—Let all who do not possess, or have failed to grow this well, make a note of it; for when seen in good form, as I saw it in the Edinburgh gardens a few days ago, it is simply one of the loveliest dwarf plants of the season. Until closely examined, one would take it to be anything but a Trefoil. The single, but not solitary, flowers (for they crowded the centres of the tufts) are long and erect and of a pleasing rose colour; the creeping, but not running or rampant, herbage forms neat round tufts, and the middle is brightened with the flowers; the effect is that of a rose-coloured bouquet beset with Fern and placed flat on the ground. It is only a few inches high and seems to enjoy moisture as afforded by a flat position.

**DOUBLE CROPPING.**—There seems to be a strong desire to carry this out, and sometimes we hear that happy results have been obtained, but do they last more than a season? One does not care to say what can or cannot be done, but growing two sets of perennials either to give two distinct displays, or so as to set one off to advantage by means of the other and keep them in good form, is likely to prove one of the most difficult arts of gardening. I have tried it, and I have seen others try it, but successes have been few and of limited duration. I can understand the desirableness of mossing or carpeting the nude and slender Colchicums and Croci in order to support and keep them clean, and, of course, there are many other flowers worthy of similar care, but will not a too common practice of this kind land us within but a link or two of carpet bedding? That may not be a very terrible consequence, but it will carry the idea of a limited use of a set of plants which practically are of almost unbounded utility. The plan of covering the surface with some creeper may be usefully adopted where the show plant is dwarf—having little top and bright flowers; in other words, where the jewel is smaller than the setting, but even then the carpeting material would require to be chosen with judgment. The slender Croci, spring Snowflake or Snow Glory would not get through hillocks of *Herniaria* or dense hungry mats of *Stonecrop*. Some *Arenarias*, our native *Sibthorpia europæa*, *Nierembergia rivularis*, *Mazus Pumilio*, *Santolina*

*alpina*, *Frankenia lævis*, *Acænas*, and not a few of the free and dwarf alpine Pinks do not receive the attention which they deserve. All are not evergreen, and it is questionable if that is a drawback; the dying off annually of herbage facilitates the clearance of the soil from slugs, &c. The *Whitcup* (*Nierembergia*), for instance, is leafless now, but in early summer it would open its erect cups on a carpet of spoon-shaped leaves, and afford a pretty contrast to such things as the large-leaved and purple-flowered *Ramondia*, or *Orchis foliosa*. For autumn a no more lovely garden picture could be conceived than a not over-dense patch of the sombre-hued New Zealand *Acæna*, beset with numerous rosy-spined globes, with here and there some white and purple *Colchicums* cropping through it, or even a small specimen or two of St. Dabeoc's Heath (*Menziesia polifolia*), of which we have now various white and purple forms, and which bloom for several months, thus corresponding with the many weeks during which the Rosaceous creeper bears its singular and pretty fruits. I sometimes wonder that the dwarf shrubby or creeping Phloxes should have so long escaped notice for purposes of this kind. These are known to grow nearly flat, are not over-dense, and do not make much root—important qualities in a plant used for double cropping. But there is another feature about these Phloxes with which everybody must be charmed, provided two conditions are observed in their culture, viz., a sunny position and light soil with a little lime and bits of stone laid on the surface for the prostrate stems to rest on; these will conduce to the perfect maturation of the foliage in autumn, when the warm and glowing tints will develop as they are said to do so richly in their American habitats. Under these Phloxes I have grown a mixture of the common spring Crocuses and autumn-flowering Colchicums. The former come through when the Phloxes are in their grey state of old but persistent foliage, the advantage being that the Crocuses last longer than they otherwise would do, and are kept clean, being protected against both wind and splashing. The untidy and long Crocus leaves should not be allowed to overtop the Phloxes, and after they have grown a little it is the work of but a few moments to raise the Phlox stems on the palm of the left hand, and underneath, with a sweeping stroke of the right hand, carry the Crocus foliage in the desired direction; there it finishes growth and decays without further care, though, it need hardly be said, not so perfectly as it would do without another plant over it, but in this case sufficiently so not to prevent the tuberous plants from flowering finely.

As regards the autumn flowers, they are the crowning feature of this arrangement, for they bedeck the patches of the earlier-ripened Phlox in a most effective style. I would not, however, advise anyone to adopt this form of planting, nor to expect such results as are just described, unless the items of culture are carefully observed and the planting is carried out seasonably, and that time is in October. Dig and clean the land deeply, set the Phloxes in line or otherwise 9 inches apart, and then dibble in the Crocuses and Colchicums, which latter may be in flower, but which will remove more safely now than later. But to exchange the more or less fanciful for the utilitarian, and, to speak generally, double cropping of flowers is not good practice. It may also be stated as a fact that all flowers can be produced more perfectly when kept clean. Moreover, where labour or personal attentions are in question double cropping would be a very doubtful experiment.

**ACHILLEA UMBELLATA.**—This pretty dwarf, half-shrubby, silvery-leaved Yarrow may be propagated (p. 336) very readily—in ten or fifteen days—if cuttings are taken down to the harder wood and at the right season—in midsummer. If set in a sunny place in the open and kept moist for a few days, they will give no further trouble. It is one of the neatest silvery plants we have, and for the drier parts of rockwork, especially between dark-coloured stones, it is not only one of the few things that thrive under such conditions, but it is very effective.

**ARISÆMA TRIPHYLLA** is just now in the best possible form for planting or removal. I am speaking of acclimatised specimens which are five years established, and which afford a yearly crop of off-



sets as well as seeds. By the way, speaking of seed of this Aroid, the plant is not without value as a decorative subject when in the seed state, for the somewhat spiked clusters are bright coral-red, and though different and less, the seed-pods strongly remind one of those of *Iris fetidissima*. The tubers are just now fibreless, and having completely absorbed the needful from the old tubers, they are in nice plump condition, and these are my reasons for stating that home-grown roots are now in their best movable state. I find this interesting Aroid, of which a woodcut is given in *THE GARDEN* (p. 345), does well in moist leaf-mould, but the position requires to be sheltered from powerful sunshine. The red seeds last for many weeks after the leaves have disappeared.

**ERYNGIUM YUCCÆFOLIUM.**—The note from Co. Galway (p. 340) is useful, but as I stated (p. 307) that my locality was Yorkshire, and that I had some doubts respecting its hardiness, I fear that the experience of two mild winters, as well as of so mild a climate as that of Galway, will not meet the case.

Woodville, Kirkstall.

J. WOOD.

### LIFTING GLADIOLI.

VARIOUS opinions have been expressed as to the proper time and manner of taking up the bulbs of Gladioli, some advocating leaving them to the very latest period possible—until, in fact, the foliage had completely perished—and asserting that to take them up before that injures the maturation of the bulbs, and so leads to that decay which all growers of them have to deplore. There are some, indeed, who advocate leaving them in the ground all the year, others indicating an earlier period, while the advice which I have always given on the subject, of lifting them when the foliage begins to decay, has been decried by some as wasteful to the corm, robbing it of its chance of becoming strong and large, and leading to its shrivelling up after it is stored away. As I have before said, one of my great objections to leaving them too long in the ground is that they begin to emit roots from the base of the corm, and that this is far more hurtful to them than any supposed loss that they might experience from the flow of sap into the bulb being checked by early lifting.

But being desirous of ascertaining from headquarters what was really the practice of the greatest growers in the world, the originators of all the beautiful varieties of both French and English origin (for M. Souchet began his work at Fontainebleau long before anyone in England had thought of following his example), I wrote to my friends, Messrs. Souillard and Branelet, who so successfully carry on the work begun by M. Souchet, and have just had their reply. I was the more anxious about this, as I observe it continually stated, year after year, in some of the French catalogues that November is the proper season for the lifting of the bulbs, a statement which I could not reconcile with what I had seen practised when I had been in Paris somewhat later than usual, when I had seen them taken up when the foliage was perfectly green. Their reply is to the effect that they always commence taking up the smaller bulbs first, and that already they had been more than a week engaged in so doing.

With regard to the larger bulbs, they say that they do not wait until the foliage becomes dry, but that as soon as it becomes yellowish they begin to lift them, and that probably we should begin to lift ours here about a week later than they do. This, I think, is conclusive as to their practice, and is precisely that which I have followed and recommended for many years, and anyone who knows how beautifully silky is the skin of the roots received from Paris, will be, I imagine, perfectly satisfied to have their roots stored in the same condition, and that the process recommended by an able contributor to *THE GARDEN* of storing them with the soil attached is both cumbersome and unnecessary. I am sure that while the climate at Fontainebleau is more favourable to them than ours, they are subject to losses in some degree, for although the disinclination to grow spawn evidenced by such varieties as Madame Desportes and Michael Auge might to some extent account for their continued high price, yet it can hardly do so to the extent that I notice, for while varieties sent out at the same time that they were are to be had for 35 centimes

(3½d.), these are still priced at 2f. 50c. and 4f. 60c.—*i.e.*, 2s. and 3s. 8d. each. There seems to be more tenderness about the white-flowered varieties than the others, for Albion and Ondine seem to possess the same tendency to go off. Can it be that there is more of the blood of *oppositifolius* in them, and that this is more tender than *G. psittacinus*, whose influence is so largely seen in our best exhibition varieties. Dean Herbert considered the well-known *gandavensis* under which all the show varieties are now classed to be a seedling between *psittacinus* and *oppositifolius*, although Van Houtte believed that *cardinalis*, and not *oppositifolius*, was the parent flower.

A good deal has been said lately of the new hybrids of Lemoine's, hybrids of *purpureo-auratus*, but after a couple of years' experience of some of the best, which I obtained direct from Lemoine, such as Mars, W. E. Gumbleton, Incendie, and Christophe Colomb, I cannot say that I am enamoured of them. I neither like the form of the flower nor the character of the spike; the former is too closed and does not show the fine open appearance that the *gandavensis* flowers do, while there are never more than three or four blooms open at the same time. Their hardiness is about their chief recommendation, but I think this will but poorly compensate for their inferiority to the grand varieties of the *gandavensis* section, which, if persons are so disposed, may be left in the ground all the winter. In mild winters they will not suffer, and in severe ones they require only a slight protection of coal-ashes; and as the hybrids are more expensive than those of *gandavensis*, I see no inducement for us to grow them. Doubtless tastes differ, and some may prefer these, but to my mind they are not worth troubling oneself about.

DELTA.

### Clematis Jackmanni on a north wall.

It is often difficult to know what to plant in order to cover north walls with plants not cultivated for their foliage only. *Clematis Jackmanni* has done us good service this season in the position just indicated. Last spring it was not so freely pruned as is generally done in the case of this variety, and it has bloomed continuously ever since it commenced, which was in July, and it is still in flower. It has received copious supplies of liquid manure during the summer, with which it has agreed, judging by the way in which its flowers have been produced.—E. M.

### QUESTIONS.

5402.—**Tropæolum tuberosum edible.**—Can any of your correspondents give me information regarding the esculent qualities of this plant? When should the tubers be lifted and how should they be cooked and served?—G. P.

5403.—**Preserving Walnuts.**—Would some of your readers kindly inform us of the best method of keeping Walnuts? We have heard of one, *i.e.*, putting them in jars tightly tied over and burying them in the garden, but we thought perhaps there might be a better.—CROYDON.

5404.—**The Irish Peach Apple.**—Can any reader who has old or mature trees of this send the editor a bundle of twigs or branchlets during October? They are required for an experiment, and we should be obliged by their being sent to our office addressed S. T. E., care of the Editor.

5405.—**Flowerbed Apple.**—I have noticed in a shop a very beautiful medium sized Apple, yellow skinned with slight red streaks on one side. It is just ripe now, and is a good dessert Apple. The fruiterer says it is Summer Flowerbed, but I can find no such name in any list of Apples. Is it a synonym? Will some of your correspondents who are fruit growers kindly answer the above, and also give me a list of twenty good dessert Apples that make small handsome pyramids on the dwarf stock?—HEATHERDALE.

5406.—**Melons not swelling.**—I have two Melons planted on the stage of a small forcing house with hot-water pipes underneath. They have made good growth. I set two fruits on each plant; one has swelled to full size; the other three have not made any progress during the last three weeks, and are about the size of Walnuts. They are green-fleshed sorts. The temperature is kept at 80° by day and 70° at night. Cucumbers are grown on the same stage. Any advice from any practical Melon grower on this matter would be thankfully received.—F. B.

5407.—**Law regarding fences.**—The fence and ditch round my land is my own. I have had cows and horses grazing, but on no occasion have they trespassed on my neighbours, yet one who keeps sheep annoys me from year's end to year's end by their trespassing. All the satisfaction I get if I complain is that it is my duty to keep the fence in such a condition that they cannot come through it. Is that the law or not? An answer to this question from some of your correspondents would greatly oblige me.—DELTA.

### SEEDLING DAFFODILS.

WITH reference to "F. W. B.'s" inquiry about the identification of *N. bicolormaximus* (*grandis*) with the old plate of Leeds' flower, it will, I think, be found hopeless in most cases to identify Daffodils by means of old prints and drawings. In days when Daffodils were fewer and did not, as now, slide into one another by fine degrees the artist was not concerned to portray all the "points" of a flower as accurately as he must do now-a-days; moreover, his picture was usually murdered in the lithographic process, then in its infancy. But from what Mr. Brockbank tells us about the characteristics of the plant which he obtained from Longford Bridge, it seems clear that the *N. grandis* of our present lists is the same. The triangular arrangement of the perianth is, as he remarks, the distinguishing feature of this very fine flower, which also presents to the eye a much greater extent of perianth in proportion to trumpet than any other Ajax. It is difficult to imagine any cross which would produce *N. grandis*; it is probably a purely seminal enlargement of *N. bicolor*, one form of which in my garden often produces flowers almost exactly like a miniature *N. grandis*. Mr. Brockbank will greatly interest Daffodil growers if he will send to Kensington next spring specimens of his *N. major superbus*. Mr. Barr showed a single flower under this name in 1884, but it was altogether unlike the old plate or the small woodcut in his catalogues, and I believe he did not profess to be able to trace his plant to Leeds' original.

Many interesting questions remain to be answered about these seedling Daffodils. It has always seemed likely to me that many of the Longford Bridge varieties were not raised by Mr. Leeds at all, but were either old garden forms collected by him as material to work with, or were Herbert's productions, which are not likely to have been retained wholly in his own hands during his lifetime or entirely lost afterwards. Different guesses have been made about the parentage of such small hybrids as *N. Barri*, but we know that *N. minor* was Herbert's favourite seed-bearer, and the result of *N. minor* × *N. poeticus* would surely be something much like *N. Barri*. At all events Herbert has not yet received his due in this matter of Daffodil raising, for both Leeds and Backhouse certainly "picked his brains," whether they actually obtained his plants or not.

**NAMING SEEDLINGS.**—It is about time that a little discrimination was shown in naming and distributing Daffodil seedlings. It would seem that up to the present date every seedling, worthy or worthless, has been kept and catalogued. This is as absurd in the case of the *Narcissus* as in that of any other florist's flower, for the *Narcissus* has now become a florist's flower—*i.e.*, one capable of endless variation and improvement by hybridisation and selection. With such a host to choose from, why retain such wretched abortions as the *Humei* section, or the numerous poor and indistinct incomparabilis sorts with which Mr. Barr still crams his lists? Why should a flower be adorned with Mr. Frank Miles' name simply because it is particularly flimsy and ill-shaped? A new incomparabilis, having its perianth sulphur, barred yellow, is named Beauty, and modestly valued at three half-crowns per bulb. Surely any striping or mottling in a Daffodil should be an instant qualification for the rubbish-heap. What is *N. Burbidgei* but a miserably feeble little poeticus, inferior in every respect to the least attractive of the old kinds? Daffodils, too, like Blondin, with channelled, claw-like segments, or with a long and narrow trumpet,



such as Thomas Moore, seem to me to be weak and ungainly in form, even if fine in colour. This may be an open question of taste, but it can scarcely be so with Humei and some other flowers.

The complaint, we may hope, will cure itself, for since a single pod of seed will produce several varieties, and since we are all hard at work sowing seed every season, seedlings will soon be blooming in such crowds as to make severe elimination quite necessary. Herbert most truly observed, over forty years ago, that the Narcissi are "altogether anomalous plants in their diversity and capability of interbreeding *ad infinitum*," and that an "infinite variety of Narcissi" may be raised. It is probable that no flowers intercross more readily without artificial fertilisation than Daffodils. My own experience seems to show that if you double or treble the number of varieties in your garden, you obtain not twice or thrice, but perhaps ten times the quantity of seed you could gather before. Given the conditions of some scores of clumps of various Daffodils growing near together, a warm spring, plenty of bees, and four years' patience, and you will have plenty of new forms and tints as good as the much-buffed and high-priced prodigies now current. Indeed, in the class of short-cupped Narcissi the hybrids of the future are likely to supersede those now in cultivation, for the latter are mostly the result of crosses between smallish trumpet and narrow-petalled poeticus varieties. Stellaris was the poeticus with which Herbert usually worked; the flat, broad perianth of *N. p. ornatus*, combined with the size and substance of our finest modern trumpet flowers, will give us short-cupped seedlings of a far superior type. And there is no reason to suppose that the limit of size has been reached in our largest trumpet Daffodils. Horsefieldi, Empress, maximus, &c., are now yielding seedlings some of which may reasonably be expected to surpass the dimensions of their parents.

DAFFODIL RAISING is not likely to remain much longer a kind of lost or occult art; we may look forward to being able to purchase of the seedsmen, for a modest coin, a packet of Daffodil, as we can now of Amaryllis, seed "carefully hybridised, and likely to produce many new and beautiful varieties."

G. H. ENGLEHEART.

*Appleshaw, Andover.*

#### ZINNIAS FOR BEDDING.

It is seldom that one sees Zinnias well grown even if grown at all; they are old-fashioned flowers which of late have been much neglected, but where well cultivated they amply repay any trouble bestowed on them. When grown from seed saved from a good strain, the number of different colours to be found amongst them is surprising—colours, indeed, not seen in any other class of plants. Zinnias, too, will succeed almost anywhere, provided trees do not shade them. They are useful to plant in mixed herbaceous borders or in open spaces in front of shrubberies. We have used them this season with excellent effect massed in beds, and by keeping them pegged down they did not grow tall or lanky, as they sometimes do when not of a good strain. In order to relieve the flatness at first caused by the pegging, we planted as dot plants two or three variegated Abutilons, consisting of the Thompsoni variety, and about three plants of Maize, which, with its silver striped leaves, was very effective. We have also had Zinnias growing in a long straight row backed up by Rhododendrons and faced with a row of Victoria Asters; by placing a neat stake to each leading shoot it was kept straight; side branches were freely produced and bloomed profusely, and the colours being so varied and rich, the effect of this arrangement was quite striking. The plants grew to a

uniform height of 20 inches. They were freely watered during the hot and dry weather—sometimes with liquid manure. Many sow their Zinnias too soon and in too much heat, thereby causing them to become drawn and weak; such plants never succeed really well. Some sow the seed on a prepared bed and allow the young plants to remain there till finally planted in their permanent quarters; but thus treated they are likely to become leggy. The best way is to sow in pans or boxes in light, sandy soil, composed largely of leaf-soil, about the middle of March in cold frames; keep the frames close and shaded from bright sunshine till the plants are up, when shade may be dispensed with and air freely admitted. When the seedlings are about 1½ inches high, prick them out into soil in a cold frame; on the bottom of the latter should be placed 2 inches of spent Mushroom manure; into this the roots will run; the plants will come up with good balls, and grow right away after being planted in the beds. On the top of the manure in the frame place about 3 inches of light sandy soil, and into this place the plants about 3 inches apart; keep them close for a few days till established, when abundance of air should be given till the lights can be drawn off altogether. About the last week in May they may be planted into the permanent positions assigned to them.

E. MOLYNEUX.

#### TRICYRTIS HIRTA.

IN my many wanderings amongst gardens of all sorts I very seldom come upon this most interesting Japanese plant with its peculiar Orchid-like flowers. As it is (at any rate in the south of England) quite hardy, this is to be wondered at, unless, indeed, it behaves as it does with me, and concerning which behaviour I am anxious to obtain a little light. It flowers very late—so late, indeed, that the foliage becomes quite discoloured before the blooming is over. I have tried it in two ways—in the open and in pots plunged out of doors; but in both cases the result was the same. My situation is an open and sunny one, and I see no reason why it should behave thus, and I should be greatly obliged if any of your readers who are growers of herbaceous plants can tell me why this is, or what is their method of cultivation, and if they are enabled to obviate this defect. I daresay I might grow it in pots in a cold frame, but this I do not care for; I want it for the herbaceous border. If I recollect rightly, it was introduced somewhere about 1860 by the late Mr. Standish, of Bagshot, to whom it had been sent by Mr. Robert Fortune. My mentioning it as hardy induces me to say how very desirable it would be when your contributors mention plants as hardy that they would also state their locality. Our islands are not very large, but they exhibit many variations of climate, and that not always dependent on latitude and longitude. Thus Devonshire and Cornwall are very different from Northumberland and Durham. That is natural enough; but then we have the south-west of Scotland, although so much further north, much milder than the midlands, which I suppose are about as cold as any part of our island. This is accounted for by the influence of the Gulf Stream, to which also must be credited the very mild climate of Ireland. Now, if anyone writing from Cornwall were to name a plant as hardy, anyone trying it in Nottinghamshire would probably be disappointed. Again, dryness must have something to do with hardness. When places differ so much in their rainfall, it must be easier to grow some kinds in a place where the fall, as is with us (in East Kent), averages 28 inches in the year, than in places like Wytham Vicarage, in Cumberland, where it averages 118 inches. It is quite clear that plants which are at all apt to fog off would stand but little chance there, while all moisture-loving plants would especially rejoice in it. We can, by our bog gardens and artificial waterings, satisfy the requirements of such, but we cannot obtain the dryness of atmosphere except under glass, and then a plant of course ceases to be considered as hardy. I cannot but think that if writers would kindly take these things into consideration when writing of hardy plants they would confer a great boon on their fellows, and save many a disappointment. With me the great difficulty is the dry

and hot nature of the temperature, although a friend in Cheshire, where the rain is excessive, said to me once, "Oh! I don't give you Kent fellows any credit for growing things; you have only to stick them in the ground, even head downwards, and they are sure to grow." DELTA.

#### NEW HYBRID GLADIOLI.

HAVING again grown during the summer just past, and carefully compared with older varieties the nine novelties of the most ornamental and free-blooming new French Gladioli raised by M. Lemoine, of Nancy, as well as two varieties of the preceding year not ready in time to be noticed in my notes of last year, perhaps a few descriptive notes as to their relative and respective beauties and merits may not prove uninteresting to some of your flower-loving readers. The two of 1884 were

CHARLES MARTEL, which opened its first flower on July 28. This is a small-sized flower, closely resembling in shade of colour, but in every way inferior to André Chenier, a fine novelty of this year, from which it differs only in the markings of the lower petals. It is, however, a fairly pretty variety.

HORACE VERNET opened its first bloom on August 3, and is a variety with medium-sized flowers of a purplish shade of rose colour, washed with yellow. The marking, however, is distinct from any other variety and quite remarkable, as instead of the three upper petals being all the same, as they usually are in these flowers, in this one the centre petal is distinctly blotched with clear canary-yellow, faintly edged with rose, which is also the colour of the entire of the two smaller of the lower petals, the centre one of these being a purplish rose. Altogether a novel and singular flower.

TALMA opened its first bloom on July 23. It is a strong growing variety, with branching flower-spike and well-shaped blooms of a delicately tinted and striped lilac bluish, with rich blotches of violet-plum colour and sulphur spot on the lower petals.

ENFANT DE LORRAINE opened its first bloom on July 26. It is a low-growing variety of slender habit of growth with smallish pale primrose blooms richly blotched with deep maroon, bordered with yellow. This more closely resembles in shape of flower one of its parents, *G. purpureo-auratus*, than any other of these hybrids.

EMILE LEMOINE opened its first flower on August 1. It has large, well-opened flowers of a bright vermilion colour with a streak of gold down the centre of each of the upper petals. The centre lower petal is distinctly blotched with maroon, prettily bordered with gold towards front of petal. A very pretty variety of medium height and single unbranched flower-stem.

ANDRE CHENIER opened its first bloom on August 1. This is a charming variety with a branching flower-stem, and a tall vigorous grower. The flowers are of medium size, of a pleasing shade of rosy salmon colour, the two lower petals being, perhaps, more beautifully and evenly marked than in any other of these hybrids, the inner two-thirds forming throat of flower being of a deep velvety carmine; the outer third of clear canary-yellow. A most distinct and beautiful variety.

FERDINAND DE LESSEPS opened its first bloom on August 4. This is a rather poor variety of dwarf habit of growth and produces rather small flowers of a most uncommon shade of ashy lilac, the two lower side petals being blotched with deep purple with a yellow spot in centre of each blotch. This is quite a new departure in shade of colour and may lead to better things.

ALSACE opened first bloom on August 7. It is a good-sized well-opened flower, of a clear pale canary colour, somewhat irregularly blotched on the lower petals with dull carmine. This is a distinct and very pretty variety.

LA FRANCE opened its first bloom on August 10. It is a variety of tall, branching habit of growth, with large well-formed flowers of a pale flesh colour inside, flushed and flaked with rosy purple on the outside. The lower petals are heavily blotched with rich maroon-claret colour tipped with bright yellow.



ADMIRAL COURBET opened its first bloom on August 16. This is a medium-sized flower of great beauty, of a deep fiery shade of scarlet, heavily marked on the lower petals with deep crimson. This is quite one of the most brilliant coloured of this series.

GAMBETTA.—This variety failed to bloom for me, and I am only able to describe it through the kindness of Messrs. Veitch, who were good enough to send me a spike of it in a box by post. It is a very beautiful variety, and totally unlike any other of this series of hybrids. The flowers are of medium size, and are of a deep shade of rosy carmine without any marking whatever on the lower petals; indeed, it may be correctly described as a pure self-colour, the only one we have yet seen. Having now described the set categorically and at some length, it may perhaps be acceptable to some who have only small gardens, and only wish to grow the best and most distinct of each set of plants, to know the names of the twelve I consider the best and most distinct of these hybrids. They are as follows: Lafayette, sent out in 1881; *Enfant de Naney*, *Incendie*, *Obélisque*, and *Victor Hugo*, of 1882; *Horace Vernet*, *Masque de Fer*, and *W. E. Gumbleton*, of 1883; *Alsace*, *Admiral Courbet*, *André Chenier*, and *Gambetta*, of 1884.

WILLIAM E. GUMBLETON.

*Belgrave, Queenstown, Ireland.*

#### NOTES ON SPRING FLOWERS.

WHERE beds have to be planted with spring-blooming plants, no time should now be lost in getting them filled, for a great advantage is gained by early planting, particularly where the soil is of a heavy character. When much rain falls previous to planting, the earth gets chilled and the plants do not start into growth so freely as they do in lighter soil. That being the case, allow me to offer a few hints on the different kinds of plants adapted for filling the beds, the best mode of preparing them for that purpose, and a few words as to their arrangement.

WALLFLOWERS are admired by most people; their sweet perfume in spring, when in bloom, renders them deserving of a prominent place in every garden. Veitch's dwarf dark is the best variety I have yet tried. It is compact in habit; the flower-spikes, which are stout, well support themselves; the flowers, too, are large and of a rich dark glossy colour. Harbinger grows too tall for most positions; its flower-spikes are not so self-supporting, and the colour is not so rich as that of the variety just named. The best yellow variety I have tried is *Belvoir Castle*, which is of dwarf habit, branches freely, and produces its bright yellow flowers in profusion. The double German variety is also very fine when grown from a good strain, but it is not suitable for planting in beds, as its growth is uneven. The best position for it is as a single row in front of shrubbery or herbaceous borders, where uniformity in height is not of much importance. The time of sowing should be varied according to the character of the soil in which the plants are to be grown. In heavy soils the seed should be put in from the middle to the end of May, as the plants should be grown to their full size prior to planting in beds, because, owing to the heavy character of the soil, they do not grow after the autumn rains have thoroughly chilled the beds. On light sandy soils, from the middle to the end of June is soon enough to sow, as the autumn rains do not affect the beds in the same way as they do heavier soils. An east or west border suits them admirably. When the plants are about 2 inches high, they should be transplanted in rows a foot apart and 10 inches asunder in the rows. When planting in the beds, take them up with a good ball of soil.

CHEIRANTHUS ALPINUS is not commonly planted in beds for spring blooming, but it is a charming plant grown in that way, its delicate lemon-coloured flowers being very different from those of its associates. When taken out of the beds to make room for summer bedding, they should be divided into as many pieces as have roots attached to them. These planted on a west border, using a little sand to assist rooting, will during summer make handsome bushes. Small side shoots taken off and inserted in sandy soil under a handlight behind a north wall in August make good plants for edgings.

MYOSOTIS DISSEMINATA is the best variety of the blue Forget-me-not for spring flowering. If the strain be good the plants should be grown annually from cuttings, which are more to be depended upon than seedlings as regards regularity of growth. When the old plants are taken up after blooming, the flower-spikes should be cut off them, and they should be laid in rows in any out-of-the-way place. Suckers will soon commence to grow from the bottom of each plant. These should be taken off early in August, and inserted in a cold frame, or under hand-lights, behind a north wall, in sandy soil. They should be kept close until rooted, when more air should be given them, and when well rooted plant them in rows in any open piece of ground, where they will make strong bushy plants by the time they are required for the beds.

POLYANTHUSES when well grown are showy, free-flowering plants. Stock for starting with can easily be procured from seed, selecting the best kinds from amongst the seedlings for propagation. When the blooming season is over, the old flower-spikes should be cut off, and the plants divided into as many pieces as have roots attached to them. These should be planted on a piece of open ground—say a west border—into which some manure has been previously dug. They should be supplied with water until they commence to grow, when none will be required, unless the season is very dry. By the time they are required in autumn they will be good, strong plants, furnished with plenty of roots, and may be planted without much check. Some prefer dividing them when they plant into the beds in autumn, but the division is much better done in spring, as then they have ample time to overcome the check which they have sustained. Their blooms are shown off to the best advantage when planted in masses. Double Primroses are showy spring blooming plants, but they are not well suited for associating with other kinds of plants in beds; they bloom earlier than the general run of plants, and, therefore, are best planted by themselves.

DOUBLE DAISIES are useful plants in the spring garden; indeed, they are so easily grown, so very hardy, and bloom so freely, that they are almost everybody's plant. Red, white, and pink are the principal colours used. *Rob Roy* is one of the best; it is much admired for its rich dark colour, which contrasts well with that of the white variety. When taken up from the beds in May, after blooming, they should be divided and planted in rows in any out-of-the-way piece of land, as, for instance, a west border. When planting, use some well-rotted manure. They should be well watered after planting if the weather is dry, and be well attended to until they start into growth, when they will take care of themselves. Thus grown, they will at planting time be good bushy plants with plenty of roots.

IBERIS CORIFOLIA is a free-blooming, easily grown, hardy plant, the flowers of which are white and much appreciated in spring. The blossoms of *I. Tenoreana* are, perhaps, larger and better; but it has one fault, and that is, it is too late in blooming, rendering it useless for spring beds. Cuttings of *I. cordifolia* should be inserted in sandy soil in a cold frame. They should be kept close until rooted, and they must remain in the frame until April, when they should be planted in rows on an open piece of ground; pinch the point out of each plant, an operation which induces side shoots to grow freely, thus keeping the plants dwarf, and, if well watered in summer if dry, they will be in good condition when required for the beds this month.

AUBRIETIA GRÆCA and PURPUREA are amongst the best plants used for spring bedding; they are so hardy and bloom so freely, that they are indispensable in spring; they are best grown annually from division of the old roots. So grown, the correctness of the colours is rendered more certain than in the case of seedlings, which sometimes vary considerably in height as well as in colour. When removed from the beds after blooming, cut off all the growth nearly down to the ground line, and divide and plant the divisions on a border, using some sand to assist their rooting. They will soon grow into dense tufts, which can be easily lifted and planted close to each other in beds, as they do not grow much in autumn.

ALYSSUM SAXATILE COMPACTUM, on account of its bright orange-yellow flowers, is much appreciated in spring. It is a very free-blooming plant, and one which associates well with dark Wallflowers. Old plants of it can be used for several years by planting deep in the soil each year. It is easily increased from seed sown in August in a cold frame. The seedlings should be planted out on a border and allowed to remain there for a year, when they acquire strength and will bloom well the following spring. They are not strong enough to bloom well the first season after sowing.

VIOLAS are admirably suited for spring beds if well grown previous to being planted in the beds. They are hardy and bloom freely, and their various shades of colour greatly help to light up the garden. Cuttings taken from the centres of the plants, consisting of shoots which have not bloomed, are the best. These should be inserted in a cold frame early in July. When struck, the points should be pinched out, and when well rooted they should be planted out on an open piece of ground, where they will make side shoots freely and plenty of roots, with which they will lift easily, and may be planted without check any time during this month.

LIMNANTHES DOUGLASSI is a pretty annual, and one which blooms freely; its one fault is its lateness in coming into flower, hence it is not well adapted for planting in beds that have to be filled with summer blooming plants. It is easily grown from seed sown out of doors in July. *Silene pendula compacta* has the same fault as *Limnanthes*, i.e., late blooming; otherwise its bright pink flowers, which are produced in profusion, are very showy. It is easily raised from seed sown out of doors in July.

AS TO ARRANGEMENT, that greatly depends on personal taste and the kinds of plants which are most appreciated; most spring blooming plants show themselves to the best advantage when used in masses, as, for instance, the centre of a bed may be filled with purple Violas and edged with a broad band of white Violas; or the centre of a circular bed may be filled with dark Wallflowers and edged with a broad band of *Alyssum saxatile*; or an oval-shaped bed with *Cheiranthus alpinus* in the centre, and then a broad band of purple or blue Violas, edged with white Daisies, looks well. Any small bed of circular form may be filled with *Aubrieta græca*; a mass of purple of this kind is very effective. Dark Wallflowers and *Myosotis* go well together. Daisies are particularly well adapted for edgings or for planting in masses, putting various colours in one bed, having regard to their due proportion. Forget-me-not, as a central mass, with a broad band or patch of *Silene pendula*, is very striking; and dark Wallflowers, Forget-me-nots, and white Daisies harmonise well together.

E. M.

*Cypripedium spectabile*.—I must plead guilty to having sent you the photograph of the above, published in your last issue, and as to which you ask information. One day in the summer I sent you the very blooms thus pictured, and mentioned that I had just photographed them, and would send you a copy when printed. Probably when I did send it I omitted to write with it. This charming plant did very well with me this year, and should be tried by those who have town gardens. It comes up stronger and stronger every year.—H. STUART-WORTLEY (Colonel).

*Sternbergia lutea*.—It is tantalising to read (p. 306) an account of the flowering of this plant when one does not see a flower upon it oftener than once in four or five years. I have both nursed it well and also treated it with indifference, but its behaviour is just the same under both circumstances. It only seems to flower when it pleases. I have planted it both in sunshine and shade, I have taken it up and replanted it in June, and have left it alone for several years with the same result. I have therefore given up all hopes of ever getting it to flower satisfactorily.—J. C. C.

5400.—*Achillea umbellata*.—If "Hamish" will plant this *Achillea* in the best prepared compost on a raised border, or, better still, on a rockery, I think he will have no difficulty in growing it. It spreads very rapidly when treated as I have suggested, and is best propagated by division.—H. A. W., *Popes Hall, Boughton Mather*.



## FRUIT GARDEN.

### FIGS IN THE OPEN AIR.

THE Brown Turkey never fails to bear well here, and this I consider the best variety for open-air culture. Old trees bear well in the south, but seventy miles north of London I prefer young trees, as there is less trouble with their roots, which should always be kept somewhat restricted. By young trees, I mean those from ten to eighteen years old. Trees of this age can be lifted any time without check or injury; in fact, moving benefits them. In preparing the site, if the situation is dry, excavate 2 feet, place 6 inches of concrete in the bottom, and on this 2 feet of good sound loam, some old mortar rubbish and some crushed bones, the proportion of each of the latter to be suited to the character of the loam. The border will thus be 6 inches above the natural level, which will be an advantage, inasmuch as it will expose the roots more to solar warmth. The border need not be more than about 8 feet wide, as the roots can always be fed if they require it, and it is always best, as I have said, to keep them at home, as then the extremities can be lifted and new loam added at any time.

ON DAMP GROUND the border should be lifted above the natural level and be brought up into the sunshine. The warmth and moisture in a dry time can be regulated by mulching and the watering-pot. The formation of the border should be on the same principle in both cases, and the width should not be more. Good Figs have been grown on a border of less dimensions than those just given. The best time to plant is when the leaves fall, as both the border and roots get settled into position before the sap begins to move in spring. Mulch the border as soon as the planting is completed. Tie the branches into a bundle, and if frost comes, bind some hay or straw bands round them and let them continue in that state till the end of March; then uncover, and early in April prune and train in the form best suited for filling the space quickly. As Figs in an aged state are not required or kept, the distance between the trees need not exceed 12 feet, even when full grown. I usually plant at first 6 feet apart and thin out as more space is required.

AS REGARDS PRUNING, the greatest part will be done in summer and will begin early; remove all small shoots not required to lay in to extend the tree or fill up any vacant places. The summer thinning should be severe, as only by keeping the wood thin can we have it well matured, and the fruits also want all the sunshine possible. I do not find any advantage to result from pinching open-air Figs. The only advantage I should expect to occur from it would be some addition to the size of the fruits, and this we manage by keeping the wood thin and mulching. Pinching sometimes unduly develops the young fruit in autumn. Under any circumstances there is no possibility of ripening more than one crop in the open air, and all young fruits larger than a Pea in September should be removed, as, if left on, they will come to nothing, and they tend to exhaust the trees. If large branches have to be removed at any time (I mean by large branches those of more than one year's growth), they should be taken out in April when the trees are being trained. Occasionally a naked branch of several years' growth will require removal in order to make room for young wood and to keep the tree fertile in all its parts.

PROPAGATION.—In the perpetuation of old established sorts, cuttings of well-ripened wood are best. They may be 8 inches or 10 inches

long, and will be all the better if taken with a heel of old wood at the base. They will root plunged in the open air in a shaded position, but it is better when convenient to put them into pots in autumn. They should be kept under glass in a cool house all winter, and should be helped on early in spring with a little bottom heat. When some growth has been made, they may be hardened off and planted out, or kept in pots till the following spring, as circumstances may decide.

E. HOBDAV.

### GROS GUILLAUME GRAPE.

THERE is a very fine Vine of this Grape (better known as Black Barbarossa) growing in a large lean-to vinery, some 24 feet in width, in the gardens at Parlington Hall, near Leeds, the Yorkshire seat of Colonel Gascoigne. The Vine in question covers a space of 4 yards in width, the length of the rafters being about 30 feet. It is planted at one corner of the vinery in an outside border, the stem being brought inside through the front wall level with the border. At a foot from the surface of the border inside the stem measures some 14 inches in circumference. When it reaches the bottom wire of the trellis, which is some 16 inches from the glass, it is trained along it to the width named above. From this several branches are led upwards, some of which reach the top of the house. Mr. Dunn, the gardener at Parlington, finds that it is much the best way in pruning to adopt what I may venture to term the natural system, viz., taking care to have a good supply of young wood regularly dispersed over the whole surface available for training, and when pruning to cut to a good sound bud, not necessarily the one nearest the base of the previous year's growth, as in spur pruning. A fresh lead is occasionally brought up from the bottom to gradually replace other branches which are cut out when they get unshapely or bare of side shoots, which will always occur under this mode of pruning. The crop of fruit this season is not quite so heavy as I have seen it, though what is lost in quantity will, doubtless, be gained in quality. I counted thirty bunches on it the other day, and I am quite within the mark when I say that they will average from 4½ lb. to 5 lb. each; the heaviest bunches will run quite 8 lb. These are on that portion of the Vine nearest the hot-water pipes, thus proving that the best ripened wood produces the heaviest bunches. The soil in which the Vine is growing is a good loamy one resting on limestone. The fruit generally hangs until well into the new year. Its noble bunches form a valuable addition to the Christmas dessert.

Grimston.

H. J. C.

### HOLED PEACH LEAVES.

IN the course of the summer various specimens of Peach leaves riddled with holes and deeply notched at the edges were forwarded to me for examination by several correspondents. These leaves in all cases had every appearance of having been attacked by some insect, and to the first inquiry (from J. G. C. Shobden) I am sorry to say I unhesitatingly replied that the holes and notches had been eaten out by a weevil, and that if the culprit could not be found during the day it should be searched for after dark. Those that were subsequently sent me I examined more carefully, as a correspondent said the holes began with a yellow spot and mouldered out. This remark, and a close examination of the leaves, made me feel sure that insects were not the cause, and, thinking a fungus of some kind was probably the offender, I forwarded some of the leaves to Mr. Worthington G. Smith, the well-known fungologist. He replied that the origin of the mischief was not a fungus. It then occurred to me that it was possible that the

leaves might have been burnt by the sun shining through drops of water standing on them, and I mentioned my surmise in my reply to a correspondent, and said I was investigating the matter and would report the result. I have not been able, unfortunately, to actually determine this matter, but I have come to the conclusion that the holes are caused in the manner I suggested. I must, however, admit that I failed in an attempt to produce the effect on a leaf by exposing it to the sun with drops of water on it, but that proved nothing, except that I was unsuccessful. I have found leaves in an orchard house injured in this peculiar manner, and also one in which the holes and notches which were to be were still filled in with a very thin brown membrane, which broke away with the slightest touch; this dried-up skin showed no signs of having been punctured by thrips, aphides, or any insects, and I feel convinced was the result of the sun burning the leaves in the way just mentioned. The rays of the sun being brought to a focus (as by a burning-glass) by a drop of water either on the leaf itself or hanging from another leaf scorches a certain portion of the leaf, which withers and crumbles away, leaving a hole; if this action takes place near the edge of the leaf a notch is formed. To prove this matter by experiment should not be difficult; probably certain conditions of the atmosphere inside the house would be necessary, for if too dry and warm, the drops of water might evaporate too quickly. The leaves that were being experimented on would have to be carefully marked, as the withering of the scorched portions may not appear at once. Will some of the readers of THE GARDEN, who are in a position to do so, make some observations in this matter? My own opportunities are too limited to allow of my making any. It would also be interesting to know if the leaves of trees grown against walls out-of-doors without any protecting glass are affected in the same manner. This is a matter of some importance, as our correspondent mentioned that his trees were at one time so severely affected, as to be almost stripped of their leaves.

G. S. S.

**Goshawk Peach.**—In reference to the remarks of "W. I. M." concerning this Peach (p. 286), allow me to say that while considering it an excellent mid-season Peach as grown under glass in a cold house, I do not go so far as to endorse Mr. Rivers' opinion as to its being the best "mid-season Peach known," though I freely admit that it is "one of the best" mid-season Peaches in cultivation. Exquisite, which Mr. Challis grows at Wilton House to perfection, is likewise a fine mid-season variety; so also is *Violette Hâtive*.—H. W. WARD, *Longford Castle*.

**Foster's Seedling Grape.**—I have a young rod of this variety grafted on the Black Hamburg, but its fruit did not present the altered appearance of that exhibited by Mr. Allan at South Kensington at the late Grape show. I had a second prize at Newbury on the August Bank Holiday in the any other white Grape class, and I could not see any difference between my Grapes and the ordinary type of Foster's Seedling, which was shown in good condition by Mr. Miles. The influence of the stock on the scion is in all cases well worth careful observation. I have a shoot of Pitmaston Orange Nectarine from a bud of that kind inserted in a *Bellegarde* Peach, and in this case I certainly consider the shape of the Nectarine altered, and the flavour seems to me to partake more of that of the Peach than the Nectarine. —R. MAHER, *Newbury*.

**Pine-apple Nectarine.**—I am of the same opinion as "W. I. M." (p. 335) with regard to this Nectarine. No variety, I think, is equal to it in flavour when in proper condition; here it is preferred to any kind of Peach, and when its free-growing and bearing qualities are taken into consideration, it must be confessed to be a first-class sort. Six years ago we planted a maiden tree of this variety along with some others in the front of a Peach house 30 feet long and 18 feet wide; it has grown so fast, that the other trees have been removed with the exception of one of *Elruge*, and this season this one was half cut away to allow the Pine-apple to extend. Next year it will occupy the whole front trellis—an arched one



13 feet wide. From this tree we gathered 350 ripe fruit all excellent in flavour. Copious supplies of water were given it during the summer and occasional soaking of liquid manure.—E. M.

#### GRAFTING GRAPE VINES.

GRAFTING is in a great measure the cause of differences in the behaviour of many kinds of Grapes. It has always appeared to me that the stock must influence the scion more or less, or why do we graft weak growers on strong stocks? Is it possible to strengthen the wood without affecting the fruit either as regards colour or flavour? Eight years ago, when I came here, I found various sorts of Grapes, some of them unsuitable, as we wanted a continuous supply of fruit as long as possible, and many of the kinds were early ones. I therefore decided to graft some of them with late kinds. In one house I found a Cannon Hall Muscat, and on this I put Lady Downes and Mrs. Pince, each on a separate rod, but neither sort has given me satisfaction. Mrs. Pince on another sort of stock generally sets and colours well, giving us bunches 3 lb. each in weight. The Cannon Hall stock always bled, prune it whenever I might, and so do kinds grafted on it. I have cut off a shoot or two early in November and the result is that it bled then, and wherever I make a cut in removing the crop there it commences to bleed. No other sort in the same house does this. I have always thought that the berries of Mrs. Pince on the Muscat were rounder than when on its own roots, and I am sure that they do not keep so well. Seven years ago I grafted Foster's Seedling on a Muscat Hamburgh, on which it does remarkably well. We generally commence cutting from it in the first week in July. It always sets well, although just over the entrance, where it is subjected to cold winds every time the door is opened. Every year I am led to believe that its berries are longer and darker in colour than when on its own roots, an opinion borne out by others who have seen them on the Vine. The berries seem clouded under the skin. The berries of the White Tokay are always veined lengthwise. The dying leaves have a white tint, and it is a strong grower. J. C.

#### SOIL FOR MELONS.

IN THE GARDEN (p. 318) I have just read notes by "W. C." on the fruiting of certain varieties of Melons when grown in heavy calcareous and lighter sandy loams, and in reply to his request I hasten to give him the result of my experience. Although I have confined my general culture to the growth of one or two good varieties, all he has enumerated and a few more have passed through my hands, and while admitting that soil is a very important factor, I am bound to say the best that can be secured does not always lead to a satisfactory result, particularly where detailed management varies or climatal conditions are unfavourable. I do not for a moment infer that "W. C." is not thoroughly up in every detail, as I believe I have seen very fine fruits of his growing at the head of their class where the competition has been unusually keen. But I wish it to be clearly understood that I do not think all varieties of Melons can be alike good when subjected to one and the same mode of manipulation and treatment. Take as examples plants of William Tillery and that good old Melon, Golden Perfection; turn them out on ridges, and train on the extension principle; both will produce plenty of fruit, but the first will be the last to ripen. Train on the restrictive principle, and Golden Perfection will set its first shows and again take the lead. William Tillery will resent close manipulation, cast its first shows if the first set of laterals do show, and be thrown three weeks behind. In this particular case the two plants may be quite at home in good calcareous loam, but the treatment does not suit them; consequently the early fruit of Golden Perfection must be ripened in moist heat to suit the late variety, or William Tillery must be subjected to a spell of dry heat just when swelling to favour the early one. It is possible that the fruit from these two varieties of Melon may be good, but I doubt it, although we learn that Mr. Pettigrew and others who grow upon the extension

principle have Melons setting, swelling, and ripening at the same time in a saturated atmosphere better adapted to the Cucumber than a lover of the blazing sun like the Melon. Having expressed my opinion on judicious selection and treatment, I now return to the question of soil; given top and bottom-heat and all other conditions favourable to the growth of a tropical plant, any soil that is suitable for soft-wooded plants will grow Melons up to the fruiting stage, but it does not follow that the fruit will set, swell, and finish so well in a light sandy compost as it would in a heavy calcareous loam. Indeed, my experience goes in favour of good old turf from the limestone for all kinds of Melons, green and scarlet. I do not, however, like using it fresh from the pasture, but prefer cutting and storing in September, as I am now doing for use during the following season. It is stacked in narrow ridges with pipes running through them to prevent fermentation, and is thatched with Reeds to keep out the wet. This soil may be termed heavy, as it grows good Oaks, Peaches, Roses, and Strawberries, but is of too clayey a nature for Pines and Vines. It has formed the staple of all my Melon composts for many years, and I have never yet met with a variety that refused to grow in it after the herbage is dead and it has become what is termed mellow. It is chopped down and corrected with old lime rubble and a little soot a week or two before it is wanted for use; no manure is added, as it only encourages worms and induces canker, but a few handfuls of bone dust are used in its stead. This is my summer compost both for pots and hills.

For very early spring use I make it lighter and richer by the addition of a little horse manure and a small percentage of well-rotted turf from the igneous rock, as I find the latter favours the rapid spread of the roots from the centre of the cone to the side of the pot. The pots, 12 inches in diameter, are always plunged first, and the compost is never put into them until it is dry and fit for ramming with the potting stick. I sow my seeds singly in 3-inch pots or bits of turf, and plant as soon as the roots touch the sides, keeping them well up to the level of the rims of the fruiting pots, as I do not approve of earthing up the stems, and add fresh compost to the cones as the roots emerge until the pots are full. Scarlet-fleshed varieties are grown in pots placed on kerbs and close to the pipes in the Pine stove, where they do better than when plunged in the fermenting beds. The heaviest loam is always used in a dry lumpy state, and the pots, having three holes in the sides near the bottom, are placed in rough shallow trays for the protection of the crock roots from the fierce heat which rises from the hot-water pipes. When the fruit is set, these trays are lightly filled with a mixture of loam and bone dust, which soon becomes a mass of health-giving feeders, as the liquid passes through as freely as it is administered. By way of experiment I have grown Melons in the pure igneous loam fortified with lime rubble and old cow manure. The fruit has been of fair size, beautifully netted, and of exquisite flavour, but I have always found it difficult to retain the stem-leaves in a healthy condition. The loss of these is, no doubt, the cause of the fruit becoming what the Scotchman would term lazy, as it is also the stepping-stone to canker. From the foregoing remarks "W. C." will gather that I prefer a heavy sustaining loam for Melons in summer, a lighter soil and smaller pots for early spring, and recommend varieties that will run pretty well together through the different stages of their growth when more than one is grown in a compartment.

W. COLEMAN.

**Trained v. standard Peaches.**—Whether are trained trees or standards best? That is the question; and I refuse to admit imaginary distinctions, such as that relating to the length of the branches. Standards that have the branches kept short enough to prevent their weight bringing them down one upon the other are condemned by "J. S. W.," and yet he advocates extension. The branches of a Peach tree grown under glass, where allowed to extend, unless supported in some way, hang down close one upon the other like those of a Weeping Ash, which was just the condition of the trees in Warwickshire to which I alluded. It seems strange that anyone

acquainted with the character of Peach wood made under glass should have failed to notice this disposition of the branches, or to see the absurdity of advocating such a form of tree. The difficulty might be got over by tying the branches down the first year in the way recommended by "J. S. W.," and by tying them up to the roof afterwards, as some one else suggests. But so managed they become trained trees, clumsily managed.—T. B.

**Duke of Buccleuch Grape.**—What I desired to point out in my note on this subject (p. 287) was that at a Grape show exclusively where each variety stood upon its own merits, and where one might have expected to see the different sorts fairly represented, if anywhere, the Duke of Buccleuch, according to the most trustworthy reports, was at the bottom of the poll. Mr. Wm. Thomson, jun., replies by furnishing a list of reports gathered from every possible source, in which the Duke, with some few exceptions, was not shown in competition with other varieties at all, but passed in collections where its merits might be either good, bad, or indifferent. In the case of the exceptions it appears to have been shown in a class from which Muscats were excluded, and to know how the Duke really stood one would have to know the character of the competition, if any. Mr. Kirk's examples shown at Edinburgh were unripe, and so also were those in baskets from Clovenfords; and such examples, seeing that the bad ripening qualities of the Duke are its chief fault and the main point on which the discussion as to its merits had generally turned, are therefore out of count altogether. Seeing Mr. Thomson grows the Duke for the London market, how comes it that he did not send a bunch of it himself to the Grape show?—S. W.

5399.—**Do Muscat of Alexandria and Mrs. Pince Grape grow well together?** is a question asked (p. 336), and to which I would reply that they are worthy companions and may be successfully grown together. Indeed, it is now generally admitted by experienced Grape growers that all the thick-skinned winter varieties are never tasted in their highest perfection where they are not grown under Muscat treatment. Mrs. Pince is not a good setter, nor is it one of the best for laying on colour, but by planting at the coolest end of the house and giving a little extra time these two fine Grapes can be brought to the highest point both for eating and keeping. Mrs. Pince, like all shy-setting varieties, should be treated to a high and moderately dry temperature when in flower, and in order to secure perfect fertilisation it is necessary to pass the camel's-hair brush over the bunches when the temperature has reached the maximum on fine days until all the berries are set. Although this variety is fairly furnished with pollen, the best result follows the use of a supply from healthy fruitful Hamburgs. If the two do not flower together, the Hamburg pollen will retain its fertilising power for a considerable time, provided it is gathered when ripe and kept dry and warm in a cardboard box. It is only fair to "Subscriber" and the Grape to state that excellent examples can be grown where the temperature ranges lower than that usually maintained in Muscat houses; and although the berries may lay on perfect colour and finish, our average summers are too short for the attainment of exquisite flavour. Some of the finest examples of cool house treatment were produced some few years ago by Mr. Austen during the time he had the management of the gardens at Ashton Court, near Clifton. Mrs. Pince is a strong grower and does well under extension training.—W. COLEMAN, *Eastnor Castle, Ledbury.*

**Grape growing and showing.**—There is a good deal more in the remarks of "J. S." (p. 317) on the subject of Grapes in season than anyone practically unacquainted with the work of a garden would suppose. They approach the vital question of expenses as well as clearly show that there is a good deal of sacrifice made when unseasonably ripened Grapes have to be exhibited. Horticultural societies, which are supposed to exist for the promotion of horticulture, should endeavour to ascertain where their duties begin and end in this matter. It is too much to expect, perhaps, that the managers of fruit shows should take into their calculations all the effects that their actions may have on the welfare of



gardeners and gardeners, and that being so, it is a duty imperative on the part of exhibitors of unseasonably ripened Grapes to represent to the promoters of such shows the effects which such work entails. It cannot be denied that there is a waste of force in the production of late-keeping Grapes so early in the year as August and the early part of September without any adequate return being ensured. The production of Muscat and other late-keeping Grapes in the month of August entails, as most of us know, an increased outlay for fuel, which might in a great measure be dispensed with if Grapes were not wanted until six weeks later. There is also waste in another direction, as the half-ripe condition in which this class of Grape is frequently seen at fruit shows plainly testifies. At fruit shows early in the season it is not unusual to find quite half of the exhibits of Grapes so green, as to be wholly unfit for table use. Certain it is that the majority of the owners of gardens know not what it costs them to produce these unnecessary, unseasonable Grapes, or how much is lost in weight of crop by hurried forcing. The unavoidable waste, too, in attempting to keep the fruit after it is ripe to its proper season is another point that should forbid the giving prizes for late Grapes ripened early. I may add that I am in no way opposed to exhibitions; I only object to inducements being offered to cultivators to pursue a system of cultivation opposed to the interest of the owners of gardens.—J. C. C.

**5401.—Grape failures.**—The roots of your old Muscat and Mrs. Pince's Muscat, having been lifted and relaid in good turfy loam last spring, should on no account be disturbed again; but mulch the borders, and see that they do not feel the want of water. A writer in *THE GARDEN* only last week stated that shanking arises from two causes. He might have added to the number, as it is often produced by allowing the roots to get deeply embedded in cold, wet borders, by overcropping, and by giving an insufficient supply of water. Recent lifting precludes the possibility of the roots having gone down, but the severe check they received from an operation which ought to have been performed early in the previous autumn, aggravated by one of the most trying springs and protracted summer droughts on record, is most likely the cause of your Grapes shanking. Then, again, it is just possible you allowed the Vines to carry more bunches than the slender supply of new roots could support, and did not pay proper attention to mulching and watering. Examine the border, and satisfy yourself that the roots have taken to the new compost; cover up with a good layer of fresh stable litter; let the Vines break steadily next spring, and crop lightly. It is no unusual occurrence for Mrs. Pince, even when thoroughly established, to set badly, particularly when the bunches are large and the points do not come into flower simultaneously with the shoulders. In your case, a good set could hardly be expected, as the flowering stage must have been reached before the Vines had made an atom of fresh root, but not before the stored-up sap was exhausted. If at command, cover the border with a good body of fermenting Oak leaves when the buds show signs of swelling in the spring. Maintain fair maximum temperatures by day, and let the house range low through the night. Have in readiness a supply of Hamburgh pollen, and carefully fertilise about noon on fine days until the berries on the latest bunches show signs of swelling.—W. COLEMAN, *Eastnor Castle, Ledbury.*

**Obtaining loam.**—As a rule, this is difficult to get; even proprietors of large estates dislike having the turf and the best soil pared off and removed. Still it is very difficult for gardeners to do well without it. Certain it is the man who has unlimited resources in this way is in a better position in every respect than his neighbour who has to put up with the edgings of roads, cleanings of ditches, and similar material. There is a way of getting turfy loam without doing any harm, and that is by running a plough across any pasture at intervals of a few feet, cutting out a narrow furrow 3 inches or so deep, carting it away and stacking it in order to enable it to get mellow for spring potting. I have used it for new

Vine borders freshly cut, but for renovating lifted Vines I should lay it up three months in order to let fermentation get over. I refer to this now, because this is the best time to do such work. The pasture will not suffer any permanent injury, as the Grass will soon fill up the furrows. This is the most economical way of getting good loam.—E. HOBDAV.

## KITCHEN GARDEN.

### FORCING ASPARAGUS.

THE main essentials for securing a good supply of forced Asparagus in winter are—first, a good stock of strong roots, and, secondly, sufficient artificial heat. The best flavoured forced Asparagus is raised on hot-beds made of Oak leaves and stable manure in about equal parts, thoroughly intermixed. The first bed is made in November, and a succession is kept up from then till March. The beds are made of sufficient capacity to supply a steady warmth of 75° bottom heat, and this with coverings will give a top-heat of from 60° to 65°, rising to 70° or 75° in the daytime. As regards the roots, the supply being entirely dependent upon the care bestowed upon them in their preparatory stages, it is necessary to say something. Some force their old beds, making a certain number of new beds each spring to take the place of those removed for forcing. But young plants of three or four years' growth force most easily and give the best result. When we know how many plants we intend forcing annually, it is an easy matter to provide that number in succession year after year. Say we wish to force a thousand roots annually. We calculate that so many rows across a particular plot of ground, at 15 inches apart in the row, will provide the number, with a margin of some 5 or 6 per cent. over to compensate for deficiencies in strength in some plants. The seeds should be sown in March in drills half an inch deep and 3½ feet apart. When the young plants appear, thin out first of all to 8 inches apart, and afterwards to 16 inches, when the strongest can be distinguished. I have sometimes left the plants the first year 8 inches apart, and the second year, when the young growth appears, taken up every alternate plant, and transplanted them elsewhere. This is a good plan, as it is making the most and best of things. The first year a row of some dwarf vegetable may be grown between the rows of Asparagus. Lettuces, Cauliflowers, or some crop that does not occupy the land a long time should be preferred. The second year the Asparagus plants should have all the space for the full development of their growth. I am assuming that the land is in good heart, and that its condition is kept up by top-dressings and mulchings, and that everything should be done during summer to make the plants strong, for unless the strength is stored in the crowns during the growing period, no amount of skill in forcing can place it there, or abstract what has not been placed there. In taking up the roots for forcing no unnecessary injury should be done to them, for, though in looking at the masses of roots out of which the crowns spring some may think a root more or less cannot make much difference, still it is important that they should be kept as perfect as possible.

FORCING ON MANURE BEDS is an easy matter, and there should not be much variation in the result. In the shortest days a little more material should be used, as the roots may want a little extra heat to start them and produce steady continuous growth. The beds should be a foot wider than the frame on all sides, and from 4 feet to 5 feet high at back by 3 feet to 4 feet high at front, according to the season.

As soon as the heat in the frame becomes genial, which, if the beds are made of equal parts manure and leaves, will be as soon as fermentation sets in, 3 inches of light soil should be placed on the bed, and on this the roots should be set as close together as possible. When the frame is full, cover with 4 inches of light rich compost, and give enough water at 80° to settle all down. Then put on the lights. Mat up at nights and on cold days till the heads show through the soil. Ventilate a little to give colour and flavour. If white Asparagus is desired, cover the roots more heavily with soil; if green, only a little soil need be used. New beds may be made up as often as is necessary. As a rule, if the management has been right, Asparagus may be cut in about six weeks from the time when the roots are put in, something depending, of course, upon the weather. As fast as one lot is done with, and the plants taken out of the frame, the bed may be planted with Potatoes or sown with Radishes or Carrots. Or it may be pulled down and rebuilt with a little fresh material, or a lining may be placed round it and a fresh lot of Asparagus roots placed in it.

PERMANENT BEDS are made in some places fitted beneath with hot-water pipes, laid in brick chambers or in a bed of rubble, and on this a bed of rich soil is placed, strong Asparagus plants being planted therein, and when strong enough for forcing, a fire is lighted and the lights put on. One boiler would heat quite a group of Asparagus pits, starting them in succession as required. The cutting must be discontinued before the roots are too much exhausted, and liquid manure would have to be used freely during the growing season. In May the lights might be taken away and either used for something else or packed away dry till next season. The permanent bed system of forcing involves much outlay at first, but afterwards the cost is not great. Asparagus may be forced without removal, by having deep trenches lined with bricks between the beds to be forced. The trenches at the proper season are filled with warm manure and leaves, frames and lights being placed on the beds at the same time. One or two beds may be covered with frames and lights without any fermenting matter. Simply shutting in the sunshine will hasten the Asparagus a good deal, and the produce from these will fill up the blank between the last forced bed and the first from the open ground. Besides the methods of forcing just noticed, the roots may be lifted and planted in large pots and placed in a vinery or Peach house, or forcing house of any kind. Where only small dishes are required for one or two people, this is an economical way of obtaining them. The pots may first be placed in the Mushroom house, and be moved to a warm, light house to give flavour when the Asparagus heads are a few inches high. Boxes will answer the same purpose, so also will baskets or hampers—anything, in fact, that will hold the roots will do. This method, like the one first noticed, destroys the roots. Old flat baskets, such as nurserymen use for packing plants in, are capital things in which to force Asparagus in, and they may be placed in any house or pit with a night temperature of 60° or so. As regards

VARIETIES, the Colossal seems more vigorous than the common kind, and vigour is important in plants for forcing. If well done by, the plants ought to be ready for forcing when three years old, though, if fine produce is desired, four-year-old plants from the seed will be better.

E. H.



**Pen-y-byd Marrow.**—This new Marrow, distributed last year, is a welcome addition to our list of vegetables; it is very prolific, handsome in shape, and excellent in flavour. Grown by the side of several other varieties, it has proved superior to them in every respect. I am saving some for seed and think of growing no other sort in future. I was pleased to see it among the fine collections of vegetables exhibited at South Kensington on July 14, thus showing how early it is.—G. MERRITT.

**Exhibiting vegetables.**—Many societies make a mistake in offering prizes for twelve varieties of vegetables, which are too many in one class to be all good. More competition would be secured were their numbers reduced to, say, nine in one class and six in another. Thus a higher standard of excellence all through would be maintained. It is good quality in all cases that should be encouraged, and not quantity. I have seen some very poor dishes staged which the exhibitor was compelled to set up to make up the number, or not show at all. At the late Shrewsbury show, for instance, the collection to which the first prize was awarded contained a dish of very inferior Brussels Sprouts. Such exhibits teach nothing. This is one only amongst many instances which could be adduced in support of my argument that societies should be content with smaller collections.—E. MOLYNEUX.

**Transplanting Lettuces.**—Much has been said of late respecting the "transplanting of Lettuces & sowing" where they are to stand. Having had to supply salading every day in the year for these last eight years, and Lettuces being preferred to most other things, my experience in this matter may be useful. I have tried several ways in order to have them good in summer, and I find it best to sow every ten days a length of row according to the demand. We sow on land well trenched, and into which is worked plenty of manure. We thin them out to proper distances apart. One of the chief points in order to have good Lettuces is plenty of moisture at the roots, and manure water is of great value in inducing good growth in summer. The greatest drawback to planting out in our hot, dry soil is the difficulty of re-establishing them. This summer we tried several fresh sorts, the best of which is one named Continuity. Out of four sowings of this made at different times not one plant ran to seed, although we left them for weeks after those sown at the same time, side by side, had "bolted," and were thrown to the rubbish heap. It is not so crisp as a Cos Lettuce, but it is a fairly good one, and ought to be grown by everyone who wants Lettuces in summer.—J. C. F.

**Exhibition Potatoes.**—Allow me to tell Mr. Muir that International has been so much displaced by other kinds, that it is not in the argument as regards good or bad Potatoes. Extreme size is not a point sought for on show tables, and few would argue that beauty may not be as incidental to table quality in Potatoes as in other things. Mr. Muir now falls back upon the liability of Woodstock Kidney to become diseased as a reason why it is not grown. That is a different thing altogether from his earlier statement that its quality is bad, which is not the fact. As to Sanday's Seedling, I may say that, having grown it for two seasons, I can aver that it is a Lapstone only, and with me a poor cropper. I never doubted that it was other than a Lapstone from the first, as the characteristics of that variety were so strongly marked in it. It will hardly be heard of in a year or two. As to the newer kinds named, I think Mr. Muir would be hardly so ready to condemn all those found on show tables did he know as much about them as I do. I have not only grown them for several years, but have seen them growing elsewhere, and am assured not only that some are grand kinds both for cropping and quality, but also that there is coming to the front every year sorts that are a long way superior to the old and, with some, fondly fancied kinds.—A. D.

**Turnip-rooted Celery.**—Where much Celery is used for stewing (and so treated it is a delicious vegetable) the Turnip-rooted variety, or Celeric as it is sometimes called, should be grown, as it may be brought to perfection on the level ground, and the fine Turnip-like roots which it produces are excellent. I know many who prefer them on the table to ordinary Celery. The seed should be sown and the young plants reared in much the same way as common Celery.—J. MUIR.

## GARDEN DESTROYERS.

### WEEVIL-EATEN BEANS.

HAVING received in the early part of the present year a packet of seed Beans, a large proportion of which were infested by a Bean weevil (*Bruchus rufimanus*), I determined to sow some of the damaged seed to ascertain the extent of the mischief wrought by the beetles. I selected twenty Beans, three of which had each been perforated by three weevils, five by two, and twelve by one only, and sowed them under the most favourable conditions for their growth. In about a fortnight the young plants appeared, seemingly in no way the worse for the injuries received by the seed. The growth was strong and vigorous, and the condition of the plants all that could be desired. When the time for fruition came round, however, a great change took place: the blossoms were scanty and small, the foliage faded and withered, and in several cases the plants died off without producing a single pod. The three plants from seeds which had been each pierced by three weevils were the least productive; one was barren; the remaining three bore but three pods between them, none of which arrived at perfection. Out of the five from seeds tenanted by two beetles each, two were barren; the remainder bore six pods, five of which reached their full growth. Of the twelve which had been punctured once each, only one plant was unfruitful; the others bore twenty-three pods, not more than ten of which matured. Thus the twenty plants only bore thirty-two pods, of which less than one-half came to perfection. The Bean in question was a free-bearing variety, and should have averaged six pods each. The difference, however, between the produce of the infested seed and that which was not, sown at the same time, proved beyond question that the presence of the beetle is highly prejudicial, not to the germinating qualities of the seed, which appear to be uninjured, but to the reproductive capabilities of the adult plant. A striking feature in connection with the above experiment was that the plants raised from the weevilled seed, with one single exception, altogether escaped the attacks of the Bean aphid (*Aphis rumicis*), from which scarcely another plant in the garden was free. From this I infer that the sap of weakened plants was of too deteriorated a character to satisfy the fastidious taste of this insect.

The above experiment, recorded by Mr. Wood in *The Entomologist's Monthly Magazine* just received, is very interesting, as it shows what an extraordinary amount of vitality there is in seeds so much more than one would have anticipated. Who would have thought it possible that Beans each infested by three weevils would have germinated? It seems, unless the Beans were specially selected, which one has no reason for thinking was done, that the weevils avoid the embryo or germ in the seed; if they had not, none of the Beans in which the embryo had been destroyed could have germinated. It is very certain that it is useless to sow weevilled seed, and therefore most important to make sure before sowing it that the seed is sound, for, notwithstanding the early promise, the growth ceased afterwards in a curious manner, which would have been very puzzling to anyone who imagined the seed was uninjured. How often from this cause may it have happened that though plants raised every hope by their flourishing growth at first, yet when the time came neither flowered nor bore seed as they should have done, much to the

astonishment and mortification of the cultivator, who would be quite at a loss to account for the circumstance, and who would never guess the real cause, as he would naturally suppose the seed must have been good, or the plants would not have grown as they did for some time. It is curious that the aphides should have avoided these plants, but I have no doubt Mr. Wood suggests the real reason. G. S. S.

### A NEW PEST ON RASPBERRY BUSHES.

A NEW garden pest seems to have made its appearance this year, or, at any rate, if not new, the mischief it does has not publicly been brought home to it before; now it stands convicted of injuring the leaves of Raspberry bushes. The offender is a small beetle, very similar in appearance to, and very nearly related to, the Turnip flea beetle; it has not, however, the pale stripe on each wing case. It rejoices in the name of *Batophila ærata*. It is a very small insect, hardly one-twelfth of an inch in length, and is of a bright brassy green colour, with longish antennæ and thickened thighs to the hind legs, which are evidently formed for jumping, so that it can probably leap as well as its relatives, the Turnip flea beetles. Like them, it eats holes in the leaves it feeds on. Mr. T. Wood, a well-known entomologist, mentions in the *Entomologist's Monthly Magazine* for this month that he cannot find any notice of this insect as an injurious species, and says, "Here (St. Peters, Kent) it has been very destructive this season, feeding upon the leaves of the Raspberry, and in some cases reducing them almost to skeletons. The young plants were those most affected; the more mature were comparatively free." It would be very interesting to know if any readers of THE GARDEN have had their Raspberries attacked in this manner. The beetle probably passes the winter among rubbish, dead leaves, &c., at the bottom of the Raspberry canes. Anything of this kind should be removed, and the stumps of old canes cut off as low as possible. In case any of the insects pass the winter as chrysalides, the ground round the bushes should be turned over, so as to expose them. A good dressing of soot round the base of the canes would probably be useful in the early spring. Next season as soon as the pest appears, the canes should be shaken over a newly tarred or painted sheet of iron or tin. The leaves when thoroughly wet should be dusted with lime or wood ashes.

G. S. S.

**Destroying wasps' nests (*E. B. W.*).**—One of the best ways to destroy hornets' and wasps' nests is to fill an ordinary five-barred medicine bottle with turpentine; insert the neck of the bottle well into the hole of the nest, pressing a little soft earth all round the bottle if wanted to keep it in position, then place a damp sod of grass over the hole and bottle, and in a few minutes all the insects will be killed by the fumes of the turpentine.—E. A. E. H., *Holbrook Hall*.

—Allow me to thank your correspondents for their information concerning the use of cyanide of potassium. I have since discovered that the weak solution poured into the hole is efficacious, but, of course, there is not so much waste if the solution is made stronger and cotton wool is employed. I may add that directions for the use of cyanide of potassium in the weak state described by me (p. 326) are given in THE GARDEN, p. 340, Vol. XXVI.—E. B. W.

—It is quite unnecessary to use such a dangerous poison as cyanide of potassium, or to go to the trouble of making gunpowder squibs, as some do. One of the best and readiest means of destruction is to pour down the hole about half a pint of creosote; then stop the mouth up with turf. If done at night the wasps will be dead in the morning. Creosote is very cheap and often useful, so that I always keep it in stock.—R. IRWIN LYNCH, *Cambridge*.



## NOTES OF THE WEEK.

**Zephyranthes candida.**—This bulbous plant is flowering with us for the first time, and if not a striking plant, it is an interesting one from the fact that so few of the same class of plants flower in September. To those who may not know its character, I may say that the flowers are white, faintly shaded on the back of the petals with lilac. The anthers are yellow and prominent, and the number of petals seems to vary from five to six. The flowers stand erect on stems about 6 inches high. The foliage is in the form of that of a Rush, and about a foot long. As it flowers in autumn, it will make a good companion to the Colchicums and hardy Cyclamens. As it was known to Parkinson, it must be a very old plant, although a scarce one. Bulbs of it have not been long in my possession; therefore I cannot say anything about its hardiness or reproductiveness.—J. C. C.

**National Chrysanthemum Society.**—The first meeting of the committee will be held at the Royal Aquarium, Westminster, next Wednesday, at 2.30 p.m., when new or rare Chrysanthemums or other subjects may be submitted. Certificates will be forwarded according to merit. Exhibitors can obtain admission to these meetings by signing attendance book at staff entrance of the Royal Aquarium. Exhibits should be staged not later than 2.15 p.m. Parcels (carriage paid) may be directed to Mr. William Holmes, honorary secretary, care of Mr. F. Cates, Royal Aquarium, Westminster. Exhibitors need not be members of the society.

**Tuberous Begonias.**—A series of varieties of double and single Begonias has been sent to us by Mr. Mounsdon, gardener at Lifton Park, Devonshire. Some are named, the rest seedlings, among the latter being some of remarkable excellence. The finest is a brilliant scarlet single, which is stated to be most floriferous; a plant of it three years old and 2½ feet in diameter bore forty trusses of bloom, each carrying half a dozen flowers. Among the named sorts is a beautiful white called White Perfection, and Golden Queen is one of the best single yellows we have seen. The sorts named Mdme. Dumast and Lady Hulse are also excellent, and should be comprised in the choicest selection.

**Royal Horticultural Society.**—From a copy of the programme of the Primula conference, to be held on April 24, 1886, under the auspices of this society, it appears that an exhibition of these interesting plants will be held in the conservatory at South Kensington on April 23 and 24, 1886, in conjunction with the exhibition of the National Auricula Society. The president of the conference, Mr. J. F. D. Llewellyn, F.L.S., and the chairman of the committee, Dr. Michael Foster, F.R.S., are supported by a numerous committee of gentlemen interested in the subject in this country, both amateur and professional, as well as by the representatives of a large number of the chief botanical and horticultural gardens and museums abroad. It is proposed that the plants to be exhibited shall be ranged under eleven classes, viz., 1, the Auricula; 2, the Primrose and Polyanthus; 3, varieties of Primula Sieboldi; 4, varieties of Primula sinensis; 5, European species, varieties, and hybrids of the genus Primula; 6, Himalayan and other Asiatic do.; 7, Chinese and Japanese do.; 8, American do.; 9, plants allied to the genus Primula, such as Cyclamen, Dodecatheon, Androsace, Cortusa, &c. (of the species only, not garden varieties, will be admitted); 10, primulaceous plants grown to illustrate special modes of culture, &c.; 11, specimens, models, and drawings illustrative of the structure and mode of growth of primulaceous plants. In order to assist in the arrangement of the European Primulas at the exhibition, Mr. J. G. Baker, F.R.S., has kindly drawn up for the committee a list of European Primulas, classified in three groups, published as an appendix to the programme, which may serve as a preliminary basis for the discussion at the conference, and also as a guide so far as possible to the exhibitors in giving names to the plants they exhibit. The provisional programme of the conference on April 14, 1886, includes: 1. The origin and history of the florists' Auricula, on which subject an introductory paper will be read by Mr. Shirley Hibberd.

2. The directions in which efforts should be made with the view of improving the florists' flowers belonging to the genus Primula, introductory paper by Mr. Samuel Barlow, J.P. 3. The nomenclature of alpine Primulas, introductory paper by Mr. J. G. Baker. 4. Culture of hardy Primulas, introductory paper by Dr. Maxwell T. Masters on root structure and mode of growth as affording indications of the probable best culture. This conference following closely as it does on the heels of the Apple congress and the Orchid conference, and with a Pear congress in course of arrangement, together with the active part being taken by the society in housing and caring for growing plants to be shown in the forthcoming Colonial and Indian Exhibition by the various colonies, gives evidence that the Royal Horticultural Society, under the energetic management of the present council, not only still holds, but has taken a step in advance of its well-known position as the horticultural authority in this country.

## NOTES ON RECENT NUMBERS.

**The Silver Birch** (p. 349) well deserves all the praise which "J. C." gives it, for from New Year's Day to New Year's Eve it is continually an object of beauty. On a lawn it is often as well placed as in a park, for the reason that it does not grow to a boundless size so as to overshadow other things too much, and it does not spoil the Grass beneath. The Birches at this time of year, when the leaves begin to turn, often look like a fountain of gold, and sometimes a single bough will change its colour, while the rest of the tree remains green just in the way that Elms do. It is astonishing how quickly a crop of young Birch comes up in a field if it is not cultivated for a year or two and there happen to be a few old trees in the neighbourhood; but the colours of the stem vary very much from the true silver form to almost quite black, even in places where the parent trees are all with silver stems, so that in this respect they can scarcely be relied upon to come true from seed. The Birch for purposes of effect can scarcely be planted amiss as an isolated specimen, in a group, or with other trees; no one need be afraid of making a mistake with it, for it comes in well anywhere and everywhere.

**Trees in autumn** (p. 350).—Few planters seem to have noticed or realised the value of the Cockspur Thorn as an autumn beauty. Besides the splendour of the great bunches of berries, which hang till stripped by the birds in hard weather, its great recommendation is that the leaves only turn by degrees, so that you have green, brown, red, and yellow in masses on the tree all together, and they continue in beauty for a considerable time. There are other Thorns which turn to a striking gold tint, but which shed their leaves in a hurry directly afterwards; whereas the Cockspur, seemingly, waits to be admired, and deserves great credit for doing so. It is useful for a foreground where higher trees would be in the way, and being naturally of a somewhat spreading habit, it could be trusted not to block out a view by growing too tall. The difference in the colours assumed by the Horse Chestnut is very great, for whereas some trees of it merely become of a commonplace dirty-yellow tint, others invariably turn to a glowing crimson, and whether the result of soil or a constant variation in the particular sort would be worth inquiry. The beauty of the American trees in autumn is much written of, but we have many beauties of our own, such as the Beech, when seen in masses; moreover, we can plant the "strangers" if we can get hold of them, though the best colouring varieties of the different sorts are not always so easily obtainable, and if discovered in nursery gardens are worth digging up then and there.

**The Rose Acacia** (p. 351) is a most vexatious concern, for it no sooner gets to a decent size than it breaks itself up, especially if one happens to go near it when it is loaded with blossoms. If seeds could be obtained it might with much greater safety be grown as a bush, or even it might be grafted on a shorter stock than is usually done. I have never seen seed ripen in this country; perhaps some of your readers may know where it may be obtained. That it is a

very desirable shrub and one very seldom met with, considering its beauty, few will deny.

Sussex.

C. R. S. D.

## LAVENDER CULTURE.

LAVENDER can only be profitably grown where soil and climate are alike favourable. It requires for its well-being a combination of conditions such as only exist here and there. Therefore, if the object is to grow Lavender for distilling, it is quite useless to plant it on heavy or low-lying ground. The situation should be a rather elevated one, well exposed to the breeze and sunshine, so that the wood becomes thoroughly matured, and is thereby enabled to resist those climatic vicissitudes which sometimes kill the plants wholesale in damp places, and as a Lavender plantation requires three years to bring it into full bearing, it is needless to say that an occasional disaster of this character would reduce the profits to a vanishing point. Lavender is grown in Surrey in light sandy, and in some places very strong, loam, at a considerable elevation, and where the drainage is free. The growth thus made is short, and gets thoroughly matured. Moreover, in such soils the amount of oil contained in the flowers is much greater than when the plants grow in soils of a naturally cold character. Such a situation also markedly affects the duration of the plants, as where they are most favourable plantations will remain in healthy vigour for a period of seven years.

The time generally selected for planting is the middle of March, as then the plants get thoroughly established by winter; whereas, if set out in autumn, they are liable to suffer. They are grown a foot apart in the rows, which are 3 feet asunder, and in the course of about four years they grow into little hedge-like rows, with only just enough room between them to pick the blooms. Lavender may be readily propagated by cuttings of the ripened wood taken off with a heel about April, inserting them in a shady border and keeping them pretty moist. By autumn they will form nice little plants. The easiest method, however, is to take out a trench where the soil is rather light and very free, making the trench so deep that old plants may be laid therein in such a way that only the tops project several inches out of the ground. Tread them well in and give a good watering if the weather is dry, and no more attention will be needful. Roots are made all up the old wood, and the following spring they can be taken up and pulled to pieces. This method gives stronger plants, but, of course, can only be practised where there is abundance of stock. The wholesale price of essence of lavender is, I am informed, a guinea per ounce, but the profit per acre will, of course, vary according to the season and the nature of the situation.

J. C. B.

**Cutting back Rhopalas.**—I have a Rhopala which is getting too high for my conservatory. I, therefore, want to know if it might be cut down without fear of injury; and, if so, would the top be likely to take root if planted? Would the tree, if cut, send out fresh shoots? Any information concerning this matter I shall be glad to receive.—J. H.

\* \* Under ordinary treatment Rhopalas are not easily killed. Large plants may be cut down without any danger to them, and if kept dry and warm afterwards for a little while they will soon push into growth again. A large, strong-wooded stem would not readily strike root, but a stock of young plants could be obtained by taking off and treating as cuttings the shoots which are produced by the old stock after being headed down. If a Cocoa-nut fibre bed is available, such, for instance, as is used for propagating purposes in pits or warm houses, the part of the stem cut off might be buried in the Cocoa-nut fibre just below the surface, and if kept moist and at a temperature of about 75°, this will probably induce the latent eyes to start into growth, and ultimately strike root. We presume that by conservatory is meant a warm house, as the Rhopalas are natives of Tropical South America, about thirty species being known to botanists.—B.



## LLANGEDWYN.

COUNTRY PLACES are seldom really attractive or beautiful in proportion to their fame. It frequently happens that we are more struck with the charms of a place that we never heard of before we saw it than with those of some of the most popular places in the country. Situation, or accident, or history, or popular writers tend to the appreciation to which we allude. Llangedwyn is one of those gardens that we enjoy for its own sake and its happy and simple charms. It is one of the gardens, not common in England, in which the terrace is pretty, because called for and also properly used. A country of soft green hills and pleasant streams, the landscape around is very sweet, with the flower gardens and terraces

according to the requirements of the plants. It is pleasant to see the mixture of flower and fruit along the old walls—excellent Peaches and Clematis, and Roses on the same walls! It is interesting to note, too, that in years when the Peach in the midlands and the region about London has so often suffered from colds and storms, it is here in perfect health and quite fertile. Fruit of all kinds seems to thrive extremely well in the place. The kitchen and fruit gardens are on the level ground below the terraces, and are productive and well managed. The old house is covered in the most delightful way with Roses, and Clematis, and Pyracantha, and Cotoneaster. The deep recesses in the house favour this kind of work, and help to

which they will be subjected during the summer and autumn? I find a difficulty in selecting a carpet which will stand well in parts of the border where the tall strong plants grow. Such things as *Lithospermum prostratum* will only do towards the front of the border, and do not seem to like being shaded. Will anyone with practical experience kindly give me the names of any evergreen choice things to act as carpets in the places which I have described? Would *Antennaria tomentosa* be suitable?—O. A.

## ROSE GARDEN.

## ROSES IN CALIFORNIA.

LESS than a hundred years ago there arose for flower lovers of the newer world a floral star in the eastern horizon, a gift from the Orient to the Occident. Not from Eden or the Euphrates and the hanging gardens of Babylon, not among any of the recorded flowers of



Llangedwyn House. Garden side.

simply cut out of the sunny face of a gently wooded hill. In the wood behind the gardens there are some specimens of Oaks, and the wooded hill is a grand situation for a beautiful wild garden. The use of the Flame flower, or *Tritoma*, and other hardy plants in bold masses near the house, is very effective in the autumn. Along the front of the main flower garden there is a little wall perfectly covered with *Saxifrages*, *Maidenhair*, *Spleenwort*, and other Ferns, and other hardy plants; they had evidently come quite of themselves, and the dry condition of the wall in winter preserved them in perfect health. We can imagine no more charming feature in a garden. If Nature does so much, what might not we do with a large number of alpine plants treated in the same way on the shady sides of walls, or, indeed, on all sides,

vary the scene. Llangedwyn was one of the seats of the late Sir Watkin Wynn, who rests in the little graveyard just below the avenue which forms one of our illustrations. It is now the residence of Lady Wynn and it was always her favourite place, quieter and prettier, as we think, than Wynnstay. All the views are engraved for THE GARDEN from photographs.

**Plants for carpeting.**—I shall be grateful for an answer from some of your correspondents to the following: I am anxious to entirely carpet the back of a wide herbaceous border. Can I use the choice double sulphur, lilac, and mauve *Primroses*, *Primula rosea* and *cashmeriana*, *Auriculas*, *Hepaticas*, and Christmas Roses for this purpose? I wish to have them permanently planted, with the tall herbaceous things to come up in groups through them. Will they suffer from the unavoidable shade and shelter to

the ancient world, do we find trace of this later acquisition, beyond all other floral gifts to this century. From its home in the fertile valleys of India or China, where the wild, five-petalled Rose had been known for centuries, there came to Europe a primitive form of the Tea Rose. We have no authentic account of the original history of the Tea Rose, and the earlier ones were single, or nearly so, and gave little hint of the possibilities of their future, save only in their true tea fragrance, which has been a fixed characteristic in all later additions. The first double one of any value in California was the well-known *Devoniensis*, than which even now we have few more sterling kinds. Rosarians number the varieties of the Tea Rose now grown at over 600, though many puzzling synonyms occur. The characteristics of certain families are easily determined, under which their respective descendants may be grouped. It is this group of Roses which is most largely grown in California, being adapted to the climatic conditions, and affording almost constant bloom, while in England and France acres of glass are required to secure immunity from frost and severe thermometrical

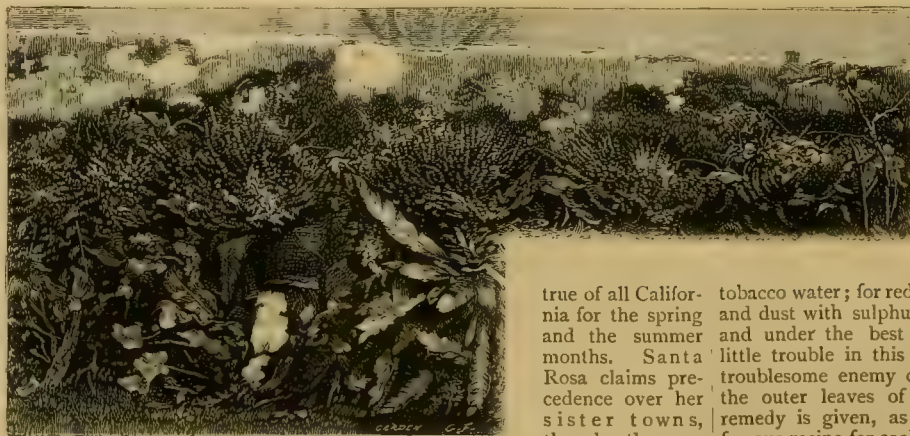


fluctuations. Save for our favourable conditions, these countries would be formidable competitors against the claim made, that in California the Rose has found its true habitat. A generation of experience has given to Continental rosarians a skill not lightly to be valued, but when we shall have attained a like skill, with systematic endeavour to use it for the highest results, the question will no longer be a mooted one. From the fickleness of European climates, the fatal alternations of heat and cold, excessive moisture without counterbalancing sunshine making the use of glass a necessity, the California Rose grower turns with unalloyed satisfaction to a minimum of these conditions. Especially is this true of localities a few miles distant from the sea-coast, where the sea-breezes are softened. We are equally removed from the rigours of Eastern winters, and from springs that tarry in the "lap of Winter," leaving too short a floral season for anything like perfect success, save to those who resort to conservatories, and making out-of-door culture a practical impossibility for anything more than the brief summer months. At no period of the year do the florists of San Francisco fail to procure garden-grown Roses for their requirements. From sheltered localities adjacent to the city come at all seasons buds and blossoms of great beauty.

#### IN SOUTHERN CALIFORNIA,

From Point Concepcion to San Diego, we find Maréchal Niels resting their golden heads on the mossy couches in the florists' windows. Here Marie Van Houtte takes on her golden raiment with a mantling blush of carmine, such as is not seen elsewhere. The royal kin of the Duchesse de Brabant to remotest degree show linings of sea-shell pink, shading to amber, beyond the power of brush or palette. While the demands of early winter cause comparative scarcity of blooms in the immediate neighbourhood of the metropolis, the denizens of the southland revel in Rose gardens, where there always may be found some venturesome forerunners of the early spring-time. The industrious Safrano never feels called upon to close her blinds or take a vacation, the pure white Bella makes a speciality of winter Rosebuds, and the Duchesse de Brabant affords the touch of colour needed in a winter landscape—if one can imagine such a thing with sunny skies and green hillsides. Just here Nature forgets her thrifty winter economies. "All seasons are its own" is true of the Rose in its chosen home in Southern California, but even here its perfection is reached only in a few favoured localities. The sea-coast, unlike the northern portions of the State, gives here the best results. The soft, moist atmosphere provides a bath of dewdrops all the early hours of the day, a luxury not lightly to be estimated. A Rose garden at Santa Barbara perhaps illustrates as perfectly as any other these conditions. It is set to a chromatic scale of colour, as hopeless of reproduction as the famous sunrises of that locality reflected in the clear waters of the bay, a bewildering kaleidoscope of gold and crimson, blended with tender tints of rose, and amber, and pearl. So when the Rose festival of the early springtime gathers together the clans of flower-lovers and the treasures of their gardens, it is not an open question as to "who shall be Queen of the May." For several years the attraction of those months has been this feast of Roses. At first a leading object was the correction of nomenclature, which had become a hopeless tangle; now it assumes a larger place, and taxes each year the taste and resources of every florist of note. An attraction of the current year was in arrangements of

Moss and turf of generous extent, laid out as Rose gardens, and supplemented with minor growths to accentuate their beauty. A toboggan of shaded crimson Roses, with sliding ground of white Lamarques, was a striking "novelty," arranged to the life by ladies "to the manner born." The lavish profusion with which Roses are used on these occasions would paralyse an Eastern or a European florist. Some simple bank or side decoration will require five thousand Roses of one shade; another contrasting bank as many of crimson shaded to white. Ventura, Los Angeles, San Diego, Riverside, and many another town and hamlet could provide displays which would destroy the peace of Rose-growers of other lands. As springtime deepens, the central and northern counties wheel into line, and the whole State is crowned with Roses and heavy with fragrance. Oakland, Alameda, Haywards, Niles, San Jose, and intermediate places are filled with the glories of Rose gardens—a gladness to every beholder; though it is a question if the less frequent winter bud and blossom is not more perfectly appreciated than the "embarrassment of wealth" of the later season. The Banksias on the trellis are throwing out golden spheres on one side and miniature snow-wreaths on the other, rivalling the Cloth of Gold, the William Francis Bennett, the Niphetos, and the endless array from Adam to Vicomtesse de Cazes. Every bud and bloom of the lesser lights of the floral world is eclipsed, and the carnival of Roses holds undisturbed for many a gala day. This picture is



Llangedwyn. Low boundary wall covered with plants.

another favoured locality. Sacramento considers herself most favoured in Roses at this present season, and with apparent reason. Beside the mountain Roses of the early spring time, barbaric splendours pale. Not content with trellis or neighbouring cornice, they reach out for adjacent tree-tops, covering the leafy splendours with uncounted thousands of royal bud and bloom. In the mad strife for gold some decades since an Argonaut of '49, in a homesick hour, planted a branch of climbing Rose at his cabin door. Now, deserted cabin and tree and hillside are a wilderness of "white chalice held up by unseen hands," relieved by tangled masses of vines and tendrils, fed by a clear stream that murmurs past the cabin-door. The materials are all here, the poetry and the pathos all ready for the writer. Old-world ruins, overgrown with Ivy, winning from the pilgrim and tourist willing tribute in song and story, could find here a fitting counterpart. An effective method in the

#### ARRANGEMENT OF ROSES

is often seen in beds cut in the lawn, where harmonising or contrasting colours can be satisfactorily introduced. These beds are usually composed of Tea, Noisette, and Bourbon Roses, with an occasional Hybrid Tea, and the following varieties, from habit of growth, symmetry of form, and freedom of bloom, may safely be arranged together: Coquette de Lyon, Catherine Mermet, Marie Van Houtte, Perle des Jardins, Sombreuil, La France, Madame Pernet, La Jonquille, Madame Lambard, William Francis Ben-

nett, Comtesse Riza du Parc, Sunset, La Princesse Vera, Coquette des Alpes, Caroline Kuster, Cornelia Cook, Madame Guillot; and for gardens near the coast and cooler portions of the State, Safrano, Madame Falcot, La Sylphide. In Southern California the first two succumb to the prevalent sunshine and the last is subject to mildew; and a substitute in that case is much better policy than a battle. A retreat is often the better part of valour in Rose culture. An equally effective arrangement of Hybrid Perpetuals, with a border of low-growing ones for spring and autumn blooming, may be composed of the following varieties: Marie Baumann, Alfred Colomb, Baroness Rothschild, Marquise de Castellane, Louis Van Houtte, Marie Rady, Etienne Levit, White Baroness Rothschild, Vulcan, Xavier Olibo, Monsieur E. Y. Teas, Baron Bonstetten, Prince Camille de Rohan, Abel Carrière, Fisher Holmes, François Michelin, with an outer edge of Paonia, and Madame Françoise Pettit. This number calls, of course, for a large space, but a selection therefrom will be found valuable for a smaller one. Special care has been given to select sorts that bear well our large allowance of sunshine. Many choice varieties are failures here for no reason but that they do not bear sunshine. An experienced florist specially recommends Louis Van Houtte and Marie Baumann as free from this objection; also General Jacqueminot and Alfred Colomb. In the shades of rose colour the more permanent ones are Marquise de Castellane and Rev. J. B. Camm. In the paler shades are recommended Eugène Verdier, Monsieur Norman, and Captain Christy. To be avoided where brilliant sunshine is the rule are the Verdier type, save the one given above, the Giant of Battles, the Lefebvres, and the Duke of Edinburgh family. The remedies for insects affecting the Rose are as follows: "For green fly in spring, syringe with whale-oil, soap and tobacco water; for red spider, syringe under the leaves and dust with sulphur." Roses grown out of doors and under the best conditions give comparatively little trouble in this direction. Perhaps the most troublesome enemy of all is an insect that stings the outer leaves of opening buds, for which no remedy is given, as it would have to be like the famous recipe for cooking a hare—"First catch your" bug, then kill it. Scale sometimes annoys old plants; for this, whale-oil soap is a remedy—but probably a better one is a new plant. Concerning the

#### CULTURE OF ROSES,

We have something to learn from other nations. Fair results have been reached with so little labour on the part of the grower, that we have paused there. When we shall have reached the maximum of care bestowed upon French and English Rose gardens, where operations are conducted with mathematical precision and unflinching devotion, we shall see marvellous results. When we shall prepare Roses for exhibition two years in advance, when we shall study our soils and conditions with a seventh floricultural sense, born of an intense enthusiasm for our work, then we shall see results worthy of the climatic conditions with which Nature has endowed us. Just here lies our danger, so much has been given that we allow it to suffice, and are satisfied with a thousandfold less than we might receive. Regarding the pruning, much depends on locality and variety. The cooler climate of the coast permits a standard form and higher trimming than in the warmer valleys, where the heat of summer requires shade for healthy growth, and of necessity low culture. During periods of rest the old wood should be removed, leaving, if possible, from one to three upright shoots from the root. A matter of vital importance is to commence training the Rose from the first planting, and unless one is hampered by varieties addicted to slow and awkward growths, a satisfactory result is attainable. The old wood should be cut below the ground; when young and vigorous shoots



are ready to take its place, awkward and straggling side growths should be headed in, though in this regard prevention is better than cure. Sacrifice bloom rather than allow such growths, and the reward will come in later days. In climbers, side pruning and a selection of runners will be all that can be accomplished. Beyond all these conditions of success is the one of rapid growth. When insects attack a Rose grown out of doors in inland localities, it is usually an old or an unhealthy plant. If the root finds luxurious plant food, the top will show splendid results. An English florist gives an excellent formula for Rose

very much after the fashion of Topsy. They grow from small beginnings and out of slowly gathered experience. California is a land of experiments; it is still delightfully indefinite; there is as much of floral prospecting to be done as of any other sort, and its devotees are as persistent and undaunted as the most incurable gold-seeker.

#### THE FAVOURITE VARIETIES

cultivated are found among the Tea Roses, giving as they do almost constant bloom. Hybrid Perpetuals form less than a tenth of the ordinary Rose garden, as

hood. The enquirer was taken to a portion of the hall where a large bowl of this fragrant variety stood, and thereafter no difficulty will be experienced in deciding on the locality of a Provence Rose, even if its form or colour is forgotten. In these it somewhat resembles our native Castilian, but is less double and smaller. A very large crop is required before it can profitably be utilised. The poetic element is not ordinarily wanting in any direction in this realm of sunshine and flowers, where beauty is a birthright and her kingdom a perennial one. It grows in the eternal silences, is fashioned without sound of the hammer or echo of turmoil. And yet one touch of tenderness, one note of pathos, we lack—we have no “last Rose of Summer,” around the memory of which lingers in other lands so much of tender sadness—a death march in Nature, whose mournful tones hint so remotely of a possible resurrection in the far distant spring-time. For this reason, possibly, we fail to realise the completeness and perfection of this kingdom of beauty. An Eastern winter suddenly transferred to our shore would bring to our minds an intense realisation of our blessings. Were there a single month of impossible Rose-buds, what a wail would extend over the land.—*Overland Monthly.*

#### SELECTING ROSES.

ONE can hardly understand what “Delta” (p. 306) wishes to prove. In one place he states that my advice as regards selecting Roses is misleading, and in another, with reference to the system of cultivation pursued by exhibitors, he remarks that exhibitors always give special care to those productions which they venture to submit to public gaze and criticism, which is just what I asserted in my note referred to by “Delta.” Yet, further on, he says the chief difference between the grower of Roses for garden



Llangedwyn. Shady side of wall of terrace covered with Rock-foil and Ferns. (See p. 371.)

planting: Allow the hole to be 18 inches in depth, and large enough to contain a “wheelbarrowful of compost, two-thirds turfy loam, and one-third decomposed manure,” and adds that “it is difficult to give a Rose too good a soil.” The average soil required must be a strong friable one by nature, or made so by application of the lacking requisites. Fine results are shown on our heaviest adobe soils, where careful culture and ample moisture are supplied, but the application of sandy loam and leaf mould or decomposed turf greatly benefits this class of soils. For lighter ones, burnt clay with manures of all kinds are valuable. A clay subsoil is invaluable in holding both moisture and plant food. Fresh manures should be liberally applied at the beginning of the rainy season, and decomposed ones as liberally in the spring, for a mulching during the early rains, then to be spaded into the ground. If desirable, this mulching may be replaced by lawn clippings in warm localities. A marvellous growth of *Maréchal Niel* may be secured by giving this treatment during the summer also. It will bear 10 inches or 12 inches (not too near the stalk), with a generous daily supply of water. The result of a like treatment was 12 feet of growth in one summer, and the Roses were wonderfully beautiful. The plant, of course, was a budded one. Concerning the expense of Rose gardens, the range is as varied as the taste and means of the Rose grower permit. A large proportion come into life and beauty

two crops at most are all that can be expected, and the latter a small one. *Noisettes*, *Bourbons*, and *Hybrid Teas* form a somewhat larger proportion. The ordinary varieties of these are supplied by florists on the coast at from ten to fifty cents each according to size and class. New varieties come higher, and are likely to be cautiously ordered until they have established a well-grounded reputation. The second season from planting will give fine results from even the smallest plants, the larger ones giving returns at once if properly planted and cared for. Buds of winter-blooming varieties—*W. F. Bennett*, *Safrano*, *Sunset*, *Bella*, *Madame de Watteville*, *Bon Silene*, *Cornelia Cook*, and others—have always a commercial value. A point of interest in this view of the subject is a successful venture in Southern California, to introduce the *Provence Rose* for extracting the well-known attar of rose of commerce. Dr. Hall, until recently a resident of France, has a plantation of these and other perfumery plants at *Carpenteria*, a suburb of *Santa Barbara*. It is proposed to enter upon the extraction of the essential oil as soon as a sufficient stock shall have accumulated, and the day is not far distant when we shall add to our exports the varied extracts of perfumery plants, among them the attar of rose. At a Rose festival in *Santa Barbara*, the question was propounded as to how one not familiar with the numberless Rose family should distinguish a *Provence Rose* from its countless sister-

decoration and the grower for exhibition consists in disbudding. Now, if it was no more trouble to grow exhibition Roses than “Delta” would thus have us believe, how is it that we have so few amateur exhibitors of them? What would that successful Rose exhibitor who resides in the west of England, and who is well known to “Delta,” say to this if asked the question? He certainly could not point to his garden and say, “I grow my Roses in the same way as they are cultivated for garden decoration by everybody else,” nor could he point to the long lines of from twenty to thirty plants of one variety, and at the same time assure us that this is the way in which they are grown by everybody in order to decorate their gardens. I am willing to grant that the National Rose Society has done much to advance the cultivation of the Rose. But I cannot with “Delta” say that its selection of Roses suitable for any purpose is altogether reliable, seeing that much of the information on which it rests comes from nursery quarters, and I still am of opinion that neither the nursery nor the exhibition table are the places from which to select Roses to be relied upon for garden decoration. Not that I would wish to deter anyone from growing or showing Roses; by all means let their number increase, but they certainly will not do so if they are not properly advised as to what to grow and what to avoid. If “Delta” is in the happy position of being able to grow all the varieties of Roses fit for exhibi-



tion with only the same care as is given to garden Roses generally, he will find that there are very many not so favourably situated. J. C. C.

## PARKS AND PUBLIC GARDENS.

### VICTORIA PARK, BATH.

FROM a column standing within this park, we learn that it was completed in the year on which the Queen ascended the throne. It is dedicated to the use of the public, and supported by voluntary subscriptions. There is nothing remarkable as regards its size, and the central part, which is open, with the exception of some formal rows of Elms, presents too much the appearance of a paddock. This, however, could be relieved by the substitution for the not very satisfactory Elms of a few groups of suitable low trees and shrubs at intervals over the open space. Who the designer was we do not know; but, on the whole, aided by the character of the situation, the best has been made of the somewhat limited space; the length is considerable, but the breadth is nowhere great. The most striking feature, perhaps, is that of the main roadway and the trees and promenade by which it is flanked. This roadway is arranged to skirt the margin of the park, with such deviations as were desirable to preserve it from abrupt corners. From the entrance at the lower end, along the south side, curving round the western end, and again along the northern side, the continuity is nowhere lost, although it is here and there intersected by a public thoroughfare. Not the least advantage of this plan is the length of roadway given without monotony, and a really pleasing and secluded drive it is. Another feature of interest is the ornamental water, which, though not remarkable in itself, is surrounded by good weeping and other trees. A third attraction is the little wooded dell at the north-west extremity, which, planted with some of the rarer kinds of Conifers and various other trees and shrubs, is really effective. A mass of masonry, which at an earlier date must have been an incongruity, is now almost entirely covered with climbers, principally Ivy. With regard to the trees generally, those most sought after for planting in such situations as this seldom make good timber. This may not detract from their value for the purpose for which they were intended, but it is a thing which planters for practical purposes would do well to take note of. There is, of course, here a proportion of the commoner of our woods, viz., those known to commerce; of these no mention is necessary, but outside this class we find specimens of other trees not usually found, except in collections. Amongst these may be named several examples of the Catalpa, a tree which has lately been somewhat written about as likely to add to our list of timber trees. The specimens here are scarcely large enough to form an opinion upon in this respect, but they appear to be thriving satisfactorily, and at the present time their fine foliage and canopy-like heads are sure to attract attention. Another tree remarkable for its foliage is the Tulip tree (*Liriodendron tulipifera*); of this there are some good examples as well as of Arbutuses, the latter noticeable from the redness of their bark. Here they form loose-growing bushy trees, some 10 feet or 12 feet high. At the western end there is a specimen of the Canterbury seedling Elm (*Ulmus montana glabra major*); for a few feet from the ground this tree preserves a solid stem approaching a yard in diameter, but from this point breaks out into numerous large branches, which ascend to a considerable height and form

a fine head. As a timber tree, if this early branching is its usual habit, it cannot take a high place. Near this tree and of a similar height is a species of Robinia (*R. viscosa*); with the exception of the clamminess of its bark, this species nearly resembles the common Acacia (*R. Pseudacacia*), which here has an irregularly formed ribbed stem some 40 feet high. As is usual in places of this kind, many of what may be considered purely ornamental kinds of trees are to be met with, but they do not call for special remark individually. Collectively, however, their arrangement produces an effect which, if not perfect, is generally pleasing, and which undoubtedly establishes the claim of the Victoria Park to a honourable position amongst our smaller public parks.

D. J. Y.

**The Scottish Rights of Way Society** of Edinburgh has recently, according to the *Journal of Botany*, sent an active deputation to traverse some of the mountain paths in the centre of the Highlands, and particularly to erect guide posts. This expedition has dealt with the Braemar district, and made an excellent beginning. Botanists who have been excluded from Glen Doll, Clova, will be glad to hear that a guide post has been erected at its foot, indicating through it a "Public path to Braemar." Another notice board erected previously by Mr. Macpherson, the proprietor, stands beside it with the inscription, "Private entrance to Glen Doll." Experience has proved, since this step was taken by the Rights of Way Society, that visitors on being challenged have only to assert their determination to proceed to gain access to this beautiful and botanically interesting spot. Admirable as the action of the society is in recovering for the public so many ancient paths, yet it will be matter for regret, especially to naturalists, if this much should satisfy the public demand for "access to mountains." Gamekeepers will still confine travellers to certain tracks, and thus exclude the naturalist from his most interesting hunting-grounds. While the gratitude of botanists is due to the Society for such benefits, there should be no relaxing of efforts in favour of Mr. Bryce's "Access to Mountains Bill," which is intended to provide wider access everywhere.

**Irish Anemones.**—Mr. Burbidge has kindly sent me from Dublin some flowers and foliage of the "St. Brigid" strain of Anemones. I find them to be identical with some I saw growing last spring at Maiden Erleigh, near Reading, where I was informed by Mr. Turton that they were rather later blooming than our beautiful broad-petalled French forms, to which indeed they formed a good succession. No doubt the difference in time of blooming is largely due to the diverse climatic conditions they are grown under, as here they are always lacking that moist atmosphere which marks Ireland so strongly. This Irish strain has flowers much resembling Pæony-flowered Asters, though not so full, but the petals are narrow and numerous. I think the strain lacks those brilliant hues we have in such abundance, and I am not at all sure whether the flowers are so beautiful. Still, I may be biased in favour of a strain which I have so much reason to admire.—A. D.

**Clean drives and walks.**—"S. W." (p. 295) recommends for cleaning gravel walks hand-weeding and hoeing, methods old-fashioned and almost obsolete. I have used diluted carbolic acid and Smith's Weed Killer; the latter the best. It kills Grass, Moss, and all kinds of vegetation that usually discolours and disfigures well rolled and kept garden walks and drives without disturbing the gravel, the colour of which it improves. With six quarts of Smith's Weed Killer diluted with water, I made a clean job of a walk 120 yards long and 5 feet wide. The vegetation consisted of small Grasses, Spargula, and several varieties of Moss. The liquid was applied in less than an hour at a cost for materials of less than 3s. I had some walks done last year about this time (September 22), and have not seen a single weed on them all the summer.—R. MAHER, *Newburn*.

## GARDEN FLORA.

### PLATE 513.

#### YELLOW PRIMROSES.\*

WE are, as a rule, very tolerant of terms in relation to colours of Primrose flowers, especially of the double kinds, for only by a long stretch of the imagination can the deepest hue of these, of the creamy section, be termed yellow. Really, sulphury or creamy white are terms which convey the most accurate impression of colours in double Primroses, and it is a curious fact that of true single forms rich or orange-yellow is seldom, possibly never, met with. In saying this, a reservation is needful, because so much is not really true of the Primrose family, for that is a large one and has a varied series of habitations. I am at present writing of the Primrose as we know it rurally; that is, as a section of the Primula family having strongly marked features, which enable us to distinguish it from the later-blooming, and perhaps more easily cultivated, veris or Polyanthus section. We see in abundance rich hues in great variety in garden Primroses proper, except good yellows; and that seems all the more strange when rich and even orange hues may be found in the Polyanthus section, although in common parlance these, too, are termed Primroses. The beautiful forms depicted in the annexed illustration, though termed Primroses, are obviously Polyanthuses, for they have stems from which break out whorls or trusses of blooms, a characteristic which specially enables us to distinguish the one section from the other. That Miss Jekyll, of Munstead, possessed a very fine and beautiful strain of these spring flowers I had previously learned, but had not seen them until last spring, when some of them were taken to South Kensington, and were employed there with good effect in the decoration of a most charmingly arranged group of hardy plants and flowers on a carpet of green Moss. These yellow Primroses so-called showed a remarkably fine strain; the pips were broad and flat, not a few being of deep rich hues, whilst others were creamy and pure white. Another feature of the strain was the robust habit of the plants, but that may have been due to suitable soil and situation. It is equally probable that these plants were from seed sown the previous spring, and these yearlings are always most robust. Where the soil is so cool and moist that Primroses of all garden forms will retain their foliage during the summer, all goes well, and perhaps such a happy state of things may be found at Munstead. In all places, however, the same condition of things does not prevail; hence vast numbers of plants, where the soil is hot and dry, lose their leafage in the summer; the crowns are weakened, oftentimes the plants die absolutely, or else, if recovering, find the loss of foliage to have very much depleted them, so that the following season's bloom is much less than is desirable. All these plants are so naturally dependent upon surface-roots for development and the production of new and strong crowns, that the loss of foliage, which should give shade and retain moisture to the roots, is thus a serious evil, and may be only recouped by the giving of some artificial shading or protection; the best form, perhaps, being a mulching of short rotten manure, leaf soil, old pot mould, or other material. Where, on the other hand, Primroses have natural shade, which preserves the foliage also, they still further obtain the benefit of falling leaves, as that presently becomes a





YELLOW PRIMROSES







surface-dressing, and thus fertilises and promotes growth.

Without doubt, those who desire to possess a good stock of garden Primroses should sow seed every year, either in the spring or, by preference, as soon as ripe in the summer. There is this advantage attached to adopting the latter course, that as a rule new seed germinates quicker and with more certainty than does the old, whilst if the seed be sown under glass or in some position where it can for a week or two be shaded from hot sunshine and kept watered, strong plants will be ready to dibble out in September, and these will give much stronger plants in the second spring than could possibly be the case if the seed were not sown until the following year. Also the seedling plants when small and transplanted then suffer much less if planted out in autumn than if put out in the month of May.

Perhaps it may be asked whether the section termed hybrid Primroses does not give many good yellow flowers. The term hybrid in this case is very incorrectly applied, because in the first place hybrids are the produce only of two very diverse species, and, secondly, we have no proof that this so-called hybrid form is the produce of artificial fertilisation. There can be no doubt, as I have found abundantly shown, that Primroses of the true habit will produce in their progeny very many that are half Polyanthus. The distinguishing features of this half-bred strain are pure Primrose blooms first, followed later and as the spring advances by others in trusses on main or Polyanthus stems, but the flower-stalks which break out from the main stems are always longer than are those borne by exact Polyanthus; hence these are never of good correct habit, though in the open border always very early and highly decorative. But whilst the true Primrose is chary of producing good yellow flowers, and the hybrid section will produce some, the richest and best coloured are always found most abundantly in good Polyanthus forms. Thus we find in the duplex or Hose-in-hose strains remarkably rich yellows, hues which, on good heads of bloom, are much intensified because of the double pip or duplex form of the flowers. Sometimes we find pure Polyanthus producing blooms rich in colour and of the most perfect form, having that desideratum of the florists—good thrum eyes. It is noticeable that all the flowers in the illustration have pin eyes or the pistils prominent. Such selection was perchance accidental, but the point is of trifling moment in the case of ordinary border flowers. If, however, some be selected and grown in pots for greenhouse decoration or for exhibition, it will certainly be found on comparison that the distinction between thrum and pin-eyed flowers is no trifling one, and that the former possess a finish which is in the latter wanting. No doubt, in the work of intercrossing, if such be undertaken, the employment of the pin-eyed flowers as seed-producers is wise, because Nature in thus projecting the pistil has done much to render such artificial fertilisation easy. Still, it must not be imagined that pin eyes and thrum eyes are evidences of sexuality; all kinds seed alike, and both forms of flowers will also give in the seed progeny an admixture of forms.

Still, those who may have time, taste, and desire to secure some special features in Primroses of the garden will find much that is interesting in attempts at cross-fertilisation, and very possibly much that is very profitable so far as floral results are concerned. Especially may this kind of labour be bestowed on the true Primrose with advantage, because of the ten-

dency, which seems inevitable, to develop into Polyanthus forms. Perhaps careful cross-breeding may ensure or at least help to perpetuate pure Primroses, but it is certain, I think, that ordinary care and selection only serve, as a rule, to develop matters in a wrong direction.

It would be worth the attention of hybridists or cross-breeders if they would start afresh with the common wild Primrose, using upon it only pollen from other pure, but still coloured Primroses. For the first year the produce would be but a lot of washy bald flowers, but from the best of these might be found parents worthy of further attention. The danger, however, in thus harking back would be that the old and valued blooming habit would, with the process of breeding and development, turn into the Polyanthus habit. The finest and the best coloured race of garden Primroses we have came from the so-called altaica crossed with the fine crimson auriculæflora, but such a strain would hardly produce yellows. Perhaps some of the half Polyanthus strains found at Munstead might prove good parentage with the wild Primrose, and thus obtain eventually for us what is so desirable to possess—a race of genuine yellow Primroses. A. D.

## GARDEN IN THE HOUSE.

### FLOWER-WREATHS AND CROSSES.

NEVER before, I should imagine, were so many wreaths and crosses to be seen in our churchyards and cemeteries as now. I have made a considerable number of both, and have also unpacked and examined a great many more sent from a distance, and it seems to me that the majority of them, more especially those made by non-professionals, are not heavy enough—that is to say, too few flowers are used. It may be that in many cases flowers are scarce, and must perforce be used thinly; but where they are plentiful, it is a great mistake to be too sparing with them. At first the light arrangements may be the most pleasing, but by the time they have reached their destination many of the flowers and Fern fronds will have shrivelled somewhat, thus giving the wreath or cross a meagre appearance; whereas in the case of the massive formation the flowers preserve one another for several hours, and even days, and look imposing from the first. If a large wreath or cross cannot be done well, then it is advisable to be content with a smaller one. It may be said that many afflicted persons pay but little attention to the numerous souvenirs of respect which they receive, but I venture to think otherwise, believing that the many beautiful flowers have a cheering effect upon the recipients, and the more tastefully arranged the more pleasure they confer. Many novices in the work of

FORMING WREATHS seem to take much unnecessary pains with the framework, and the way in which some of them are laced together is a proof that some people have much more patience and time to spare than I have. A favourite plan with many is to form two hoops with Hazel or Willow rods, one being about 4 inches less in diameter

than the other. The smaller one is placed inside the larger and blocked apart, after which a network of string is formed, into which is twined first a groundwork of Cypress or of some other Conifer, and then flowers are introduced; but unless many of the latter are wired and duly bent upwards, the wreath is bound to be flat and unattractive. I have tried several plans, but find that wire is preferable to any kind of bending wood for the framework. We always keep a roll of rather small galvanised wire for mending pots and other purposes; a length of this is easily twisted into the desired shape, and if the wreath is to be extra heavy it should be doubled. This hoop we usually make about 12 inches in diameter, and find this quite large enough at all times; but we reduce the size when flowers are scarce. Fresh Moss being available, a good thickness of this is bound on moderately firmly with medium-sized binding wire, taking care to make a great many turns round with it, as it is also required for fixing the greenery and flowers. The next proceeding is to form a groundwork of Cypress sprays, then the flowers are put on, and finally the fronds of Maiden-hair Fern. All can be fairly and expeditiously fixed in the Moss and wire, a light dibble being employed when the stems are soft, and every flower can be effectively disposed. It is true if the flowers and greenery were bound on, either with raffia or wire, they would be less likely to shake out; but they cannot be arranged to the best advantage unless the majority of them are wired. White flowers and Ferns always seem to look well, no matter how arranged; but, as a rule, I try to have a thin central ring of some rather imposing kind, such as single white Dahlias, or, better still, the white Cactus Dahlia, Eucharis amazonica, Elaine or Fair Maid of Guernsey Chrysanthemums, small Arums, Lilliums, Camellias, Gardenias, bunches of white Azaleas, and Tea Rose Niphetos. On each side of these, Deutzias, Bouvardias, Jasmines, white Antirrhinums, double Primulas, zonal Pelargoniums, Roman Hyacinths, Narcissi, Snowdrops, Lily of the Valley, Marguerites, Stephanotis, Begonias, Spiræas, pompone and other small-flowered Chrysanthemums, Rosebuds, Stocks, Asters, or any other moderate-sized white flower, according as each and all are available, may be freely worked in, taking care to give the central flowers sufficient room to properly display them. A few fronds of Maiden-hair Fern intermingled among them complete the wreath. Several of the kinds named, notably Gardenias, Stephanotis, Camellias, and Eucharis, have to be supplied with wire stems, and this admits of their being effectively disposed. At one time we wired the pips of Stephanotis separately, but they are too heavy for raising above the rest, and yet not massive enough for mixing with the rest, unless the pips are in bunches of threes or fours. Used freely in this manner, they give the wreath a substantial and rich appearance; in fact, Stephanotis blooms are almost indispensable,



especially during the spring months. Roman Hyacinths and Lily of the Valley spikes are among the most popular flowers for wreath-making, and there is no possibility of using too many of either of them; indeed, wreaths wholly composed of one of these lovely flowers are very beautiful. Snowdrops are not easily worked in singly, and we usually bunch them up before using. A wreath composed of Fern fronds, old white Azaleas, and spikes of Roman Hyacinths are singularly beautiful, and the same may be said of one composed of Eucharis, Bouvardia Vreelandi, and Lily of the Valley. Medium-sized spikes of *Spiræa japonica* are always effective when associated with other flowers, and the nearly matured foliage is a good substitute for Fern fronds and other greenery.

**COLOURED FLOWERS IN WREATHS.**—It is not often that any but white flowers are employed in the formation of wreaths, but I see no reason why this rule should be so rigidly adhered to. An acquaintance of mine occasionally makes a wreath wholly of *Allamanda* blooms and Maiden-hair fronds, and the effect is surprisingly good, the lovely rich primrose-yellow of the *Allamanda*, with its surrounding greenery, being such as to please the taste of the most fastidious. Wreaths formed with the somewhat similarly formed but pale blue *Thunbergia* *Harrisi*, or the pale rose blooms of *Dipladenia* *Williamsi* and the several seedlings somewhat resembling it, or even the young blooms of *Dipladenia* *amabilis* and *Brearelyana*, would also be very beautiful. It is true that they are not generally plentiful, but there is no reason why they should not be as common as *Allamandas*; at any rate, we experience no great difficulty in securing an abundant and long succession of blooms. *Dipladenia boliviensis* is well known; a wreath formed wholly with its lovely blooms is very uncommon and pretty. Violets and Forget-me-nots are admitted into many wreaths, and sometimes very pretty small wreaths are made wholly of one of these kinds. They are most effectively used in small bunches. Both the white and yellow Banksian Roses are of good service either singly or in mixture with other flowers for wreath-making, and I am of opinion that any of the Tea Roses are suitable for wreaths, not, however, mixed indiscriminately, but in one, or at the most two, colours, with plenty of the buds and foliage interspersed. Wreaths of Everlasting Grasses I do not admire, and those who have a few flowers and plenty of Evergreens at hand might well use the latter in preference to such artificial-looking productions. We have to make wreaths for every Sunday in the year, and at Christmas time we are allowed to introduce plenty of variegated Holly, silver variegated *Euonymus* and scarlet zonal *Pelargoniums*. These, with a few white *Chrysanthemums*, can easily be made into very beautiful wreaths, which last for a long time. Why should not similar wreaths be made at any time during the winter months? I had nearly forgotten an

old-fashioned favourite of mine, viz, *Sparmannia africana*. Trusses of this curiously formed flower are very pretty in wreaths when pure white flowers are not insisted upon. I once made six wreaths wholly of this flower and the foliage of *Spiræa japonica*, and they were greatly admired.

**CROSSES** are not seen in such great numbers as wreaths, partly because they are not so easily made. The framework of these is best nailed together, as by no other means can it be constructed neatly. Common plasterers' laths are suitable for the purpose; the cross piece may very easily be fitted to the long piece, and a nail driven through and clinched will hold them together. They may be made of any size varying from 18 inches in length and the cross piece 12 inches long, to 12 inches in length and the cross piece 9 inches long. The flowers and greenery may be bound on, but it requires a considerable amount of patience to get them into a presentable form, and it is by far the best plan to bind on a good layer of Moss or *Lycopodium Kraussianum* and to dibble in the flowers. The Moss, being fresh and damp, serves to preserve the flowers, and also gives the cross or wreath, as the case may be, a more massive appearance. I must, however, again advise that plenty of turns be given to the wire, and that it be not bound too tightly, otherwise a difficulty will be experienced in fixing the flowers. With crosses, again, it is advisable to have a few prominent central flowers, say from five to seven, bordering these with lighter kinds. One good-sized bloom—the largest employed—should be placed exactly where the bars intersect each other, and nothing is more effective than a medium-sized *Arum*. This should be padded up with Moss so as to bring it rather above the level of the rest, and this plan should also be adopted when either Lilies, Dahlias—notably *Constance* or the white Cactus—*Eucharis*, *Camellias*, *Chrysanthemums*, or large trusses of either single or double white zonal *Pelargoniums* are employed. We have used as many as seven *Arums* in a cross with good effect, but they were small, and *Stephanotis* and *Spiræa* formed excellent bordering, Fern fronds being lightly arranged over and among them. We recently formed a cross with blooms of *Constance* Dahlia, single white *Pelargonium* blooms being between them, and a bordering of *Abutilon* *Boule de Neige*. The centres of the latter were removed, and the petals carefully folded outwards, in which manner they are most effective. A cross should have the points and angles well defined and yet be of a good depth. One of the prettiest arrangements we have yet thought of consisted of a cross composed of large white *Camellias*; on this was hung a neat wreath wholly formed of Neapolitan Violets and leaves, and on another occasion we hung a small wreath of Forget-me-nots on a cross of *Gardenias*. When this sort of thing is attempted both the cross and wreath must be neatly formed, or the effect is

marred. Crosses of Violets are now frequently made, and last spring I saw a very pretty cross of Forget-me-nots with a bordering of the pretty light green young growths of Spruce Fir; while at a cottager's funeral recently I saw a pretty cross consisting of white Japanese *Anemones*. Christmas Roses are very serviceable for either cross or wreath-making, and they last longer than most flowers. Hereabouts common Daffodils are freely used for a similar purpose, and I like to see them; in fact, a wreath of flowers may be nearly always available. Now that *Chrysanthemums* can be had for so many months in the year, these are extensively grown for wreath and cross-making.

**PACKING WREATHS AND CROSSES.**—Great numbers of these are now sent to long distances by rail and post, and when well packed they usually arrive at their destination in a fresh condition. It is a mistake to pack them either in a very fragile box or in one too large; in one case they are liable to be knocked to pieces, and in the other they become badly bruised owing to their being permitted to shift from side to side. Light deal boxes are the best; they should be just large enough when lined with tissue paper to tightly hold the wreath or cross as the case may be. More of the paper should be placed on the top of the flowers, and then a layer of cotton wool, on which the lid should tightly close. We have sent them nearly 200 miles in that way, and they have arrived at their destination "surprisingly fresh." It must be remembered that the groundwork of Conifer only comes into rough contact with the sides of the box, and this preserves the flowers. If the boxes used are either much deeper or wider than the wreaths or crosses, they must either be bedded on and surrounded with packing material, such as cotton wool or Moss, both surfaced over with paper, as a heavy weight on the top would crush the flowers, or else they must be tied in two or more places to the bottoms of the boxes, holes being bored through them for that purpose. W. I. M.

**Solomon's Seal forced.**—Where it is intended to force this plant no time should be lost in lifting the roots from the open ground and placing them in their flowering pots. Where masses of it have been undisturbed for some time the strongest crowns are generally around the outside, and as the whole clump will, in all probability, be too large, the most vigorous portions should be detached with their attendant fibres and potted singly or grouped together in whatever way may be desired. A good open loam with a little decayed manure added forms a suitable compost, and, after potting, plunge the plants out-of-doors till required for forcing. As a single spike in a pot has a naked appearance, the best way is to group several crowns together, so as to form a clump, allowing space sufficient to each to prevent overcrowding. *Solomon's Seal* can be forced as easily as its near relative, the Lily of the Valley, but it cannot be had in flower quite so early. At no time after the potting must it be allowed to suffer from want of moisture. Apart from its attractive appearance when in pots and grouped with other plants in the conservatory, we also find it especially valuable in a cut state for furnishing large vases and for similar purposes.—H. P.



## TREES AND SHRUBS.

## THE MAIDEN-HAIR TREE.

OF all coniferous trees this (*Salisburia adiantifolia*) is undoubtedly the one which, from its general appearance, has the least resemblance to any other member of the tribe. Yet, although totally devoid of resinous secretions, entirely and regularly deciduous, and although its leaves possess none of the characters peculiar to either Pines or Firs, it certainly is a coniferous plant; an examination of its flowers, and especially of its fruit, and their comparison with the same organs of the common Yew, will show that it belongs to the same tribe. However, so great is its difference from all other coniferous trees, that its affinity to them would hardly be suspected on superficial inspection, and it is also remarkable on account of the singularity of its foliage, which seems to unite the *Coniferae* with the *Corylaceae*. It is the *Ginkgo biloba* of Linnæus, and also of Kæmpfer, who first discovered it in Japan in 1690. It is also the name under which it was introduced into England about 1754, when Ellis, writing to Linnæus in that year, mentions that Gordon had plants of it.

The name of *Salisburia adiantifolia*, by which it is best known to botanists, was not given to it by Smith until 1796, and is the result of an alteration of the generic name as first given by Kæmpfer and ratified by Linnæus, who, in his "*Metissa*," published in 1771, noticed it for the first time under the name of *Ginkgo biloba*—*Ginkgo* being its aboriginal name in Japan, from which country it is generally given as a native, as well as from China. But M. Siebold, who resided in Japan for a period of seven years, states that the inhabitants of that country do not consider the tree as indigenous there, but as having been brought at a remote period from China. Bunge, who accompanied a Russian mission to Peking, also states that he saw there an immense *Ginkgo* tree of prodigious height and vigour, and whose trunk measured nearly 40 feet in circumference. The popular name in this country of the Maiden-hair Tree is appropriate, inasmuch as its leaves resemble in form the pinnules of the native Maiden-hair Fern (*Adiantum Capillus-veneris*); they are of the same yellowish green colour and texture on both sides, and through their smoothness and the numerous parallel lines with which they are marked they resemble those of a monocotyledonous plant. They are somewhat triangular or fan-shaped, wedge-shaped at the base, borne on stalks as long as the disc and disposed alternately.

This is a sufficient explanation of the popular name under which it is generally known in this country. An excellent anecdote, in relation to the peculiar name of "*Arbre aux quarante écus*," under which the tree is known in France, and the way in which it was introduced there, is given in Loudon's "*Arboretum*," and runs thus: "In 1780 a Parisian amateur, named Pétigny, made a voyage to London in order to see its principal gardens, and among the number of those which he visited was that of a commercial gardener who possessed five young plants of *Ginkgo biloba*,

which was still rare in England, and which the gardener pretended he alone possessed. These five plants were raised from nuts which he had received from Japan, and he set a high price on them. However, after an abundant *déjeuner* and plenty of wine, he sold to M. Pétigny these young plants of *Ginkgo*, all growing in the same pot, for twenty-five guineas, which the Parisian amateur paid immediately, and lost no time in taking away his valuable acquisition. Next morning, the effect of the wine being dissipated, the English gardener sought out his customer and offered him twenty-five guineas for one of the plants which he had sold the day before. This, however, was refused by M. Pétigny, who carried the plants to France, and as each of them had cost him about 120 francs or forty crowns, this was the origin of the name of '*Arbre aux quarante écus*,' which to this day has been applied to this tree in France, where almost all the *Ginkgo* trees have been propagated from the five which were thus imported by M. Pétigny; he gave one to the *Jardin des Plantes*, where for many years it was kept in a pot and preserved through the winter in the greenhouse until 1792, when it was

catkins, which appear generally in May with the leaves, are produced on the wood of the preceding year and on old spurs; they are sessile, about one and a-half inches long, and of a yellowish colour. The female flowers, which are produced in pairs and borne on long foot-stalks, possess this peculiarity, that each of them is in part enclosed in a sort of cup produced by the dilation of the summit of the peduncle. Both forms require in our climate to attain a considerable age before they produce flowers. In China and Japan this remarkable tree is cultivated for the sake of its fruit, which in Kæmpfer's time formed part of every entertainment and was much esteemed.

The Maiden-hair tree has produced several varieties, all of which appear to have originated on the Continent. Thus, *Ginkgo biloba macrophylla*, a variety found at Avignon about 1850, has much larger leaves than the species, being nearly semi-circular, and often measuring from 5 inches to 6 inches in diameter. The variety *pendula* has its terminal branchlets pendulous, but this character is no addition to the beauty of the normal form; and in the variety *variegata* the leaves are striped with a pale yellow and indistinct colour, which does not render the plant any more valuable than the common form. A deep and naturally moist soil is the one in which the Maiden-hair tree thrives most luxuriantly, and where it grows from 70 feet to 100 feet high.

S.

**Liquidambars in**

autumn.—Where trees are planted for ornamental purposes alone, their autumn effect should at least receive due consideration, for some are just now masses of crimson and gold, while others are dull and commonplace by comparison. One of the most attractive at the present time is the *Liquidambar*, which does well even on light gravelly soils, and forms a highly ornamental tree with handsome lobed leaves, which turn in the autumn to a bright crimson colour. Should the weather prove dry and bright, the *Liquidambar* is of so vivid a hue, as to be conspicuous for a long distance.

**The Deodar**, as we all know, when young and growing in sheltered situations is always handsome, but in its more advanced growth it can hardly be unfair to say that it has utterly failed to realise the hopes and high promise of its earlier days, when first introduced into English gardens.—R. M.

**Clematis graveolens**.—This is a beautiful autumn-flowering *Clematis*, especially valuable from the distinct hue of the blossoms, which, instead of the white, lavender, or purple with which we are so familiar, are of a pleasing shade of yellow, besides which the feathery clusters of seeds are in their silvery sheen very attractive. It is a free-growing, but slender-habited species, quite at home when allowed to ramble at will over a trellis, neighbouring shrub, or in some such situation, and is one that once well established will take good care of itself. This *Clematis* is a native of the extreme northern parts of the Himalayas and of Tartary, but is still a little-known kind, notwithstanding the number of years it has been introduced and its distinct character.—T.

**Picea lasiocarpa**.—This is a very free-growing Conifer, many of the annual upright growths with being above 3 feet in length on plants only 10 feet



Llangedwyn. Winter view of the avenue. [See p. 371.]

planted out by M. André Thouin, who gave the above relation in one of his lectures."

From that excellent book, Veitch's "*Manual of the Coniferae*," we also gather that "it is one of the most remarkable and distinct deciduous trees that adorns the parks and gardens of Great Britain. Its light and airy aspect, its peculiar foliage, and the imposing dimensions it attains render it also one of the most picturesque of trees." On account of the dioecious character of the *Ginkgo* its fruits are not at all common in this country. The first which flowered in England was a male plant at Kew as far back as 1795, and the first tree bearing female flowers was discovered by De Candolle in 1814 at Bourdigney, near Geneva. After that discovery being made by M. De Candolle, cuttings of the female plants were distributed by him from the Botanic Garden of Geneva to the different botanical gardens of Europe. But in England, where it has been largely distributed, it has been extensively propagated from the stool in the establishment of Messrs. Loddiges, late of Hackney, and which was a male specimen, which accounts for the greater number of large trees growing in this country being stamiferous or male. The male



and 12 feet high. These upright shoots afterwards become stunted by the free-growing nature of the side branches. The largest plant I have seen is now 20 feet high, the circumference of the branches on the surface of the ground being 48 feet. Many of the seedlings, I imagine, raised in this country from seed collected in North-west America, as *Picea grandis*, seem to be identical with the *Picea lasiocarpa* of Jeffrey, and totally different from the *P. grandis* originally sent home by Douglas.—J. M.

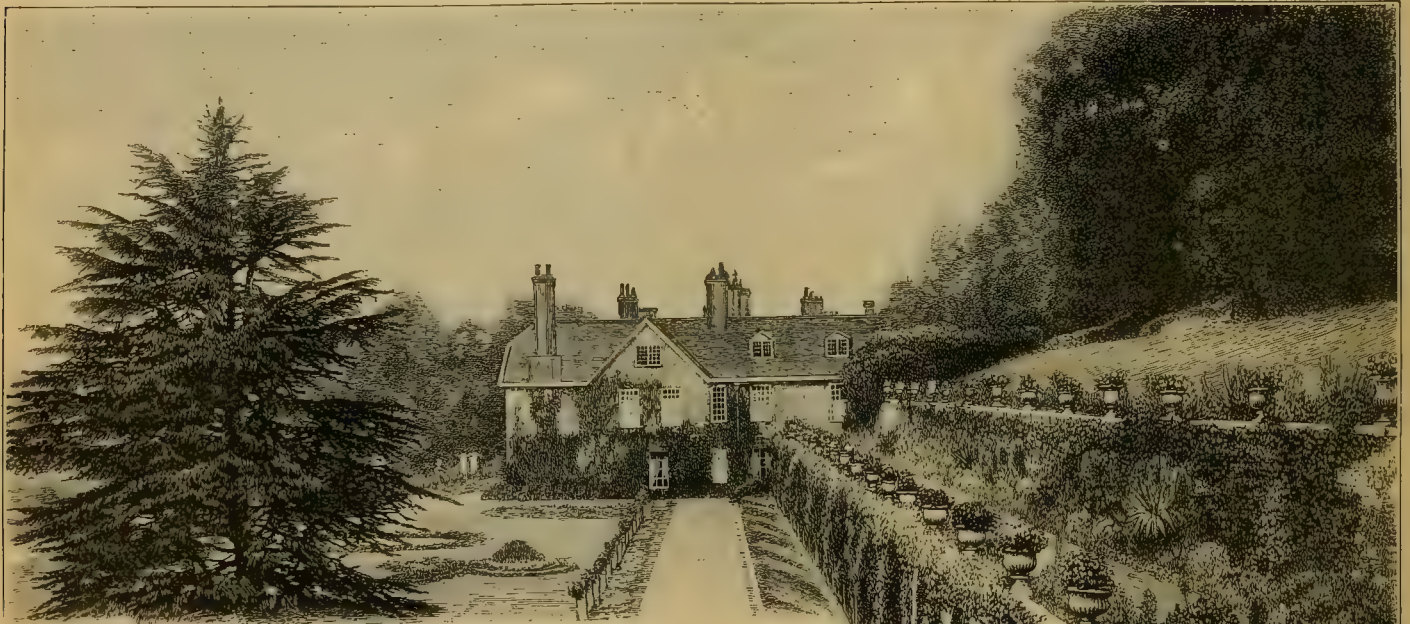
**The Balsam Poplar** (*Populus balsamifera*).—This is one of the handsomest and most valuable of the foreign Poplars. It is an American species, which has been acclimatised in this country. The leaves are about 5 inches long by 3 inches broad, sharp-pointed, deeply serrated, and of a light green colour.

occupies. Another hedge planted upon the same principle has, at the second year's dressing, paid the cost of the plants.—F.

**The Pyracantha.**—If uninjured by weather, visitors to the Pear congress at Chiswick cannot fail to note a gloriously-berried plant of *Pyracantha* on a wall not far from the rockery. It has the merit of not being hard trained, but is freely grown, hence the branches hang out from the wall covered with berries. Still farther, the growth has gone some 2 feet above the wall, and thus the mass of rich coloured fruit may be seen equally on both sides. How beautiful would this climber, for it is almost so, be if planted at the base of some conspicuous deciduous tree, and its branches trained up into the tree which, when covered with berries in the autumn, should present con-

and another species (*congesta*) needs but a very limited space for developing itself, while when planted in an isolated position and allowed to form a large mass or clump they are all extremely pretty. In this case the more procumbent kinds will often push out their branches for some considerable distance along the ground. This creeping character is as a rule more pronounced in plants propagated from cuttings or layers than from seeds; indeed, seedlings often vary a good deal, so much so as to sometimes appear to be of a distinct species.—H. P.

**Early tree planters.**—In the eighteenth century the number of patrons and planters of trees greatly increased. The Duke of Argyle stocked his garden at Whitton, and received from Horace Walpole the honourable *sobriquet* of "treemonger." At



Llangedwyn House. Side view from upper terrace. (See p. 371.)

The fresh young leaves of this tree, when applied to external inflammations, are said to produce a very beneficial and cooling effect. When the buds are distilled in spirits or strong brandy, before they begin to expand, a glutinous balsam is obtained, which is said to be very valuable in surgery. The wood of this tree is comparatively worthless, but it has a handsome green foliage, and forms a very beautiful object in the landscape. It is propagated by cuttings, and grows very quickly. It thrives best in a damp mild humus, with a subsoil of moist boggy earth; if planted in a dry sandy soil, it almost invariably dies. The Balsam Poplar suffers much from the ravages of insects, which pierce the wood.—J. H.

**Willow for hedges.**—By substituting Willow for Thorn, hedges can be made profitable; they are, it is said, more effective as a shelter, quite as strong, reared in a much shorter time, and at less than half the cost. The Willow has long been recommended for hedges, and the only way in which the neglect of such advice can be accounted for is simply that the matter has never been brought sufficiently under notice. A Willow hedge, 200 yards long planted in ground well dug over, cleaned, and manured—planted with cuttings 12 inches long and 6 inches apart, requiring 1200 cuttings, value about 25s.—became in two years a good strong hedge, capable of resisting any pressure an ordinary hedge would be subject to. The Willows being crossed diagonally, rendered it almost impossible for anything to break through. The dressings or spray of the first two years were coarse and worthless, but in the three succeeding years the dressing has sold to basket-makers for 20s. each year, which has paid the entire cost of planting, labour, and rent of land which the hedge

spicuous beauty. Judging by the way the wood above the wall is berried at Chiswick, it would seem as if the *Pyracantha* might be induced to berry freely if trained in bush or pyramidal form.—A. D.

**Sweet Gale** (*Comptonia asplenifolia*).—This is a pretty deciduous shrub, attaining a height of about 3 feet, and with sweet-scented Fern-like leaves. It belongs to the Sweet Gale family, and is perfectly hardy in Britain. In poor sandy soils, in Surrey, it runs as free at the root as Couch Grass, and forms a pleasant spicy undergrowth, as it does in its native woods.—V.

**Evergreen Cotoneasters.**—The small growing *Cotoneasters* of the *buxifolia* and *microphylla* class are most prolific fruit-bearers, and at this time of the year, when thickly studded with their reddish berries, they wear quite a different aspect to what they do when devoid of fruit. Indeed, these *Cotoneasters* pass through three distinct phases during the year, for until May their attractive features are the neat style of growth and profusion of deep green glossy foliage, to which is then added a great wealth of small white blossoms that in their turn are succeeded by berries which form the autumnal feature of these shrubs. The small growing *Cotoneasters* are suitable for a variety of purposes; in the first place, they (especially *microphylla*) are valuable wall plants, for this last will with a little training in its earlier stages soon densely furnish a wall, which will be attractive at all seasons. Again, in the larger arrangements of rockwork they can be often disposed of to advantage,

the same period, the first great planter of another ducal house began to clothe the hill and mountain tops at Blair Athol and Dunkeld with a timber tree which Pliny had admired for its durable and incombustible nature, and which was used for the Forum of Augustus, and for many of the buildings and bridges of Rome. The Larch had been introduced into England a hundred years before it arrived at Dunkeld with some Orange trees in 1727; but it had not been planted as a timber tree till it found its way from the hothouse to far colder situations on the Duke of Athol's estate, covering at length more than 10,000 acres, and yielding an immense revenue.

**The Cockspur Thorn.**—One of the brightest bits of autumn leafage is furnished by the largest leaved varieties of this Thorn, the foliage being now of all shades of red and yellow, which during bright sunshine has a most gorgeous effect. Taken altogether, the Cockspur is among the most ornamental of the Thorns, as it grows well under anything like favourable conditions; the foliage, too, is of a deep



glossy green, while the clusters of white flowers are very showy, and are at their best rather later than the majority of the Thorns. Add to this the clusters of red fruit in the autumn, with the bright tints of the decaying foliage, and the above statement as to its beauty is fully borne out. There are several varieties of this Thorn, some with small narrow leaves, and they die off much less brightly coloured than the varieties ovalifolia, arbutifolia, and prunifolia, all characterised by more vigorous growth and larger foliage.—T.

**Potentilla fruticosa.**—This *Potentilla* can now fairly claim the merit of continuous blooming, in proof of which I may mention that some specimens here have been in flower during June, July, and August, while in September, though the blossoms were not produced so freely as before, yet whenever the weather was bright, a goodly show of its small golden blooms was maintained, and a plant in a sheltered spot still (October 2) continues to flower. At no time can it be classed as a showy flowering shrub, yet it is distinct, and when in bloom by no means unattractive, while it seems to do at least fairly well in almost any soil and situation, though it succeeds best with moderately liberal treatment. It forms a small, much-branched bush, with pinnate leaves and clusters of golden blossoms.—H. P.

## INDOOR GARDEN.

**Tritonia aurea.**—This plant is grown wonderfully well at Sandhill Park, yet the trouble taken with it is not great. About twenty-four bulbs are planted in 7-inch pots. During the summer they are taken out-of-doors and set in the shade of a wall. Early in September they commence to flower, when they are taken to the conservatory, and few things of such easy culture are brighter than they are at this time of year. Each pot contains a dozen and a half of flower-spikes, which just reach over the tops of the leaves, and being orange-scarlet in colour they are wonderfully attractive. The pots containing the bulbs are wintered under a stage or in some other odd corner where frost cannot reach them. In spring they are taken out and treated as has just been described.—J. C. C.

**Ivy-leaved Pelargonium Mdme. Thibaut.**—This is one of the varieties that received a certificate of merit last year from the Royal Horticultural Society; and well it deserved that distinction, for it is certainly the best of its colour with which I am acquainted among this beautiful and now extensive class of plants. Its growth is free and not so stiff as some of the varieties are, while the flowers are very double and the edges of the petals prettily reflexed, the individual blooms reminding one of partially expanded Rose-buds. The colour of the blossoms is a very pleasing shade of rich carmine-rose. Another Continental variety that I flowered for the first time last year is *Emile Lemoine*, the blooms of which are of a light scarlet colour, and the brightest of its class that I have seen.—T.

**Lantanas in bloom** now are useful subjects either for greenhouse or conservatory decoration, their brightly coloured blossoms being attractive and quite distinct from those of their associates. Somehow or other, however, *Lantanas* have in most places nearly dropped out of cultivation, yet, apart from their value as flowering plants at this time of the year, they form pretty little bushes when planted out of doors during the summer, where they continue to flower for months together. Their culture is not different from that usually given to *Fuchsias*. The one enemy to guard against is red spider, which is liable to attack them during hot dry weather in summer. If cuttings are struck in spring, and stopped once or twice during the season, they form bushy little plants in 5-inch and 6-inch pots full of bloom-buds by the autumn. A few good sorts are *Mine d'Or*, yellow; *La Neige*, white; *Don Calmet*, pink; *Louis Benoit*, orange-scarlet; and *Magenta King*.—H. P.

**Winter-blooming stove plants.**—Any portion of the winter-blooming stock that yet remains in pits or frames, where heat cannot be applied when

the weather is cold, should be at once removed to warmer quarters, otherwise the plants will get a chill and their flowering will be interfered with. Roman *Hyacinths* should be potted immediately, so as to admit of their getting well rooted before they are put into heat to bring them into flower. If any of the large-flowered varieties are wanted in bloom early, a few bulbs of the earliest kinds may be potted. Good loam, well enriched with rotten manure, is the best material in which to grow *Hyacinths*, but nothing is gained by the use of pots so large as those in which these bulbs are often grown. A 5-inch pot is big enough for a single bulb, and a couple of sizes larger will do for three bulbs, in which way the plants, when in bloom, are most effective. A few early *Tulips* may be potted at the same time. When potted, plunge the pots in a bed of coal ashes, allowing an inch or two of the material to be put under the pots to keep out worms. The open air is the best place for them.—T. B.

**Dahlias as pot plants** are most effective for autumn blooming. Having a good lot of young spring-struck plants, we grew them on out of doors, shifting them into larger pots as they required it, until by the end of August they were very fine bushes in 10-inch pots, and covered with flower-buds. They were then transferred to a cool house that is kept wide open day and night, the glass roof keeping off heavy rains being all that is desired at present. They are opening the most lovely flowers, the majority of which are pure white, of the miniature or pompon class, and the scarlet *Cactus Dahlia*, so effective as cut flowers. I can confidently recommend them to anyone wanting a supply of these useful flowers for church decoration, or the making of funeral wreaths or crosses. When one trusts to the outdoor supply, the purity of the flowers gets tarnished by heavy rains, and only a few degrees of frost will cut off the whole supply, while a few pots will yield a quantity of bloom until the *Chrysanthemums* come in. Anyone giving them a trial is not likely to discontinue the practice. We have a very effective white called *Constance*, which is very fine for large blooms, and the smaller but very exquisite blooms of *Guiding Star* are the perfection of what a neat little white *Dahlia* should be. The roots of these pot plants are always reliable for stock purposes, as there is no fear of their decaying, for, if dried off after they cease blooming, they may be started again in spring with the certainty of yielding a good supply of shoots for propagating.—J. GROOM, *Hants.*

**Wintering Caladiums.**—We often hear of failures in wintering *Caladiums*, more especially the newer kinds, the roots of which are smaller and not so capable of resisting unfavourable treatment as the older sorts. Losses amongst the smaller tubers are probably often occasioned by allowing (when at rest) them to become too dry, when they perish from a kind of dry rot that causes them to crumble into powder if pressed between the fingers. I am convinced that more are lost in this way than from excess of moisture, as if kept too long without water this dry rot is almost sure to attack them. Though I propagate great numbers of the newer varieties, it is an unusual occurrence to lose any of them. The way in which we winter them is this: When the leaves die down the plants are turned out of their pots and the tubers laid thickly together, but only in single layers, in pots of sand which are kept on a dry shelf in the stove throughout the winter. The sand when used is slightly moist, and it is afterwards just damped a little when it threatens to get very dry. Thus treated, even the smallest tubers keep good and plump during winter. A shelf is better than storing them away underneath stages, as thus situated they are, from their close proximity to the hot-water pipes, liable to become quickly dry. Larger ones may be wintered underneath stages in the pots in which they have grown, provided the temperature does not go much below 60°. The same rule as to keeping the surrounding soil slightly moist applies also to these, but in the case of large pots their contents do not dry so quickly as those of small ones. As soon as the leaves show signs of decay, the supply of water should be gradually lessened, slow ripening off greatly contributing to the tubers being successfully wintered.—T.

## WORK DONE IN WEEK ENDING OCT. 6.

SEPTEMBER 30.

VERY fine. The frost has done us but little harm, *Alternanthera*, *Coleus*, and a few sub-tropicals being all that are injured, and the bad foliage we have cut off the sub-tropicals and the worst *Alternantheras* we have taken up, and are planting *Heaths* (*Erica mediterranea*) in their place, and instead of the central or "dot" plants, which during the summer have been large succulents, small *Cypresses* (*Cupressus Lawsoniana erecta viridis*) and small variegated *Euonymuses* are being planted in their place. It is thus we replace the whole of the tender plants on the parterre by hardy kinds, as each fails or gets shabby owing to frost. Single *Dahlias* are still in great beauty; our best kinds are *White Queen*, *Duchess of Westminster* (white), *Harlequin* (pink), *Nora* (darker pink), *Queen of Singles* (bright velvety purple), *Sunflower* (yellow), *Gracilis perfecta* (scarlet), and *Dorothy* (striped lilac and white). The small bouquet *Dahlias* make a good show, but look so artificial, that we shall not use them again. The best kinds are *Gem* (scarlet), *White Aster*, *Mabel* (lilac), and *Cupid* (lilac tipped with purple). Besides making all neat in the flower garden the only other work done was gathering Apples and Pears. Indoor work has been the necessary rearrangement of plants, prior to housing *Chrysanthemums*, which must soon be done.

OCTOBER 1 AND 2.

Very fine weather for the season, and little else has been done these two days besides gathering Apples and Pears, and all that are fit have been got in. It is surprising how quickly they ripen at this time of year, and the difference that two or three days makes in respect of their keeping properties. As a rule we gather no kind till full maturity is apparent by the fruit beginning to drop, and even then, in respect of Pears, the larger and best kinds more especially, only a part—the ripest of the crop—is gathered, the remainder being left for a few days, and thus we ensure a longer succession of fruit of the same variety. Put in cuttings of *Violas*; two of our best bedding varieties are *Archie Grant*, deep maroon-purple, and *Queen of Lilacs*, the name being descriptive of its colour. With the exception of a few offsets of succulents that have still to be taken, propagation is now finished. Cut ripe and ripening Tomatoes and laid on shelves in vinerias. They are most susceptible of injury from frost, and if thus damaged quickly decay. Peaches ripen splendidly; *Barrington*, *Late Admirable*, and *Princess of Wales* from the open walls are at the present time quite equal to the best mid-season varieties.

OCTOBER 3.

During the night 0° 16 in. of rain fell, but a fine day, just what we wished, for the cleaning up that is our never-changing Saturday's labour, and about which nothing more need be said. Got in *Beetroot*; we pack the roots in sand in a cool shed, the tops being left entire. The remainder of *Early Horn Carrots* have also been similarly housed, but other kinds will be left in the ground for another month or more, according to the weather. Put a few of the earliest *Chrysanthemums* indoors; the remainder will be got in as room can be made for them in the vinerias by cutting *Grapes* and placing them in bottles of water. *Hamburgs*, the earliest *Muscats*, and the ripest *Alicantes* are as yet the only kinds sufficiently mature for bottling; consequently, should the weather get so bad that *Chrysanthemums* must be housed, they will have to be temporarily packed in close quarters in Peach houses.

OCTOBER 5 AND 6.

Weather dull, occasional showers. Sweeping up, cutting verges, and keeping walks in order now take up most of our time. Preparation is also being made for fruit-tree planting and renovation by some of our hands being sent to dig turf—the top spit of an old sheep pasture, which very fortunately we can get at the cost of digging and carting. About 6 inches is the depth we cut it, and before using it we chop it up into pieces the size of a cricket ball. Planted out a few more Cabbages and made another sowing under a south wall. Thinned out *Endive* and pricked out a quantity of *Lettuce* and *Cauliflowers* at the foot of south walls to stand the winter. Looked



over Grapes to remove decayed berries. The laterals in the latest varieties are now being shortened back, to admit of the light and air possible playing full on the fruit. All tendency to growth on Vines of every kind is now instantly checked by repression of growth the moment such growth is perceived. Got a few more *Pelargonium* cuttings. All *Pelargoniums* intended for winter flowering are now safely housed; a temperature of from 50° to 55° will keep them in good blossom the winter through. The stock of bedding *Pelargonium* cuttings have also been afforded shelter in pits that can be thrown wide open, and will be lying as the weather continues mild. Planted out the remainder of Stocks, Canterbury Bells, Pentstemons, and Anemones. HANTS.

### FRUITS UNDER GLASS.

#### FIGS.

The calendar up to the present time has been devoted to the management of fruits of the current year; but having entered well into October, attention must now be directed to preliminary preparations for another season. Twenty years ago a dish of Figs was an acceptable addition to the early London season. Now it is looked for, not as a novelty, but as an absolute necessity, and much credit is due to the hundreds of gardeners who have proved themselves quite equal to the demand, by producing dishes of fine Brown Turkey and other kinds in April and May that would not discredit them in September. But in order to make this satisfactory result a dead certainty time must be taken by the forelock, and now is the time to make a beginning. The earliest Figs are, as a rule, obtained from pot trees, but well-ripened trees thoroughly established in internal borders, inside the house of course, will answer equally well, provided they are rested through September and October, and started with bottom heat in November. Assuming, then, that suitable trees, be they pyramids or bushes, were thoroughly ripe and divested of all their half-swollen fruits a month or six weeks ago, and have been resting in the full blaze of the sun, they should now be under cover where they can be protected from heavy rain and nipping autumn frosts. The first operation will be the removal of any superfluous shoots with the knife, as overcrowding is very often the cause of failure, not perhaps in their production of fruit, but in deficiency of colour and flavour. Then comes the process of washing with strong soap water, for the Fig is preyed upon by a multitude of insect enemies, and on no account should a tree be taken in for forcing unless it is clean as well as being ripe and healthy. Many people scrub them with hard brushes, but this is rather dangerous, as many of the embryo fruits, although hardly perceptible, get injured by the bristles, when the slightest abrasion grows into an unsightly blemish when the fruit is ripe and otherwise fit for table. The old wood and pots may of course be well scrubbed, but the young spur-like shoots and points should be more tenderly handled. If in accordance with former directions the trees were turned out, examined, and potted as soon as the last ripe Fig was gathered, the roots will not require further disturbance, but if this operation has been neglected, all external roots must be cut off preparatory to dropping the tree; pot as well into another a size or two larger. This mode of treatment, not unfrequently practised, will admit of a layer of rich dressing being placed over the top of the inner pot, which will draw new roots upwards, and all will go well provided the root-bound ball is never allowed to feel the want of water. This, however, sometimes happens, as the water passes down between the two pots when the attendant thinks it has gone in another direction. In order to prevent this fatal mishap—I write from experience—well plaster up the cavity between the two with stiff clay and cow manure, and let it get dry before the top-dressing is applied to the surface.

#### EARLY POT FIGS

are generally forced in rather low light span-roofed pits or houses. These should be thoroughly cleansed, painted if needful, and lime-washed, as a good start is more than half the battle against mealy bug and other insect marauders biding their time in snug corners. All dirt and insects banished from pits and

trees, we now come to the arrangement. Head room being just or barely sufficient, place the trees on sods of light turf, resting Grass side downwards on the drainage. If the balls are very dry, give a little water occasionally to bring them gradually into a growing condition, not otherwise. Keep the pit dry and cool, and defer putting in fermenting material until the time arrives for shutting up and starting. If the pits are deep and the heads of the trees are likely to be too far away from the influence of solar heat and light, build up dry brick pedestals to the requisite height, lay a sod on the top, and range the pots upon them. Every tree will then occupy a solid foundation, which in due course will be surrounded by fermenting material.

#### EARLY PEACHES.

My remarks on Figs also apply to Peaches, and no time must be lost in getting the trees in the first house put into order for starting, otherwise May fruit will not be forthcoming. Of course there are Peaches and Peaches, there are Amsden Junes and Alexanders, which may be started in December, or even in January, and then they will ripen their fruit in May; but owners of gardens who go to the expense of forcing these things in season and out of season want something better than semi-clingstones the size of Crabs for their money, and no one can say they are unreasonable when Early Grosse Mignonne and A Bec can be had in fine condition by starting a month earlier. Hale's Early and Doctor Hogg, two very good Peaches, follow close on the heels of the first, but they are decidedly inferior in size and quality, and for this reason I should strongly advise growers who are about to invest in early varieties to ask for the first two, and they will not be disappointed. If, then, the Peach-forcer's season commences in November, the month of October is not a whit too early to set about putting the house in order. General pruning having been performed as soon as the last crop was off, the trees, now leafless, not by brushing, but by natural subsidence to rest, must be liberated from the trellis, and dressed over with the knife to smooth faulty cuts and remove imperfect shoots that escaped the eye when the leaves were upon them. The usual routine of cleansing with soap and water, washing the paint and glass, and limewashing the walls will then follow, and the trees will be ready for tying in. If insects of any kind have been allowed to establish themselves, it may be necessary to wash twice over, a mode of procedure which many now adopt in preference to painting with strong insecticides. The old wood may be well scrubbed with hard brushes; but all the young growths, taken on the palm of the left hand, should be carefully washed with a soft half-worn paintbrush, drawn upwards towards the points, and well syringed with clean water to remove disestablished scale and the remains of soap which may have lodged in the clusters of flower-buds. When thoroughly dry tie up to the trellis. Remove all old mulching, examine the border by delving down to the drainage with a hand fork, and apply a thin coating of new compost. Vigorous trees that require holding in will not need anything stronger than fresh calcareous loam and old lime rubble. Old ones which show signs of weakness may be assisted by the addition of a little well-rotted manure. If the examination of the border reveals the slightest tendency to dryness, empty the soft-water cisterns steadily over the surface and repeat if necessary, as nothing can be more fatal to the coming crop than dryness in any part of the border after the old leaves fall. The brushing of the trees, formerly more prevalent than it has been of late years, and then allowing the borders to become dry, has been the cause of much disappointment in early houses, as the double check was invariably followed by the dropping of the buds, to an extent that precluded all chance of a full crop of fruit, and the pleasure of thinning was always looming in the future. If doubt of this assertion is admitted, let two trees be shaken out and repotted in October; the experiment will not cost much. Give water to settle the soil, then keep one tree dry and let the other be regularly watered; the first will most likely cast all its best buds, the second will fill its pot with roots, when, other conditions being right, the fruit in due course will require much thinning.

#### POT TREES.

Where Peach houses are not sufficiently numerous it is no unusual practice to obtain the first supply of Peaches and Nectarines from trees established in pots, tubs, or boxes. These, it is hardly necessary to say, should be thoroughly ripe, well budded, and if slightly pot-bound so much the better. Having selected suitable varieties, let them be carefully washed, top-dressed, and conveyed to their forcing quarters. See that the apertures are clear, give a soaking of lime water to expel worms, and elevate them to the proper height on brick pedestals. Never allow the roots to become dry, but keep the pit well ventilated until the time arrives for introducing fermenting leaves and starting.

#### LATE VINERIES.

The sudden change from bright summer heat to cold, wet tempestuous weather is not favourable to late Grapes intended for bottling at Christmas, particularly where the Vines were not well assisted with fire-heat in the spring, and although fairly coloured, they are still in an unsatisfactory condition for keeping. Lady Downes, Gros Colman, and Mrs. Pince's Muscat, three of our best bottling Grapes, require Muscat treatment through the early stages of their growth, and well they repay it, for not only do they keep fresh and plump for months after they are cut, their quality is so greatly improved, that a stranger to this mode of culture would hardly take them to be the same varieties. Vines so treated will now be finishing off well, and the foliage, the best of all tests of maturity, will be taking on the beautiful tints which all growers wish to secure before it falls in November. This stage having been reached, all laterals and sub-laterals that have been pinched and repinched throughout the season should now be taken out close down to the main buds, not only to plump them up, but also to let in light and air and prevent condensation of moisture on the berries. Gentle fire-heat will still be necessary, but this should be applied principally through the day with moderate ventilation, and on no account should a high temperature be maintained at night if the atmosphere of the house can be kept dry and buoyant without it. If not already done, cover all internal borders with dry Fern to keep in moisture and prevent dust from rising. Allow the leaves to fall naturally, but collect them every morning and look over the bunches occasionally for faulty or decaying berries.

#### MUSCATS,

Now quite ripe, will require a lower temperature than has hitherto been maintained, otherwise they will soon become loose in the bunch and show signs of shrivelling. Fire-heat must not, however, be entirely dispensed with, as a sudden depression is very often the cause of this delicate Grape damping off at the foot-stalk. If the foliage in any part of the house is unusually dense, take out the laterals to let in light and air, but not to an extent that will expose the berries to the direct action of the sun, for, late as it is, there is a possibility of the tops of the shoulders being browned and disfigured, particularly where the roots are dry and the roof is glazed with large squares of 21-oz. glass. On the other hand, should the foliage be too thin to protect the bunches from October sun, draw a piece of Haythorn's netting, or two or three folds of ordinary Strawberry netting, across exposed parts of the roof, and allow it to remain until the sun has lost its power.

*Late Hamburgs.*—These and other thin-skinned Grapes will require most careful management from this time until the leaves fall. Damp is the great enemy, and unless it can be constantly kept out, the berries will begin to mould, and it is really surprising how quickly this fungoid growth spreads over a large house in damp, mild weather. Dry fire-heat, with liberal ventilation on fine days, is the best counteracting agent, provided the ground ventilators are closed before damp begins to rise in the afternoon. With the exception of a chink of air on the top, the house should be kept quite dry, and close in wet weather or when the external atmosphere is charged with moisture, but unless the house is well adapted, the best plan is to cut and bottle the Grapes as soon as they are ripe and fit for removal. In my own manage-



ment of late Hamburgs the following mode of treatment is very successful: The Vines are retarded in the spring, but when fairly started they receive ordinary treatment until the Grapes are nearly ripe; every lateral is then removed down to the main bud. The house is carefully ventilated, and the pipes are kept constantly warm until the foliage shows signs of falling from the Vines. Preparations are then made for cutting and bottling; but instead of placing the bunches in the Grape room, they are removed to temporary racks in the Lady Downes house, where they keep much better than when left hanging on the Vines. This arrangement enables us to keep Hamburgs well through December. The house can be utilised for plants, and a month or six weeks devoted to steady firing insures fairly ripened wood for the succeeding year. W. COLEMAN.

*Eastnor Castle, Ledbury.*

#### INTERNATIONAL POTATO EXHIBITION.

IN association with the hardy fruit show of the Crystal Palace Company was held the tenth annual Potato exhibition, and a very remarkable display resulted; indeed, good judges asserted that many of the Potatoes staged were exceptionally fine and good; probably some have for form and quality never been excelled. The entries were more numerous than was the case last year, although the long-established class for eighteen dishes was not included in this year's schedule. That such a very dry season should have produced such remarkably good results was a surprise, and showed that, let the season be ever so disastrous for some growers, it suits others admirably. Mr. Hughes, of Byfield, who showed such grand tubers last year, was again in remarkable force, even excelling himself, whilst some few other newer growers came to the front. Still the various competitions showed that certain localities seem to have been most favoured. It was interesting to observe how very much finer new, and doubtless superior, kinds came to the front on this occasion, whilst the once favoured International, for instance, was seldom seen. All growers seemed to admit that newer sorts, especially those fine kinds raised by Messrs. Fenn, Dean, and Hughes, were first-rate in all points, and fully combined table quality with both beauty and cropping qualities. As evidence of the exceeding care shown by the seedling committee, it may be mentioned that only four out of some forty or fifty new kinds were favoured with certificates of merit, as the ordeal through which all such kinds have to pass is a severe one. We learned with satisfaction that disease has scarcely been apparent anywhere this year, and to that no doubt is largely owing the presence of so many high class tubers, whilst it is a matter for congratulation that a visitation, always looked for with dread, seems now to have either been shorn of its terror, or has taken leave of our Potato crops.

THE PRINCIPAL CLASS in the schedule was that for twenty-four varieties, a large number for any but the largest growers to muster. There were, however, no fewer than fourteen competitors, all showing first-rate collections, the six prize-winning lots being exceptionally fine. The most successful exhibitor in this class, and therefore the champion exhibitor of the year, was Colonel Cartwright's gardener, Mr. Hughes, of Byfield, Oxfordshire, who won the corresponding prize last year. His collection on this occasion was faultless, and his selection was excellent. He had the following sorts represented in his collection: Of red rounds—Adirondack, Reading Russet, Queen of the Valley, The Dean, Lord Rosebery, Blanchard, Vicar of Laleham, and Early Regent; of white rounds—Schoolmaster, First and Best, London Hero, Sutton's Favourite, M.P., and Woodstock Kidney; of white kidneys—Fidler's Prolific, Cosmopolitan, Snowdrop, Chancellor, and Edgecote Seedling; of red kidneys—Beauty of Hebron, Crimson Beauty, Rufus, Edgecote Purple, and Prize-taker. This year the first prize, of the value of £10, was given by Messrs. Carter. Among the other prize-winners the most prominent were Mr. Ellington, Mr. Wiles, Mr. Chopping, and Mr. Kerr (all the way from Dumfries), all well-known Potato growers and exhibitors, and their produce on this occasion did them credit.

TWELVE VARIETIES were shown by eleven competitors, the best being from Mr. Howard, of Bridge, Canterbury. He had wonderfully even samples of tubers of the following sorts: Of white kidneys—Duke of Albany, Ashtop Fluke, and Magnet; of red rounds—The Dean, Vicar of Laleham, Reading Russet, and Adirondack; of white rounds—Schoolmaster, Chancellor, and Vermont Champion; and Mr. Bresee among red kidneys. This was a good class throughout, although the number of exhibitors was fewer.

THE NINE-DISHES CLASS was a very strong one, there being seventeen exhibitors. Here again the champion grower, Mr. Hughes, was first, showing fine of the following: Reading Russet, Cosmopolitan, dishes Vicar of Laleham, Prize-taker, Favourite, Schoolmaster, First and Best, Snowdrop, and Edgecote Purple. Mr. Ellington, who was second, had among his nine uncommonly fine dishes of the new sorts The Doctor, Snowdrop, Empress of India, and Chancellor. Mr. Fidler, of Reading, gave all the prizes in this class.

THREE DISHES OF WHITE ROUNDS were shown by no fewer than twenty, Mr. R. Dean, of Ealing, heading the list of prize-winners with fine samples of Schoolmaster and the two new sorts, Harvester and London Hero. Mr. Hughes was second with First and Best, Schoolmaster, and The Doctor. The third set consisted of Early Household, Schoolmaster, and Favourite.

SIX DISHES being a number which most growers could muster, the class was large, numbering twenty-one in all. Mr. Hughes won the first prize of four guineas, given by Messrs. Webb, of Stourbridge. His selection was Snowdrop, Reading Russet, London Hero, Edgecote Purple, and Chancellor. In this class there was a keen competition, and among the prize-takers was the secretary of the exhibition committee, Mr. McKinlay, who showed well, but scarcely up to his usual high form.

THREE DISHES OF COLOURED ROUND SORTS, represented by twenty-three exhibitors, were best shown by Mr. Stanton, of Towcester, who had Vicar of Laleham, Reading Russet, and Adirondack. Mr. Howard was second with The Dean, Adirondack, and Vicar of Lakeham; and the third from Mr. Wiles consisted of Adirondack, The Dean, and Reading Russet.

THREE DISHES OF WHITE KIDNEYS were shown by seventeen, Mr. Wiles being first with Snowdrop, Cosmopolitan, and Edgecote Seedling; Chancellor, Snowdrop, and Edgecote Seedling were second; and International, Clarke's Maincrop, and Snowdrop were third.

THREE DISHES COLOURED KIDNEYS.—Among fourteen Mr. Wiles was first with Mr. Bresee, Prize-taker, and Edgecote Purple. The sorts Prize-taker, Mr. Bresee, and Vanguard were second; and Beauty of Hebron, Edgecote Purple, Mr. Bresee were third.

THE BEST WHITE KIDNEY.—Among twenty-six the first was the new sort, Chancellor, from Mr. Howard; Snowdrop from Mr. Hughes was second, followed by Edgecote Seedling and Snowdrop; while among other sorts shown were Woodstock Kidney, Sanday's Seedling, Burbank, Clarke's Maincrop, Magnum Bonum, Recorder, and Snow Blossom. The best white round among twenty-two was Schoolmaster, from Mr. Howard.

THE BEST COLOURED KIDNEY among eighteen dishes was Cardinal, from Mr. Hughes, and following it were Edgecote Purple, Prize-taker, and Defiance. Among others shown in this class were Reading Ruby, White Elephant, Mr. Bresee, Trophy, Beauty of Hebron. Prize-taker was shown by five. The best coloured round among twenty-one was Vicar of Laleham, from Mr. Stanton. All the single dish classes were confined to Potatoes of English origin.

THE BEST NEW WHITE POTATO put into commerce since last year was Chancellor, shown by Mr. Chopping. The next best was Fidler's Prolific, the third The Doctor, fourth Chancellor. Others shown were Welford Park, Gladstone, London Hero, Snow Blossom, and M.P.

NEW SEEDLING VARIETIES.—There were four classes set apart in the schedule for seedling varieties

not in commerce, the awards for which were certificates of merit. The classes were for a dish of a white kidney, a white round, a red kidney, and a red round. Although there were numerous sorts shown, the awards in these classes were adjudged in the Royal Horticultural Society's Gardens at Chiswick, where all the seedlings were put under trial. Out of about forty-two sorts only four were considered by the committee to be worthy of certificates, the test being a severe one. A variety qualified to obtain a certificate must be a good grower and productive, a good table sort, and present a good appearance in the exhibition table, so that out of the multitude of new sorts that were submitted for trial, but very few can withstand such a test. On the present occasion a good number of seedling sorts were shown, among them being the following: Of white kidneys there were Clarke's Attraction, raised from Blanchard and Woodstock Kidney, shown by Mr. Clarke, Edinburgh; Royal Charter, raised from Woodstock Kidney, shown by Mr. Hopewell, Berrywood; the same exhibitor also showed Hopewell's Maincrop, raised from Magnum Bonum; Emblem, from Woodstock Kidney, shown by Mr. Ross, Welford Park, Newbury; Pride of Furness, from Magnum Bonum, from Mr. J. Leeson, Lancaster; Mr. Hughes showed The Colonel, raised from Beauty of Hebron, crossed with Lapstone. Fidler's Reading Giant, raised from Magnum Bonum and Woodstock Kidney, shown by Mr. Fidler, Reading; The Captain, a first-rate sort, raised from Lapstone and Woodstock Kidney; Hart's Dale Beauty from Woodstock Kidney and White Elephant.

Among white round sorts there were Patriot, a seedling from Woodstock Kidney, shown by Mr. Ross; Gusto, a seedling from Reading Russet, also from Mr. Ross; Early Gem, between Beauty of Kent and Red Emperor; Fidler's Snow Queen, between Magnum Bonum and Woodstock Kidney; and Fidler's Perfection from the same parentage, and shown by Mr. Fidler. Mr. Laxton showed Laxton's Utility, raised from Beauty of Hebron and Myatt's Prolific; and Mr. Ellington had Suffolk Favourite, from Schoolmaster and Early Regent. Of coloured round sorts, Mr. Ross showed Pennon, a seedling from Reading Russet; Banner, a seedling from Reading Russet; also Trump, a seedling from Woodstock Kidney.

CERTIFICATES were awarded in the class for any seedling variety of white kidney Potato not in commerce to Mr. Ironsides for New Fluke, and to Messrs. W. W. Johnson & Son for The Colonel. In the class for any seedling variety of white round Potato not in commerce Mr. Robert Fenn took a certificate for Faith and Mr. C. Fidler for General Gordon.

There were no awards made in the classes for any seedling variety of coloured round Potato or coloured kidneys not in commerce.

EXTRA CLASSES.—Messrs. Carter's prizes for six dishes, to include the sorts Ashtop Fluke, Cosmopolitan, and Sukreta, were competed for by two—Mr. Lye and Mr. Forder. The former had, in addition to the stipulated kinds, The Dean, Schoolmaster, and Reading Russet; and the latter, Eight Weeks, Schoolmaster, and Adirondack. Mr. Fidler's five valuable prizes for four dishes, to include their new sorts, Success and Prolific, were competed for by seven, Mr. Hughes being first, having, besides the kinds named, First and Best and M.P. The class throughout was good, and represented the two new sorts admirably.

The non-competitive exhibits as usual occupied a large space, the principal among them being that from Messrs. Carter, who made an extensive display, consisting of about fifty sorts, and of the more important kinds they showed good-sized heaps of fine tubers. Among the new sorts were several unnamed seedlings which promise well, and among the named novelties the most noteworthy was the Liliuputian, the smallest of all Potatoes, and one that is likely to be turned to good account in the kitchen on account of its diminutive size, the largest tubers being not larger than a man's little finger. Messrs. Webb, of Stourbridge, had a display of the leading varieties, and among their new kinds a white kidney sort called Kinver Hill was prominently displayed, it being, by all accounts, a first-rate sort. Messrs.



Harrison, of Leicester, as usual, made a good exhibition, and so did Mr. Fidler, of Reading, while Mr. Laxton, of Girtford, exhibited about two dozen new seedlings, some of which were good-looking sorts, but as to their quality there was no evidence.

#### CRYSTAL PALACE HARDY FRUIT SHOW.

THIS autumn gathering is generally looked upon as one of the best exhibitions held in or near London, and this year was no exception; indeed, a finer show of Apples and Pears could scarcely be wished for, the Pears being exceptionally good, while the Apples astonished many who thought that it was not a good Apple season. There were but four classes, but the liberal prizes which the Crystal Palace Company offered tempted the largest growers to enter into the competition, while among amateurs there were several noted private fruit gardens well represented. The Barham Court exhibits, which usually carry all before them, were conspicuous by their absence, but the trade collections amply made up in numbers what was probably deficient in quality. There was a good deal of comment made respecting the decision of the judges in the principal class in the trade collections, for to ordinary observers the second, and even the third collections were superior to that placed first. Of course the judges thought different, but it would have been well had they given some explanation. The nomenclature in the first collection seemed to have been entirely ignored by the judges.

In the class for the best exhibition of Apples, kitchen and dessert, the first prize was awarded to Messrs. G. and J. Lane, St. Mary Cray, Kent, for a collection which included Lord Suffield, Worcester Pearmain, Cockle Pippin, Chancellor, English Codlin, White Astrachan, Summer Queen, Reineette du Canada, and Duchess of Oldenburgh. The collection of Messrs. George Bunyard & Co., of the Old Nurseries, Maidstone, though placed second, was in many respects superior to that of Messrs. Lane. Among the most conspicuous of the exhibits were Brabant Bellefleur, Transparent Crab, Lane's Prince Albert, Melon Apple, Duchess of Oldenburgh, Ribston Pippin, Red Astrachan, Cox's Pomona, and Worcester Pearmain. Messrs. T. Rivers & Son, of Sawbridgeworth, in their third prize lot, had plates of Betty Geeson, King of Tomkins Co., and Reineette Jaune Hâtive. Paul and Sons' (fourth prize) most noticeable fruits were Summer Thorle, Counsellor, and Manks Codlin. Lord Suffield, it may be noted, figured in nearly all the winning collections in this and the other Apple classes.

Messrs. Rivers were placed in the front rank among exhibitors of Pears. The greater portion of their exhibits were from pot trees, and the collection was really well worthy of the position in which it was placed. In it were found Souvenir du Congrès, Uvedale's St. Germain, Seckle, Beurré d'Amanlis, Glou Morceau, Rivers' Princess, Rivers' Magnate, Morel, Seedling No. 11, Winter Nelis, Durondeau, Beurré Clairgeau, Fondante d'Automne, Doyenné Boussoch, Marie Benoist, Emile d'Heyst, and Fertility.

The second lot was shown by Mr. James Butler, gardener to Mr. A. J. Thomas, Orchard-lane, Sittingbourne, who had fine dishes of Louise Bonne of Jersey, Doyenné Boussoch, Duchesse d'Angoulême, and Pitmaston Duchess. Messrs. George Bunyard and Co., Old Nurseries, Maidstone, and Mr. A. Waterman, gardener to Mr. H. A. Brassey, M.P., Preston Hall, Hereford, were placed respectively third and fourth; Beurré Capiaumont, Durondeau, and Calebasse Grosse were represented in their collections.

Mr. Waterman showed a very fine collection of vegetables. There were, we believe, about fifty or sixty sorts, and among them Veitch's Exhibition Brussels Sprouts, Nuneham Park Onion, and Paris Red Bean. Mr. Neighbour, Bickley, who was second, showed a few specimens of the fruit of the Egg plant (*Solanum ovigerum*). A large display of Onions was made by Mr. Deverill, of Banbury, his new Rousham Park Hero being conspicuously fine.

The Pumpkins and Gourds shown were numerous and varied. The largest single specimen was that

shown by Mr. James Sharpe, gardener to Mr. F. Hatchell, Parkfield, Grovepark, Lee. It weighed 108 lbs. Mr. C. Osman, South Metropolitan District Schools, Sutton, showed the most varied and ornamental collections.

In the amateurs' classes some very fine fruit was shown. Mr. Sidney Ford, gardener to Mr. W. E. Hubbard, Leonardslee, Horsham, Sussex, was placed first for Apples, amongst which Mère de Ménage, King Apple, and Hollandbury were particularly good. Mr. Waterman again took honours, securing the second position; and Mr. H. Davis, gardener to Mr. H. G. Lake, Fairlawn House, Bolo-lane, Chiswick, third. Emperor Alexander was among the fruit shown by the latter. Mr. Ford and Mr. Waterman changed places in the next class for twelve dishes of Pears, six fruits of each; Calebasse Grosse, Pitmaston Duchess, Beurré d'Amanlis, King Edward, Beurré Clairgeau, and Louise Bonne were among the sorts shown. Cox's Orange Pippin, Red Astrachan, and Warner's King were among the collection of Mr. J. Gilmour, gardener, Hawkhurst, Kent, who took first honours in the class for twelve dishes of Apples. Mr. Walter Dance, gardener to Colonel Lowe, Gosfold Hall, Halstead, Essex, included in his exhibits Emperor Alexander and Worcester Pearmain, and in the third prize lot, Mr. G. Collins, gardener to Mr. F. A. Rose, Wandsworth-common, had Gloria Mundi and Lord Suffield, which was also present in the first and second prize collections.

The vegetables in the amateurs' class were also good. Among these in the prize-winning collections (twelve dishes) of Mr. C. J. Waite, gardener to Colonel the Hon. W. P. Talbot, Esher, and Mr. S. A. Beckett, Amersham, were Pearson's Long Gun Cucumber, Stamfordian Tomato, Giant Rocca Onion, Wroxton Brussels Sprouts, Walker's Exhibition Onion, Telegraph Cucumber, Telephone Peas, Sulham Prize Pink Celery, Veitch's Autumn Giant Cauliflower, and Canadian Wonder Bean. The cottagers were represented by two competitors, both of whom showed good collections.

The collections shown not for competition constituted an important part of the exhibition, as many of the chief fruit tree nurserymen about London contributed collections of sorts. Messrs. Veitch, of Chelsea, showed a magnificent collection of Apples and Pears, consisting altogether of 300 dishes, representing as many sorts, the majority of the fruits being as fine as we have seen them from this firm. Messrs. Bunyard, of Maidstone, who showed so admirably in the competing class, also sent a collection not for competition consisting of about 200 sorts. A large number of sorts was also shown by Messrs. W. Paul & Son, of Waltham Cross, and a remarkable display came from the Messrs. Cheal's hardy fruit nurseries at Crawley, so that altogether there was a really fine show of hardy fruits. Numerous smaller exhibits were worthy of note, particularly a large gathering of Pears from Mr. Butler, of Sittingbourne. This exhibitor had a large number of fine fruits of Pitmaston Duchess, Beurré Diel, Beurré Clairgeau, and the finest gathering of Louise Bonne of Jersey we ever saw, the fruits being not only large, but very highly coloured.

The Rev. G. Morley, of Kingston, sent some uncommonly fine fruits of Emperor Alexander and other Apples, and among new sorts submitted to the judges for certificates were several of exceptional merit. A certificate was awarded to Messrs. Veitch for a fine large Apple in the way of Emperor Alexander, and named Prince Bismarck, which no doubt we shall hear a deal more of in future. Mr. Laxton also took a certificate for an Apple named September Beauty, a medium-sized pretty-looking fruit, high coloured, and of excellent eating quality. He also showed Schoolmaster, a good sort, of established reputation. Messrs. Bunyard showed a fine dish of their new Apple, Lady Sudeley, which was admired by all. It is a little past its best, or perhaps it would have won a certificate. Mr. Dance, of Halstead, sent Gosfield Hall Seedling, a small good-looking dessert sort.

A full list of awards, both of the Potato and fruit shows, is given in our advertising columns.

## BOOKS.

### HARTLAND'S "ORIGINAL" LITTLE BOOK OF DAFFODILS.

THIS list of Daffodils and Narcissi generally from its form and contents deserves more than a passing notice. "Original" in two senses of the word, from having been amongst the first of its kind given to the public, and from being framed on lines distinct and differing from all previous catalogues, it shows that much care and thought have been bestowed by an enthusiast on a "labour of love," and makes one wish that what has been done with much good intent had been more accurate and to the point. Some of the anomalies, such as are found in the group of Trumpet Daffodils, are attributed to the Dutch growers and their descriptions. Embellished with many woodcuts showing the various forms of Narcissi, which aid those in selecting who are not thoroughly versed in the subject, this "Little Book" contains many good things worthy of the attention of amateurs. Some are offered for the first time, and will excite the curiosity of the specialist while testing them alongside hitherto known varieties and forms. Rip van Winkle, a double Daffodil which caused much controversy of late, is one of Mr. Hartland's discoveries and is very distinct and a desirable variety, and so is Minnie Warren, another new miniature white Daffodil. Mr. Hartland has also the advantage of both soil and climate suitable for the successful cultivation of his favourite bulbs.

### LATE NOTES.

**Fungus** (*J. H. J.*).—The fungus which you send is one of the larger puff-balls (*Lycoperdon saccatum*). We do not know whether it is edible or not.—W. G. S.

**Double-flowered Peaches** (*J. H. B.*).—These frequently produce fruit, but it is generally small in size and poor in flavour.

**Book** (*J. K.*).—The essay is published by Messrs. Hodges, Figgis & Co., Dublin.

**Bignonia Chamberlayni**.—We learn from Kew that this beautiful climber is there grown under the name of *Anemopaguma racemosa*. It is growing in the Palm house, where it flowers yearly.

**Names of plants and shrubs**.—*W. W.*.—*Cupressus Lawsoniana*.—*J. K. W.*.—1, *Oncidium incurvum*; 2, *Stanhopea*, probably insignis; 3, cannot name; 4, *Polygala Dalmaniana*.—*Enquirer*.—3, *Gentiana Amarella*.—*Mrs. Leach*.—One of the numerous varieties of *Berberis aristata*.—*S. M. C. F.*.—The fruit sent is the berry of Lily of the Valley.—*A. R. B.*.—Shrubby Veronica sent is not pinguifolia, but elliptica, which is scarcely hardy about London; grow it against a wall. The herbaceous Veronica is a variety of *V. longifolia*.—*W. Hills*.—*Cupressus macrocarpa*.—*B. H.*.—*Celsia Arcturus*.—*E. F. C.* and others.—Next week.

**Naming fruit**.—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

**Names of fruits**.—*M. W. M.*.—Your Apple is not recognised. It is a fine sort, worthy of notice. —*G. G.*.—Not known. A local cider Apple, probably Morgan's Sweet. —*G. E. M.*.—Apple, Cox's Orange Pippin; Pears, 1, Hessel; 2, Beurré Sterckmans; 3, Passe Colman. —*J. Probert*.—44, Kerry Pippin; 50, probably Stirling Castle; 52, Minchal Crab. —*Ranallo*.—Apple, Duchess Favourite. —*Mr. Davis*.—1, Harvey's Wiltshire Defiance; 4, Manks Codlin. —*South Norfolk*.—2, Sugarloaf Pippin; 3, Manks Codlin; 4, Sturmer Pippin. —*D. J.*.—1, Sturmer Pippin; 2, Yorkshire Greening; 4, Red Autumn Colville; 6, London Pippin; 7, Court Pendu Plat; others not recognised. Your northern-grown fruits are very difficult. —*T. E. F.*.—We cannot name your Apples with certainty, no numbers being attached to the fruit, so that we cannot identify them, and they are miserably small. The largest Apple is Wareham Russet, another (very small) is, we think, Dumelow's Seedling. The Pear may be Beurré Diel. —*A Subscriber*.—1, Sturmer Pippin; 2, Dumelow's Seedling; 3, Easter Beurré; 4, not recognised. —*W. J. H. Atwick*.—Apple, Striped Beaufin. —*J. N.*.—1, Winter Nelis; 2, Marie Louise; 3, Maréchal de la Cour; 4, Doyenné du Comice; 5, Beurré Hardy. —*H. Atkinson*.—King of the Pippins. —*South Norfolk*.—2, Sugarloaf Pippin; 3, Manks Codlin; 4, Sturmer Pippin. —*J. Sharland*.—Apple, Gloria Mundi; Pear, Beurre Rance. —*E. C.*.—1 and 3, Williams' Bon Chrétien; 2, Calebasse Bosc. —*J. H. Wölmner*.—1, Althorpe Crassane; 2, Duchesse d'Angoulême; 3, Swan's Egg; 4, Bergamotte d'Espérance; 5, Belle Julie; 6, Napoleon. Please read our rules. —*T. K. K.*.—Pears, 1, not known; 2, Swan's Egg; 3, Apple, Dutch Codlin. —*J. Day*.—1, La Duchesse; 2, Yellow Apricot; 3, Belle de Septembre; 5, Reine Claude de Bavay Plum; 3, Brown Turkey Fig; 4, Brunswick Fig; 5, Black Ischia Fig. Others next week.



## WOODS & FORESTS.

### COST OF REMOVING TIMBER.

THE case recently referred to of three-fourths of the value of timber being consumed in its removal from the place where it grew to the market where it had to be used may have been an extreme one. It is, however, perfectly well known to all who have had the slightest acquaintance with the subject that the removal of timber from the spot on which it grows to one where it can be manipulated and sawn and worked into shape is a very heavy item. This is true when foresight is used and the labour performed in an economical manner; but, unfortunately, for the want of a little looking ahead and the use of common sense, the work is often materially increased and the expenses consequently augmented. With merchants, who have their teams and men specially trained to the employment, this unnecessary waste of time and strength is frequent enough; but in the case of the estate owner, who does not keep men, horses, carriages, and appliances, and who therefore has to rely upon such as he can hire, the total cost of the removal, even from one part of the estate to another, frequently equals, if it does not exceed, the prime value of the timber.

This acts as a deterrent, and is one reason why the estate owner prefers to sell to the merchant, and buy foreign wood in preference to facing the waste of time and money in being obliged to employ unskilled labour. There are, of course, individuals who make it their profession to haul timber for hire, and keep horses and appliances for the purposes; but in the majority of cases it will happen that the horses and men of agricultural tenants on the estate are hired. The men and the horses are, perhaps, well adapted for working with the plough and the harrow, but with the removal of timber and the calculation and adjustment of weights they are very imperfectly acquainted. When a timber-carriage of some shape has been provided and the team of horses is at hand, it looks a very simple thing to load and remove a great tree. There are few things, however, more deceptive, and after hours of attempts and irritating failures, the work is often given over in disgust. It is certain that however skilled a man may be in any particular line, when he at first essays to do work of another kind, difficulties are constantly met which would be readily overcome by one who has had to deal with them before. It is for this reason that we make a few remarks upon the question of timber removal, in the hope that they may be helpful to such as have to make up a scratch team. Horses and men must, of course, be what is obtainable, and in respect of the former, it is unusual on a farm to find a team which will work well together on such heavy pulls as are often required. One hint in this connection, however, we give, and that is, the preference, if they are not so good in flesh and muscle, should be accorded to a team pulling steadily together. Strength, when it can be found with steadiness, is, of course, to be desired; but strength ill directed and horses working by fits and starts and without method are worse than useless for timber carting, as, in addition to not doing their work, they are a source of danger.

Therefore, in arranging for horses for timber removal, make the character for steadiness and pulling together the *sine qua non*. With regard to the men, the same thing will apply, though, of course, not altogether in the sense of muscular exertion. If one skilled hand can be had,

and such may perhaps be found in the estate carpenter or sawyer, he will be able to direct half a dozen novices, and that effectually, so that the labour may be performed more by judgment than actual bodily exertion. We have often seen one man with the same amount of horseflesh accomplish with ease what two or three others may work hard to do and yet fail. One word more before we leave the men and the horses, and that is about the harness. It may seem almost superfluous to touch upon such a thing as this here, but it is in reality in these little things where the loss of time occurs. With the patched-up leather and chains which will answer for the work of the farm it is useless to set about timber carting. However rough, then, it may be, as the appearance does not so much matter, see that at the outset the chain traces and the leather of the harness is at least strong, and that the carter does not set out without some spare open links in case of need, and however strong the equipment may be, the need will arise. With regard to the vehicle used, one must, as with the other things, be governed to some extent by what is available. For short distances only, the two-wheeled carriage, or bob figured in these pages some time ago, will be found useful. The exact construction, of course, varies in different localities, but the principle is much the same; and this is very simple, it being merely that of the lever with, if we may so express it, a fulcrum on wheels. For longer journeys the four-wheel carriage constructed to carry its load on the top, and, therefore, quite clear of the ground, is the most suitable. There is a kind of two-wheel carriage made to raise its load by means of a screw instead of the lever. There is not much to be said between them, except that with the screw the lifting of the heavy lever is avoided and the process is gradual, and can be stopped and continued at will. To those who are not quite clear as to the working, we may mention that the screw and the axle, in shape and character of its working, is very similar to the screw and beam of the ordinary letter-copying press. The handle affixed to the screw, the screw itself, and the latter passing through the axle, which is curved in the same way as the beam of the press, all follow out the analogy which really only fails in the way in which the power is used, viz., that with the carriage the screw is used for lifting, whereas in the press, as its name indicates, it is used for depressing.

The men, the horses, the harness, and carriages being in order, we have nearly the whole of our equipments together with the exception of such tools as may be necessary. These, by men not accustomed to the work, are sometimes forgotten, and delay consequently ensues. When starting on a timber-hauling expedition, then, it is well to see that such things as a cross-cut saw, an axe, a crowbar, and spade are provided. Hours are often wasted for the lack of one of these things. A tree, which from a peculiarity of growth, or from being too heavy to be well removed by the strength at hand, is often bungled with and useless attempts made to load it, because the saw has been overlooked and it is too far to go and fetch it. As a general rule it is well, when it is known what strength and what class of carriage will be employed, to send on a couple of men a day or two in advance to cut the trees into suitable lengths and manageable weights, as in this way when the horses arrive no time need be lost before the actual work is commenced. This, however, does not do away with the necessity of having a saw in the hauling equipment, as it is impossible when a tree is lying as it fell to be sure in every case that it can be moved without further cutting.

The same thing applies to the axe and the spade, as very often a broken limb is embedded in the soil and cannot well be seen until the attempt at removal is made. In a simple thing like this, when the axe and spade is set to work, as much may be easily effected in five minutes as could be accomplished in an hour by the actual force of strength. The chains, again, are an important item, and nothing will be lost by seeing that they are sufficient in number, long enough in length, and stout enough in the link to minimise the risk of breakage. Apart from the waste of time and annoyance by the chain giving way at the critical moment, many a life has been lost through the snapping of a link. Indeed, the importance of the strength of each link in the chain cannot be overrated, as it is completely useless when a break occurs. The smaller chain, as has been mentioned, may possibly be made to do duty by inserting an open link, but with the heavier chain used in taking up the load, when a link snaps, it is no easy matter to replace it without having recourse to the smith, and this individual is not always at hand. The actual methods of loading vary in different parts, some when using the four-wheel carriage employing a tripod, and others stout saplings resting with one end upon the carriage and the other upon the ground. Some reference was made to this in a note in the last volume, but the plan best known to us is that of drawing the trees up the inclined plane thus formed. There is a plan of removing timber through woods, and for short distances where carriages could not enter, known as "snagging."

This can only be adopted for comparatively small trees, as it in reality is merely dragging the tree along on the surface of the ground by means of a strong chain fastened round its top or butt, as the case may be, and then attaching it to the traces of the horse or horses who have to draw it where it is required. As regards the actual size of tree that can be drawn in this way, much will depend on the number of horses, the condition and conformation of the ground, and other things. It is a plan which, of course, does considerable damage in a wood to the young growth, but perhaps not much more than if a carriage was used. A great point is to reach the road or ride as directly as possible, as here the dragging does little harm. A hard and fast rule cannot well be laid down, as the methods must be varied according to circumstances, but, speaking generally, a tree of from more than 30 to 40 cubic feet cannot advantageously be removed by snagging.

With very small poles and the thinnings of plantations when the distance is not too much, it is sometimes found advantageous to employ manual labour when the trees are not too large for a couple of men to shoulder. The horse, however, is the almost universal motive power for timber removal, and in this country will probably never be superseded. It may be said by some that the traction engine must be reckoned upon. This we know, and have purposely avoided referring to it until the close of the paper. Most things have some good points about them, and may claim to be of some use, and it is for the advocates of traction engines to say what these points are in this case. For timber hauling in general we have had sufficient experience of them to make us very sceptical. They are at the best ungainly monsters, ploughing up roads and destroying whatever lies in their path; and, reckoning their first cost and the expense of maintenance, we do not believe that for the purposes under review they do the work at a whit less cost than it is done by the more rational custom of using horse power. We have other remarks we could make upon this, but for



the present our space is exhausted. We therefore conclude by saying that with the removal of timber, as with other things, to do the work at the least cost, a proper estimate of what has to be accomplished must be formed, and care be taken to provide as much as possible against contingencies.

#### REPLANTING WOODLAND.

WHATEVER diversity of opinion prevails among foresters as to practical management, nearly all are agreed as to the impolicy of replanting with the same description of trees, at any rate until a certain period has elapsed. There must be time for the soil to become sweetened, for fresh mineral food to be prepared, or for the destruction of enemies, insect and fungoid. Let us examine these various causes.

Unless the soil be so specially suitable, by the abundance of requisite food, for a particular class of trees, it is only natural to conclude that after providing material for fifty or sixty years' growth, there will be exhaustion, even though much of the supplies are returned as decayed leaves, branches, &c. This is what we gather from our experience as regards the influence of rotation, but it only explains one, and perhaps the least important, reason of the fact that immediate replanting with similar kinds of trees seldom results in equally vigorous growth.

A more potent reason for failure arises from the poisonous nature of the excreta, which, until sweetened by oxidation, are prejudicial to the young plants. Of course, this applies in some degree to whatever kind of trees are planted, but is more especially injurious when like follows like. It is for this reason that all experienced foresters so strongly recommend that, before replanting, the land should be thoroughly drained; this advice we emphatically endorse. None but aquatic plants can flourish in a water-logged soil. The matrix, under such conditions, is saturated with acid properties, and it is only by the aëration of the soil, which follows the removal of water, that a healthy condition is induced, that acids are neutralised, and plant food gradually set free. It is, in short, as absolutely essential to the healthy growth of timber as of our crop and pastures that the land should be thoroughly drained.

A third reason against replanting with similar material is the injury to be anticipated from insect and fungoid parasites. It is well known that the eggs of the beetles—such as *Hylobius abietis*, *Hydurgus piniperda*, the Pine beetle, and *Adelges laricis*, the Larch bug—are deposited underground on old roots, and the grubs live on dead wood. It is, therefore, most important that all dead wood should be removed and all decaying matter burnt before replanting; also, if possible, that a period of three or four years should elapse between cutting down and replanting.

We have now to consider other causes of failure. It must be understood that, as a general rule, hard woods should be followed by Larch and Pines. Even if we plant a certain proportion of hard woods to remain for the permanent crop, these should be of a different nature. Thus, if the previous crop were Oak, Ash or Sycamore will be suitable to follow. It is better that these should occupy different parts of the same wood than that they should be mixed; the latter kinds, being the hardier, are best adapted to the most exposed part of the land. For the same reason the Scotch Fir is useful as a shelter to the more delicate Larch, which, notwithstanding heavy loss from disease of late years, is, under favourable conditions, the most profitable of quick-growing woods, not only on account of intrinsic value, but because it is the best nurse for the permanent crop.

Opinions differ as to the reasons for the great mortality, and in many cases total destruction, of young Larch wood of late years. The causes are various—we may allude to some of the more prominent. Climate is an important element. The natural home of the Larch is on the slopes of mountainous districts; it enjoys above everything a dry, porous soil, in which air has free access to the roots. Strong soils are not favourable and stagnant water is fatal; and even where drainage is good, low damp bottoms, subject to fogs, are injurious to healthy

growth. It is well known that the severest frosts occur in low valleys, and a great deal of the mortality which has occurred of late years has, we believe, been mainly due to severe frosts late in spring when the sap was up, and which destroyed the smaller cells. The comparative healthiness of Larch on hillsides sheltered from the colder winds is a proof of this. Indeed, so great has been the mortality in Larch plantations in flat countries, that it is a serious question whether, under such conditions, the growth of Larch should not be discontinued for a time.

Failure may often be traced to want of care in the preparation of the young plants, and too immediate change of soil from the nursery ground to their permanent home. The seedlings are often grown under the forcing conditions of highly-manured soil, of free, open nature, in sheltered situations; and if at once transferred to a soil of different character, where the circumstances are much less favourable, the change is too sudden, and a severe check is experienced; necessary supplies of food are wanting, and the vitality of the plant is weakened, rendering it liable to fungoid attacks.

The management of the nursery is a matter which requires more attention than it often receives. Mr. Brown, in his work on "Forestry," says that "in no case should one-year seedling Larch be more than 3 inches high, nor one-year seedling one year transplanted more than 10 inches high, nor three-year-old plants more than 20 inches high." It is undoubtedly an excellent plan to buy yearling seedlings once transplanted, and keep them in a nursery for two or three years where soil and climate are of similar character to those of the proposed plantation. It is neither necessary nor desirable to have the ground highly manured: a strip of arable land near the scene of our future operations, clean, and in ordinary condition, will answer the purpose, provided it is of a free working nature. It should be well ploughed 6 inches to 7 inches deep, and then enclosed with rabbit-proof fencing. Previous to bedding out, the surface may be well harrowed and weeds removed. Planting may be carried out during winter—i.e., from November to the end of March. We advise placing the plants in rows 6 inches apart and the same distance in the rows. This admits of hoeing with a 4-inch hoe, and it is of great importance that all weeds be removed. An acre of land will hold over 170,000 plants. The trench may be made by inserting the spade 6 inches deep, working it backwards and forwards. Then the plants are placed carefully against one side of the opening, the rootlets being straightened out and firmly secured by trampling with the foot. If left slightly on an incline, they will soon recover an erect position. The next year they should be replanted on fresh ground, 9 inches to 12 inches apart each way, and, if reset a third time, at least 1 foot to each will be required. When replanted, care should be taken to sort them out according to size, so that the plants may have an equal chance of growth.—*Field*.

#### THE MOST VALUABLE TIMBER TREES.

THE writer of the article on this subject in last week's GARDEN is not far from the mark when he says "we have not a large selection, viz., the Oak, Ash, and Sycamore." I presume he means exclusive of the Firs. When he praises the Ash as being one of the most profitable trees to plant, and as better than the Oak, I also agree with him. Oak of moderate size, for ordinary purposes, will be a drug in the market for many years to come whether trade revives or no. In this part of England at the present it cannot be profitably or easily disposed of unless put with Ash or something else, otherwise there would not be so many dead and dying trees all over the country. Ash, on the other hand, always finds a ready customer no matter what it is like if it be not rotten. I could dispose of all the Ash on any large estate tomorrow at fair prices if it could be parted with. Ash and Larch are the two trees that one has to economise, so to speak. The quantity one merchant will get quit of in a short time is extraordinary. Only the other day over 10,000 feet of Ash, all young, was sold by a needy proprietor to one man, who had disposed of it in a few days, and was negotiating for as much more on another estate, and eager to get it.

The Ash grows quick, and is useful from an early age. It delights in a good, strong soil, and where it has that, it will grow in almost any situation as regards exposure. It is a fallacy to suppose that it prefers a damp soil. However, it does grow for a while in such places, but is apt to decay. The biggest and best Ash trees I know of are growing on very dry ground where the soil is middling deep and good. One of the finest Ash districts in Yorkshire, or perhaps in England, is in that portion of the North Riding which lies between Northallerton and Skipton and in that district, and it is always best where the corn crops are also good and the soil rich and well drained. Were I going to plant for profit, I would plant Ash, Sycamore, and Corsican Fir only, and each by themselves. As for the Sycamore, it is a cool climate tree, and grows fast in the most diverse as well as in poor soils. The timber is in request for a great variety of purposes, and can be disposed of at a remunerative price from a girth of 6 inches upwards; the bigger the better the price, of course.

YORKSHIREMAN.

#### BOOKS.

##### TREE GOSSIP.

WE have received "Tree Gossip," by Mr. F. G. Heath, and we must say that it is a thoroughly useless book; there is scarcely a page that does not contain something vague, absurd, or misleading. Commencing with four pages or so about Age, it jumps to Ailantus, thence to Amber, and finishes with Yew—the pages between Amber and Yew containing, amongst others, paragraphs or articles on "Autumn Evening," "Bone Trees," "Dip into Forest," "Embedded," "Fuel," "Longevity," "Matches," "Nesting High," "Tongues in Trees," &c. In the article on Birch the following extract conclusively shows how little Mr. Heath really knows about trees: "The Birch is not often seen in our own country of a very large size, but some years ago the *Nelson Daily Times* of New Zealand mentioned a Black Birch that was felled by a surveyor's party at Staley Creek, near Ahaura, which measured at the butt 57 feet in circumference." The author of "Tree Gossip" seems to have been quite unaware of the fact that there are no Betulas in New Zealand, and that the Black Birch mentioned in the colonial paper is a Beech (*Fagus Solandri*). A slight acquaintance with botanical geography would have prevented the perpetration of such a blunder, as the Birches (*Betulas*) are nearly exclusively confined to north temperate and arctic regions.

BAOBAB.—The article on this West African tree contains nothing new, and may be taken as a sample of successful padding. The application of the bark to paper-making, discovered by Monteirs (the author of "Angola and the River Congo") in 1858 and commenced working as a commercial speculation in 1865, is altogether ignored, although Spon's "Encyclopædia" states that quantities of the bark have been imported from West Africa and met with ready sale to paper-makers at £9. 15s. a ton; it produces an exceedingly strong paper, suitable for bank-notes, and has on this account received much attention.

We have tried to see if the notes on the "Abies Douglasi, a species of Spruce," are capable of being construed in any other way than a recommendation to cultivate the plant in gardens near houses and in the streets of big towns. The latter portion of the quotation will cause some surprise that anyone who writes on trees (and ought to be an authority) should know so little of their habits and requirements. There is, in fact, scarcely any tree less likely than the Douglas Fir to become "a disperser of sweet resinous odours which are grateful to the senses as they are healthful to the lungs" in the dusty, smoke-laden atmosphere of a large town.

With regard to the Cedars of Lebanon, Mr. Heath mentions a number of travellers who have spoken about the trees, from Belloni, who counted twenty-eight in 1515, to Eliot Warburton, who, in "The Crescent and the Cross," published in 1845, stated

\* "Tree Gossip," by Francis Geo. Heath. Field & Tuer, 1885.



that twelve of the old trees, or saints as they are called, still remained. "Yes, twelve; I will maintain it, notwithstanding all the different computations on the subject, are there standing now, and the largest of these is 45 feet in circumference; the second is 44 feet. The first, perhaps only, accurate account of the Cedar grove on Lebanon, its position, history, &c., is that published in the "Natural History Review" for 1862 by Dr. (now Sir) J. D. Hooker, who, in 1860, in company with Captain Washington, Hydrographer of the Navy, and others visited the Kedisha Grove, mapped out the ground, and counted every tree. Of all this Mr. Heath seems to have been quite unaware. The following sentences, taken from the work just mentioned, may be contrasted with the statements in "Tree Gossip": "The number of trees is about four hundred, and they are disposed in nine groups, corresponding with as many hummocks of the range of moraines; they are of various sizes, from about 18 inches to upwards of 40 feet in girth; but the most remarkable and significant fact connected with their size, and consequently with the age of the grove, is that there is no tree of less than 18 inches girth, and that we found no young trees, bushes, or even seedlings of a second year's growth." "There were only fifteen trees above 15 feet in girth . . . only two others exceeded 12 feet in girth . . ."

Some of the remarks under "Cones" are extraordinary as regards the ignorance they display. "The apparent reason for the existence of this special covering is the necessity of protection for Pine seeds from the injury they might sustain in falling from the trees, which ordinarily grow in high and exposed regions, on to the rocky or rough ground below; enclosed in their stout protective cases they descend harmless to the earth. The cones, too, provide a means of distribution; for, in falling, they doubtless often rebound and roll away from the spot where the parent trees are growing and breaking, cast their contents about them." How about the *Abies* (formerly *Picea*), the cones of which, when the seeds are ripe, break up, the scales and seeds falling away from the central axis which remains attached to the tree? Mr. Heath, too, is apparently ignorant that a number of Pines shed their seeds and the cones remain fixed to the branches long after the seeds have fallen. However, this notice is already too long, so we must take leave of "Tree Gossip" and end the disagreeable task of reviewing such a work.

### THE CRACK WILLOW.

(*SALIX FRAGILIS*.)

CRACK WILLOW is a name derived from the very peculiar brittleness of the smaller branches of *Salix fragilis*. If a twig be taken hold of at its junction with the stem and sharply bent towards the tree, it will snap off as clean as the stem of a clay pipe would if placed in a similar position; if bent outwards, it proves tough and elastic, nor does it break at any part except that just indicated. The name is, however, somewhat misleading, because this peculiar brittleness at the juncture of twigs with the stem or larger branches is possessed in a more marked degree by another and very distinct species of Willow; but as it is universally known by the name of Crack Willow, that will have to be retained. There are many varieties of Crack Willow, some of which are usually figured as distinct species. But, without entering upon debatable ground, it may answer every purpose to notice such characteristics as will enable anyone to recognise it. The variation in the inflorescence of the genus *Salix* is so great, that it cannot alone be depended upon in determining species, nor is the rule of naming them from the colour of the branches or the size of the leaf any more to be depended upon; for example, the branches of young trees are darker in colour than that of old trees; the leaves are also larger on young trees than on old ones, being often as much as three or four times as large when set upon vigorous young shoots. The soil and situation also very materially influence the colour of the branches. There are, however, certain well-ascertained points of resemblance which are invariable, and under which Willows seem naturally to group themselves.

There are but two species of Willow that attain to such proportions as to be entitled to be considered timber trees, and these are so distinctly dissimilar, as to be unmistakable. Under the first, or *Salix fragilis*, are included the common Crack Willow, or Stag's-head Osier, *S. decipiens*, *S. cuspidata*, *S. Russeliiana*, or Bedford Willow, *S. monspeliensis*, *S. Purshiana*, *S. falcata*, *S. japonica*, *S. petiolaris*, *S. Micheliana*, and probably twenty others, for varieties are always being discovered. We have seen that there is great variation in the size of the leaves under different conditions. The form, however, is always the same; malformed leaves may be found on any tree, but the variation in form between one variety and another is seldom greater than can usually be found upon one tree, and never sufficient to mislead a practised eye.

The characters of the Crack Willow are as follows: Leaves lanceolate, but more longly acuminate at the apex than at the base, very regularly serrate at the edges, glabrous on both sides, and when spread on paper the leaf is mostly curved or scimitar-shaped with the apex slightly recurved; footstalks from half an inch to three-quarters of an inch long, with small glands; catkins opening shortly after the leaf has expanded, very long and thin, often from 3 inches to 4 inches, long, and sparse in both flower and fruit; the bark rougher, thicker, and more deeply scored than that of any other Willow; the bark or peelings on the smaller twigs very bitter, and by this alone the Crack Willow may be known, for no other tree Willow contains the bitter property known as salicine. The *Salix alba* hardly contains a trace of salicine, notwithstanding statements to the contrary.

THE CRACK WILLOW is a very rapid grower, especially when planted closely and in masses. There is a very beautiful pendulous variety of this tree grown extensively on the Rhine; there are not many below Bonn, but from there to Heidelberg and upwards, to the fall of the Rhine, many Crack Willows may be found. It is there falsely called *Salix babylonica*. The latter is a variety of *Salix alba* and very distinctly dissimilar. But this variety of *Salix fragilis* only wants knowing to make it a general favourite. The habit is less drooping than that of *babylonica*; indeed, it might almost be called semi-pendulous; the foliage is also darker and more dense. It does not attain the same height, but covers a much larger space than *babylonica*, and would, if introduced, be a welcome addition to our ornamental gardens. There is also a variety of this tree with brilliant orange branches tipped when young with red, but as it increases in size and age the colours become paler, but even then it forms a charming contrast to the usual sombre-looking forest trees, and deserves much greater attention from planters than it now receives, not only on account of its cheerful appearance, but also because no hard-wooded tree will yield such a large return for the outlay expended on it.

AS A NURSE OR SHELTER to other trees in exposed situations the Willow is one of the best trees known; the lightness and elasticity of its branches enable it to bend to blasts that would uproot the Oak, Ash, Elm, or Pine; whilst for rapidity of growth it is only exceeded by the Poplar. A fringe or border of Willows a few yards wide (if judiciously chosen) would protect many exposed plains now considered too bleak for planting, and nurse into strength trees that could not be reared without such protection. It is also well adapted for planting on the banks of rapid rivers or watercourses; in such situations it flourishes exceedingly, whilst the grasp and tenacity of its long pensive roots keep the banks from being washed away. It might also be used with advantage on many of our railway slopes, and, if judiciously done, that is, the kind of Willow adapted to the soil and situation, many of the dangerous landslips now experienced might be avoided or greatly mitigated.

THE WOOD OF THIS WILLOW is light, smooth, soft, and extremely tough. It will bear more hard knocks without splinter or injury than any known wood, hence it is always used for making cricket bats. Whenever it can be obtained, it is used for the floats of paddle steamers and the strouds of water-wheels. It wears longer in water than any other wood; when it can be obtained it is always used as break blocks for railway trucks, and it is the

only wood that will stand that kind of concussion and pressure without fracture. Its extreme elasticity and toughness constitute it the best of all materials for the sides and bottoms of carts and barrows where rough work, such as the conveyance of coal or stone, is carried on; and were it obtainable in sufficient quantity, it would be the best material in constructing carriages for passenger traffic on our railways, inasmuch as carriages made of this wood would be less liable to be broken into splinters by collisions than that of other trees. The wood of the Willow burns slowly and is not easily set on fire, a property which ought to be a considerable recommendation where it is necessary to use wood in close proximity to fire. At one time the Willow was always used by powder manufacturers for charcoal in preference to other woods, and was only discontinued because the supply fell short. The wood of the Willow is much esteemed by painters for their crayons; cork cutters use it for sharpening their knives on, and turners for polishing other woods when in the lathe; and as cutting boards for shoemakers and others Willow is in demand. W. S.

### THE GROWTH OF FOREST TREES.

EACH kind of tree possesses a character and external appearance peculiar to itself. The Oak is a noble and majestic tree. It stretches abroad its sinewy arms, and conveys to the mind the idea of strength. The Beech, too, throws out its wide-spreading branches, but it wants the rugged outline and abrupt roughness characteristic of the Oak. The Spanish Chestnut may be said to hold a place between these, and accordingly partakes in part of the characters of each, but there are so many points in which it differs from both, that it is easily distinguished. The Ash, again, is known by the scantiness of its foliage and the size and peculiar arrangement of its limbs, being of all trees the least beautiful on these accounts. The Elm rises to a height superior to the Oak or the Beech, extending its arms aloft. All the Pine tribe assume a conical form, their limbs being arranged in whorls stretching out horizontally and decreasing in length towards the top. These descriptions, however, only refer to the trees when growing isolated. Trees, as well as plants of every kind, accommodate themselves to circumstances, adapting their growth to their situation. Thus, the roots of a solitary tree, growing in an exposed situation, are large and numerous, having a deep and firm hold of the ground to enable it to withstand the force of storms. The trunk, too, is short, and it sends out a great number of limbs abounding in small twigs and foliage, and the whole tree appears stunted and dwarfish compared with one of the same species growing in a low and sheltered situation. A similar contrast also is observable between trees growing on the seashore and those situate in deep valleys, sheltered either by surrounding hills or by trees growing around them. In the one class the limbs are observed to grow almost exclusively on one side; they shrink, as it were, from the apparently withering effect of the sea breeze, and if any are exposed to it, they have degenerated to mere bushy twigs and are covered with a thick, but stunted foliage. In the other class, again, the trunk is straight and tall, and the limbs are vigorous and stretch themselves in an upward direction.

It is curious to observe the near connection there is between the roots and the limbs of a tree. An isolated tree, having a large head spreading over a considerable extent of ground, is always possessed of very large roots extending deep into the earth, and spreading in every direction from its centre to a much greater distance than the extremities of its limbs. A complete network under the surface is thus formed, the roots interlacing each other in every possible direction; but



a tree of the same kind growing in a thick plantation, having a tall trunk and few straight branches, has very few roots, and these are long and slender, taking but a slight hold of the ground; yet the strength in each of these cases, though differing so very much, is similarly proportioned to the resistance which each requires to make for its support during stormy weather. Thick plantations are much less agitated by wind and storms than when they are thinly planted, for the tops of the plantations in that case present a smaller resisting surface of leaves and branches—hence, then, it is that trees in sheltered situations are easily blown down when that shelter has been taken away by improper thinning.

It is this tendency in trees to accommodate their growth to peculiar situations that enables us to give them almost any character we choose, for in whatever way we wish them to grow we have only to place them in circumstances fitted to produce that effect, and Nature will perform the rest. If, then, we plant for profit, the first thing to be done is to inquire into the mode of growth which is most profitable in producing the finest and most valuable timber, then to ascertain under what circumstances that growth will take place, and, lastly, to act upon the information so obtained.

J. M.

#### WIRE FENCES V. HEDGES.

FENCES are incompatible with that freedom of aspect which should always be aimed at in the disposition of ornamental grounds, either extensive or otherwise. In parks where cattle are admitted some kind of barrier is necessary to protect the plantations, but there are ways of accomplishing this now without resorting to the plain stone fence, or hedge, or expensive Ha-ha—all of which are objectionable. Nothing more than the edge of the wood should denote the boundary line. If a fence is necessary, a wire or iron one will, perhaps, be the least expensive in the end, and it may be placed so as to be invisible to the ordinary observer. It is not unnecessary to state this much, for the very object of wire fences is frequently lost sight of in their erection.

Sometimes one sees an ornamental plantation railed off by a wire fence, rendered hideous by cumbrous sawn wooden posts placed every 15 feet or 20 feet apart. This is a common way of putting up such fences when the work is entrusted to those who know nothing whatever of their object. In other cases, where it is needful to fence park plantations temporarily, a strong but light fence is used, which does not offend the eye.

In very extensive domains we have seen, where the parks are tenanted summer and winter by highland cattle, not a fence is visible for miles from the mansion, but the fences are there nevertheless, miles and miles of them, and they consist of a few strands only of wire rope stretched upon rustic posts placed pretty widely apart, close to and near the drives and avenues, quite within the margin of the plantation, so that they cannot be seen except they are looked for, and they follow every winding of the wood.

Wherever the presence of fences is objectionable this plan will commend itself. It is only necessary to have wire strong enough, as cattle scratch themselves upon them and strain them. Where sheep graze, the wires must be closer at the bottom than the top. Such fences might be made to supersede sunk stone fences, which often enclose pleasure grounds and form boundary lines to plantations skirting the park; but as these are common and cannot at all times be hid from the sight, the best plan is to plant the common Ivy on the top and let it grow down, which it will do readily and quite hide the stones.

F.

**Drying Conifer seed.**—In the Hartz Mountains, where the cones of the Spruce Firs are collected in large quantities by the government, they are, when first brought in, laid up in rooms with perforated walls, so as to admit a continuous current

of air through them. By means of a kiln about 60 bushels of cones are dried out in a day, and each bushel yielding on an average  $1\frac{1}{2}$  lb. of clean seed. They are dried out at a temperature of from  $122^{\circ}$  to  $128^{\circ}$  Fahr. The drying is carried on in large wire drums, which can be put in motion from the outside of the drying room, and out of these the seed falls on to the floor.

**Cause of rot in Larch.**—Much has been written about "rot" in Larch and Spruce, but no cure has yet been found. Soils, extreme seasons, &c., have been blamed as the causes of rot and other diseases in these trees, but I feel sure that the simple plan of raising our forests from seeds dropped in the soil where they are to attain their full growth will be an effectual remedy for rot and other diseases common to forest trees. Were this plan to be adopted, not only would our forest trees be exempt from many diseases, but they would be in a better position to resist storms. I am confident that nursery treatment is the cause of this want of resisting power. Plants drawn from the seed bed show the natural disposition and quantity of the roots; plants taken from the nursery lines show the artificial disposition and quantity of the roots, these latter being all trained in one direction, and when they are inserted in the ground by means of the T or H notch, they are confined to one direction, and therefore easily blown down. This, in my opinion, has been abundantly proved by the storms of the past winter. I would here take the liberty of suggesting that foresters and others who may have it in their power should raise a pinetum of seedling Conifers, thereby showing all the trees in their true character. How many of the finest specimens in pinetums are completely disfigured by transplanting. By proper arrangement this could be effected at a small cost, and in the course of time would afford much valuable information in the art of forestry.—S.

#### MANAGING SMALL PLANTATIONS.

EXTENSIVE plantations are generally well managed by practical men, but places of one, two, or more acres are for the most part left to the care of the proprietor, whose object is to get up shelter at any cost, and often without reference to ultimate embellishment. In this way great irregularities occur which it is often difficult to put right.

Poplars, which are generally the cause of the mischief, should be kept by themselves, either for shelter or for background seclusion, and if required they can be pruned with impunity even at any stage of their growth, so as to enable them to be kept in something like their proper shape. Some specimens of them with which I am acquainted—thirty-six years of age or so, with stems from 4 feet to 5 feet in circumference and about 40 feet in height—were pollarded about 18 feet above the ground. The following year numerous shoots were produced all over their stems. The year after that all the lower new-made branches were removed, and the top ones shortened to within 10 inches or 12 inches of the stem. These branches are subjected to a cutting every two or three years. By this treatment the tops become somewhat spherical, and continue to be so as long as branch shortening is adopted.

Large unpruned Poplars in the neighbourhood of a mansion are often positively dangerous, their large limbs being frequently blown down; and if it should be found necessary to remove them, great difficulty often attends the operation. The branches in such cases must be lowered down piecemeal by ropes, in order to prevent them injuring buildings, fences, or neighbouring ornamental trees.

Lombardy Poplars are often employed extensively in small gardens, owing to their occupying but little space in comparison with other trees, but when they become 8 feet or 10 feet high, they are apt to become bare at the bottom and leafy at the top. Where this is the case, it becomes necessary to reduce the height of each intermediate tree to about 6 feet, giving each cut specimen a good service dressing at the same time. The pollarded trees soon become furnished below, while the unpollarded ones fill up above. After the specimens that were cut down begin to grow freely, those uncut in a few years may be treated in

the same way. By this successional way of cutting the tops of Lombardy Poplars they assume an irregular outline in the landscape, which is infinitely better than all, being of one uniform height. Large branches of Poplars, say from 10 feet to 12 feet in length and 18 inches or so in circumference, may be inserted in the ground as cuttings, and it matters but little which end is inserted. I have seen some put in upside down, and grow as well as if they had been inserted in the right way. Numerous shoots will always be produced from the stems; the under ones should be removed and the upper ones shortened. If this shortening be carried on every three or four years, they will ultimately make good trees for shelter, and will often be more pleasing in appearance than unpruned trees, the branches of which extend in all directions.

Many are apt to plant thickly in the neighbourhood of their houses, in order to produce early shelter. This is often a mistake, as I have frequently observed that trees, both for avenue and plantation purposes, when not too thickly planted, but judiciously topped and branch-pruned when young, so as to secure a proper shape, stand the wind better than trees which have been allowed to go on unpruned till they have acquired a large size. This particularly applies to the Norway Maple, Plane, and Elm. If ornamental trees are to stand among evergreen shrubs, their stems ought to be pruned; but if to stand singly on Grass, the natural outline of such trees should be carefully preserved.

W. W. M.

#### IVY ON FOREST TREES.

BEAUTIFUL as Ivy is on trees or clambering over rocks, it is, however, a great mistake to allow it to overrun whole woodlands, and to climb on, strangle, and choke trees, and thus retard their progress to a serious extent in the production of useful timber. In forest ground, where roedeer traverse the plantations, these animals never fail to keep the Ivy within bounds, and in winter, when Grass is scarce, it is highly relished by deer of all kinds, and thus affords considerable keep for the animals during a time of scarcity, so that Ivy, in its proper place, is a valuable forage plant, and might even be planted as such on the score of utility. But in woodlands where deer are excluded and where Ivy is abundant, the forester has no other resource but to cut the Ivy at considerable expense, or see his plantations where the plant exists overrun and destroyed. In these dull times when landed proprietors cannot get a fair value for their land in the shape of rent, and when the price of timber is about at its lowest ebb, everything in connection with woodlands—I had better say estate management—must necessarily be curtailed to such an extent as is consistent with efficiency.

A true lover of woodland scenery cannot but feel distressed when looking at young Oaks, Ash, and other species of trees clad from the ground upwards with Ivy, and strangling their victims in their firm embrace. As long as the Ivy is confined to the stem of the tree, say to a height of 5 feet or 6 feet from the ground, I have noticed that the tree does not appear to suffer from its presence; but when it is allowed to interlace itself among the branches and spray on the top, the case is more serious, as it almost suffocates the tree, and proves a great hindrance to its future development.

I think plantations of any extent that are overrun with Ivy, and where a staff of men is required to cut and keep it within bounds now and again, at considerable expense, could be better and more economically managed by erecting a fence around the margin and turning a few deer into it, the number to be regulated according to the size or area. I know this plan would save a vast amount of labour and expense on many properties, and the suggestion might be worth



the consideration of proprietors, as they would not only save the extra expense incurred in keeping down the Ivy, but would actually turn it to good account as forage.

When cutting trees clad with Ivy during winter, I have made it a point to collect and cart it into the deer park, where it is spread out for the deer, and from the way they will leave Grass, hay, and Turnips and make a dainty meal of the Ivy, there cannot be a doubt about the utility of using it in this way. In cutting Ivy from large trees, it is a dangerous practice to strip it off at once, as I have known trees killed in this way; better cut it around the stem and remove it gradually or allow it to rot off at its own accord. Better not allow it to reach the branches at all, as it harbours insects and their eggs, and encourages canker and other fatal maladies at various stages of the tree's growth.

J. B. WEBSTER.

#### HEDGEROW TREES.

I AM sorry that my quotation from the little work I named should have endangered the equanimity of Mr. Yeo, who must admit that this little discussion has not altogether been confined to the practical question of timber growing for profit; if it had, I daresay I should have taken no part in it. I do not, however, think that the subject is drifting from bad to worse; on the contrary, I am inclined to think that it has gone far to prove that hedgerow trees are an unmitigated evil, and when this is universally admitted, the practice of planting trees in hedgerows will be discontinued. Mr. Yeo appears to write somewhat derisively of Holly hedges, yet I do not know why he should do so. If Hollies can be made to form a fence against stock as quickly, and at only a little more expense than can be done with the White Thorn, then the former has the advantage of the latter in more than one respect. It forms an equally protective fence; it affords shelter to stock in winter as well as in summer; and a Holly hedge is an object of beauty all the year round. As to Holly trees shooting up at intervals, and being grafted with more care and beautiful varieties, this is merely a suggestion thrown out by the author of the work I quoted from, and one which, in suitable situations, might, and has in some instances been acted upon; as beauty, even in the matter of hedgerows, is appreciated by many who would prefer such to the miserable and useless trees which one so often sees disfiguring the landscape, but which, as your correspondent says, may nevertheless "at any rate produce something." Yes, a mere something, for the benefit of the landowner, at a considerable cost to the cultivator of the land; so that, although it may be a long time before the "progress of science" will free our hedgerows from the encumbrance of existing useless and injurious trees, still common sense will ere long, it is to be hoped, effect the discontinuance of the practice of planting such. I am glad to see that Mr. Yeo does not object to groups of trees in the corners of fields, which would be ornamental as well as affording shelter to stock, and for this purpose the exclusive use of evergreen kinds was not insisted on, but an under-growth of Holly or some other evergreen plant would certainly be preferable to Hazel.

P. G.

#### THE FIRS.

"GLEDYNE" (p. 329) asks, "What do we really know about the Corsican Pine?" and answers the question himself, "Not much, we fear." But it is not so, and it is of no use abusing one kind of tree in order to make another kind appear better than it really is. What we do know of the Corsican Fir is that it grows on the mountains of Southern Europe at various altitudes up to some thousands of feet above the sea; that it has been extensively planted in France on waste and otherwise useless tracts of land, and that its timber in these countries is "fit for any purpose" at an early age, and is most extensively used. In this country planters know that it is perfectly hardy in the most exposed situations, that it is

not at all particular as to soil, and, above all, that it increases in bulk of trunk about twice as fast as either the Scotch Fir or the Larch, and that it is much heavier and more resinous than the best Scotch Fir as generally grown in the south of Scotland and in England. Lastly, it is becoming more popular every day, and nurserymen can hardly keep pace with the demand. These are some of the facts we know about this Fine, and are, I think, a more than sufficient reply to "Gledye's" "not much." I consider it a most important point in favour of the Corsican Fir, that while it is not so branching as the Scotch Fir it produces a trunk twice as bulky in the same time, and those who doubt this have only to examine samples of each, of the same age, grown under the same conditions. We have a quarter of three-year-old Corsicans in the nursery here, and, next to it a quarter of Scotch of the same age, and, plant for plant, I will undertake to say that not one Corsican could be found and compared in which this rule does not hold good, and it is the same in all the older trees. Does "Gledye" deny these statements, and has he ever known the tree to fail where it was planted?

YORKSHIREMAN.

#### TREES AT CAERHUN.

To the tree lover as well as to the antiquarian the antique mansion of Caerhun, with its homely surroundings, pleasantly situated on an eminence above the Conway River and but a short distance from the old and well-known ferry of Taly-cafn, has been always a welcome retreat. In the grounds surrounding the mansion many fine specimens of our British timber trees, including the Oak, Elm, Ash, Yew, Holly, and Plane, may be seen, while the Lebanon Cedars and Cluster Pines, with their spreading heads and gigantic proportions, clearly testify that their planting took place but a very short time after they were introduced to this country.

Prettily situated at a short distance from the mansion house is the old church of Caerhun, in the churchyard of which stands in vigorous old age a venerable Yew tree, measuring in circumference at 3 feet up 18 feet 6 inches, and supposed to have been planted at least 1300 years ago. Other Yew trees of less dimensions are also growing around the church. Close to the churchyard are several Holly trees, the largest of which when in pristine condition must have been a magnificent specimen of its kind, for the semi-living stem, which cannot survive many more years, measures no less than 9 feet 10 in. in circumference at 3 feet up. Growing alongside the garden wall is a line of fine old Cedars of Lebanon, their appearance indicating perfect health, and from which annually a large quantity of cones are procured. The largest girths 12 feet 5 inches at a yard up, with a clean, straight bole, and densely clothed head. In close proximity to the Cedars is a fine, healthy specimen of the Cluster Pine (*Pinus Pinaster*) with a tall bare stem, girthing 14 feet 7 inches at 3 feet from the ground, and a flat umbrageous head, which is so characteristic of the tree in its native wilds. Midway between the ferry and house is to be seen a noble specimen of the Oak (*Quercus sessiliflora*), which at 5 feet up girths 15 feet 5 inches, and contains a large quantity of sound timber. The spread of branches is very considerable, and altogether the tree is in a very healthy and flourishing condition.

Of particular interest, however, is this place to those interested in antiquarian research, for here is the site of a Roman camp and villa, the walls of the former still standing a few feet in height, and being in a comparatively good state of preservation. Specimens of the short pillars used in Roman hypocausts are also to be seen, these being formed of, not native stone, as might have been supposed, but that obtained from Denbigh. Immediately above the villa is the Roman camp, where one cannot but notice with admiration how completely the line of circumvallation is still to be made out. It is called *Conovium*, and covers a square of 600 feet, being for a long time the head-quarters of the 10th Legion. In the mansion several Roman and Celtic antiquities may be seen, the principal being an ancient shield or large, of unique design, that was found in the neigh-

bourhood about the end of the last century; but antiquarians are divided in opinion as to whether it is Roman or Celtic, as nothing exactly similar exists.

Caerhun is also one of the few places in which the Lent Lily (*Narcissus pseudo-Narcissus*) can be really considered as wild, for here, as well as on the mountain near by, acres, we might say, of this interesting plant may be seen, and which during the flowering season is certainly a floral treat of the richest description, and well worth a twenty miles' walk to see.

A. D. WEBSTER.

**Layering Oak stools.**—In filling up Oak plantations, the advantages of layering from suitable stools can hardly be realised by those who have never practised it upon a large scale. The support which the layers derive from the parent stool causes them rapidly to outstrip the growths from Acorns or from recent transplants. By selecting two years' shoots, and carefully layering them in cultivated ground, and at the end of the second year again layering the young plants, a considerable space around the original stool may be filled up in a few years; and one great advantage of the system is that there is no fear of wind-waving, even upon the greatest exposures, and the support which the new plants derive from the parent stool not only promotes rapid growth, but also enables it to be carried on upon sites where, from poverty of soil, trees cannot be planted with any prospect of success. Layers may either be cut away at the end of the second or third year, according to the quality of the soil; but when it is intended again to layer them from those first formed, no cutting away should take place until the process is finished.—D.

#### MANAGEMENT OF PLANTATIONS.\*

THIS essay, which was awarded a silver medal at the Edinburgh International Forestry Exhibition, is published in the form of a pamphlet of some twenty-eight pages, and deals with the most pertinent questions relating to forestry, such as the preparation of the ground, planting, position, general culture, and the kind of trees to plant, &c.

On the subject of preparation of the ground, the author very rightly says of trenching, which many foresters recommend even yet, that it is "simply out of the question in plantations of any magnitude." When one notes the great tracts of fine timber of all descriptions that have in times past been planted on soils of the most diverse kinds and in the most varied situations, without any preparation whatever save draining where necessary, the absurdity of indulging in such extravagant practices is apparent, and on this point we are at one with Mr. Hodson. With regard to the selection of suitable trees for planting, the author is not, however, very consistent or safe. He writes:—

The selection of suitable trees for an ultimate crop is a very important matter, as upon this choice the secret of the success of the forest will depend. Of late an enormous number of new and so-called "improved" species of *Coniferae*, chiefly imported by means of seed from America, have been, and are daily being, put before the public; and it is apparently becoming the rule to accept all that come, to plant them indiscriminately, and to take it for granted that they are suited in every respect to our climate, and to the different conditions to which they must necessarily be subjected. That this is a dangerous practice cannot be doubted. It is true that some of these varieties will succeed, and others may do so for a certain number of years; but the wholesale acceptance of untried varieties will, in the end, prove a failure. Moreover, from the point of view of profit, it is hardly necessary to go beyond the collection of well-tried, valuable, and acclimatised *Coniferae* which is already at the planter's command.

This is very good so far, but when our author comes to furnish his own list of "con-

\* "Essay on the Formation and Management of Plantations." By Edmond Hodson, &c. Hodges, Figgis, and Co., Dublin.



bearing trees to be recommended for afforestation work, as they are at once valuable and well adapted for our climate," he goes far "beyond the well-tried and valuable *Coniferæ* already at the planter's command," and gives a list of subjects that do not answer that description. Black Spruce, White Spruce, Swiss Pine, the Deodar, *Cryptomeria*, *Cupressus macrocarpa*, *Pinus contorta*, *Wellingtonia*, *Pinus monticola*, and the like are, to say the least, not well tried nor very popular subjects for general afforestation purposes.

For the most part, however, the instructions given are safe and useful, while they contain nothing new. The essay is short and the various subjects are necessarily dismissed in very few words. The following extracts will give the reader an idea of the contents:—

#### TREES SUITED FOR VARIOUS POSITIONS.

As to the distribution of seedlings over the ground, it has been well said that there is nothing so dangerous as obeying too servilely the directions given in books. No absolute laws can be laid down on this matter, but experience has proved that certain classes of trees prefer certain soils, certain aspects, and certain formations of ground. A large proportion of our most valuable *Conifers* are not, happily, too fastidious in this matter. Although, in the case of the Larch, heavy losses have been incurred during the last few years, owing to its failure, it is probable that in future plantations this misfortune may be obviated in a great measure by paying more regard to the nature and habits of the tree. It delights in an elevated situation and in a dry, somewhat sandy, and porous soil. On the other hand, strong dense soils are most unfavourable, creating an abnormal growth, upon which late frosts act most injuriously. The misty atmosphere of sheltered valleys and low lands, as well as stagnant water, have proved particularly fatal, nor is excess of running water less injurious.

Planting may be successfully carried out during all open weather from the end of September to the beginning of April, and the most suitable age at which to transplant seedlings into the forest will be at the close of their third, or commencement of their fourth year, when they vary from 10 inches to 20 inches in height. The seedlings should remain two years in the nursery after transplantation from the seed-bed.

In the removal of plants from their nursery, care must be taken that the roots and tender rootlets are not injured by rough usage or by exposure to the atmosphere. The supply should always be regulated by the demand, but should it be necessary for the plants to remain out of the ground for any considerable time, they ought to be carefully shaded, and protected as far as possible from injurious influences.

Numerous experiments carried on in Germany and elsewhere have almost conclusively proved that in planting Pine woods the distance of 3 feet from tree to tree produces the largest yield of timber per acre. On account of the acknowledged humidity of the British Isles, a strict adherence in all cases to this rule is not advisable, but it should be followed where land of moderate quality and elevation exists. In the laying out of shelter belts, 6 inches, or even 12 inches, less will not be excessively close in very exposed positions, or on bleak mountain-sides, where the soil is shallow and the root-hold uncertain. On the other hand, in deep loam, or in any rich soil in sheltered valleys or low-lands, where the growth will be rapid and luxuriant, the young trees should be set at a proportionately greater distance apart.

Among the many advantages that accrue from the existence of shade afforded by trees, it may here be remarked that the natural, equal, and timely decomposition of fallen leaves, which provide a most valuable "humus," and by means of which even the most barren soil in the lapse of time becomes fertilised, is among the most important, while the disintegration of the soil, which is essential for the healthy growth of wood, is rendered more uniform.

The south-west boundary of the plantation—which is, in the present case, supposed to face the prevailing

wind—should be planted closely with the Scots and Austrian Pines, in the proportion of two of the former to one of the latter, and from ten to twelve rows deep. Here also, along the outer edge, a few Sycamores and Norway Maples may be introduced in order to vary the outline and assist in sheltering the interior.

Along the west boundary, stretching along the brow of the valley, the Scotch Pine, in conjunction with the Spruce, Weymouth, and Cluster Pine, may be placed along with a few hardwoods, such as Sycamore, Norway Maple, and Ash. On the slopes of the valley the beautiful Silver Fir will succeed admirably, while the upper portions may be clothed with the Scots, Cluster, Stone, and Corsican Pines. At a lower level, any ornamental specimens—such as *Wellingtonia gigantea*, *Cedrus Deodara*, and *Cryptomeria japonica*—will flourish vigorously, but nurses of Scots Pine and Spruce Fir should be employed at the outset, although they must be removed when overcrowding occurs. Some deciduous trees, moreover, such as the British Oak, the Ash, and the Alder, will not be out of place—the two last-named, when planted by a stream, securely "binding" its banks, and checking the wearing influence of floods. On the comparatively sheltered portions of the slopes the Beech, Elm, and Sweet Chestnut are certain to succeed and prove valuable.

Along the northern boundary the Scots Pine, mingled with Spruce, Larch, and the Cluster and Swiss Pines, in the proportion of two to one, should be planted, in order to form a substantial shelter from the piercing north winds. The outer belt should be as even and dense as possible, so as to prevent chilling blasts from penetrating, and causing a bark-bound and stunted growth, and in all cases hardy and well-grown specimens should be selected for shelter purposes.

On the straight eastern margin, the Scots Pine, planted with the Spruce, Austrian Pine, Black Spruce, and Swiss Pine, in the proportion of one to two, will thrive well.

In the body of the plantation, if the nature of the soil will produce valuable timber, this should be planted to the exclusion of other less valuable wood. Thus Larch should be preferred to Scots Pine or Spruce—even thinnings of the first-named being of greater value than those of the others. In somewhat moister and more peaty ground, Larch and Scots Pine may be placed in the ratio of one to two, and in such areas the Corsican Pine, the value of which has not hitherto been fully recognised, will also succeed. This last species is admirably suited to our climate, and the desirableness of planting it extensively, in conjunction with Scots Pine and Spruce, the latter to be thinned out when necessary, cannot be too strongly advocated. A south-east aspect will be found most suited to its requirements, and it has been successfully planted along the sea-coast.

In moist and somewhat boggy ground, the Scots Pine and Black Spruce, in the ratio of two to one, will flourish. These should be planted at somewhat wider intervals, in order to allow a fuller development of side branches, whose leaves assist in removing stagnant moisture, and also that the sun may more easily strike upon and dry the surface. For very swampy situations, where drainage may be impracticable, the Black Spruce, the Swamp Pine, the Balsam Fir, and *Thuja gigantea* will prove invaluable; but should any difficulty occur in procuring such seedlings, they may be replaced by hardwoods, such as the different varieties of the Poplar and Alder.

Upon the lower slopes of the hill—say up to a height of 1100 feet—any of the varieties already mentioned will succeed, and preference should be given to those possessing the most valuable timber.

Generally speaking, the Scots Pine should not be planted to any great extent on a south or south-west aspect, as a too speedy growth is thus induced, causing the decay of the timber before it arrives at maturity. As a northerly exposure is most favourable to its normal development, the higher ground should be planted with it on that side. It may also be employed on the eastern aspect above the elevation of

1200 feet or 1300 feet, and it may here be mingled with Swiss Pine and Black Spruce. On the south-east it may be planted along with a few Corsican Pines and Larches, and considerable clumps of Birch, Mountain Ash, and perhaps a few Norway Maples, which are likely to succeed admirably, and will add in a great measure to the beauty of the whole.

On the elevated ground to the south, south-west, and west, Larch, Spruce, and Corsican Pine may be placed, even to the highest point of the ground; but some Scots Pines may be added for the sake of shelter.

In the formation of shelter belts—the significance of which cannot be over-estimated, inasmuch as, in exposed situations at least, the success of a young plantation depends on the artificial shelter afforded it—planting in lines should be avoided.

When these belts are formed on the sea-coast, the outer margin may be formed by a dense hedge of Sea Buckthorn. Next to this, the Sycamore, Mountain Ash, Elder, Birch, Holly, and the Spurge Laurel will grow well, while the Privet, Barberry, and the common Gorse will be of use. *Conifers*, such as the Cluster Pine, which will flourish in pure sand, and the Austrian and Corsican Pines, may be added with advantage. *Cupressus macrocarpa* has also proved itself to be of value in such exposed positions. It is to be noted that the plants which are indigenous to the district should have the preference in forming such belts, and all trees should be planted at an earlier age than would otherwise be the case. Thinning, when necessary, should be very judiciously carried out, as openings or gaps will prove most injurious.

In a moist climate the subject of fire lines, although one of extreme value in warmer and drier latitudes, is of little moment, and it may merely be noted that such hardwoods as the Alder, Walnut, Hornbeam, and Poplar can always be depended upon as suitable for such lines.

**Water in timber.**—The amount of water present in freshly cut wood is very different, as is shown by the following table by Scheubler and Hartig: Hornbeam contains 18·6 per cent. of water; Willow, 26 per cent.; Ash, 28·7 per cent.; Birch, 30·8 per cent.; Oak, 34·7 per cent.; Pine, 39·7 per cent.; Red Beech, 39·7 per cent.; Elm, 44·5 per cent.; Larch, 48·6 per cent.; and White Poplar, 50·6 per cent. Wood, when dried at 266° F., at which temperature all the hygroscopic water is expelled, is composed of 50 parts carbon (inclusive of one part of ash) and 50 parts of chemicals.

**Preparations for planting.**—Before forest tree planting is commenced the soil should be well prepared. Wet soils should be drained, and those of every kind should be cultivated to a certain extent preparatory to the reception of the seed or plants. In some wet and thin soils the surface should be laid out into one-bout ridges with the plough; after having been pared and burned, if necessary, drained and subsoil ploughed, the plants should be planted on the tops of these ridges in rows, the earth being drawn up about their roots. In moist soils the previous preparation should be that of double digging, if the subsoil will admit of it, and a crop of Potatoes or Turnips should be taken off it the year before the planting is to be commenced. The ground is thus left in a clean state fit for planting the seeds of young trees. Sometimes great advantage results from bringing up the subsoil and mixing it with the surface soil. There are instances in which the soil does not suit a particular tree, while the subsoil is such as that the tree would grow to perfection. It is in cases such as these that this operation is attended with such beneficial results. If, for instance, an attempt were made to grow Larch on black moor or peat earth lying on a gravelly subsoil, failure would be certain, while if the land were previously turned so deep as to mix with it some of the subsoil, success would be the result. This shows the necessity of not only examining the soil before determining on the kind of tree to be grown, but the subsoil also, as this examination enables us to ascertain the nature of the soil and what kind of tree best suited to it.

**Timber markers.**—Will "C. J. W." or "D. J. V." kindly say where the timber markers they severally recommend can be obtained?—C. M.



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"This is an Art  
Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## FRUIT GARDEN.

### AN AMATEUR'S FRUIT GARDEN.

THE season now rapidly drawing to a close has been on the whole a remarkably prolific one as regards fruits of all kinds, but a large proportion of the produce is but of poor quality. Now, if we seek for reasons why this is so, we are told that drought was the cause of bush fruits being small and of Apples dropping off wholesale, and I readily grant that protracted droughts are serious drawbacks to fruit cultivation, especially on light dry soils resting on gravel. At the same time, however, it must be admitted that some cultivators have grown and shown some of the finest hardy fruits this year that have ever been seen, and I doubt not that every reader of THE GARDEN has come across examples of both satisfactory and unsatisfactory crops this season, for as a rule both kinds have been plentiful. Crops generally fail at swelling-off time, *i.e.*, if sufficient food for the trees has not been provided. During the present autumn I came across a small garden in which there were remarkably good crops of all kinds, the fruit trees being literally borne down by weight of crop, and the remnant of the latest bush fruits that had been kept for making up collections showed that these had been in their season extra fine. The owner was an enthusiastic amateur fruit grower, and I question if many cultivators of half an acre of land could show more prizes and certificates for fruit than he could. Now the secret of his success lies in good cultivation and, above all, liberal root-feeding. The pruning and training were of the most ordinary kind. Bush fruits, such as Gooseberries and Black Currants, were simply thinned, and White and Red Currants were spurred in quite close; while the Apples and Pears, which were grown mostly as bushes, received scarcely any pruning at all, and the wall trees were spurred in in the usual way. There was, therefore, nothing in the top treatment of the trees to account for the excellent way in which they swelled off their load of fruit.

I was, therefore, lead to inquire what manure was employed, and how deep he cultivated in winter. The following is briefly, as near as I can remember, the reply: "About sixteen years ago," he said, "I began to cultivate my half-acre of open common land by breaking it up two spits deep and well loosening the bottom. I planted my bush Apple and Pear trees in rows about 20 feet apart each way, and put bush fruits in the intervening space in the rows. This left a good clear space for cropping between the rows without pressing too much on the space allotted to the trees, a good, wide footway being left quite clear on both sides. It is to deeply cultivating and liberally manuring these intervening spaces that I attribute my success and the grand crops which I have had year after year without fail nearly ever since the trees were planted." As regards manure, it would be difficult to estimate the quantity employed, as he says he is certain that he has quite added 6 inches in depth over the entire garden by additions in this way and in new soil. In fact, briefly, his garden is like a Vine border, in which one could find at least a yard

in depth full of decaying bones, vegetable refuse, and other fertilisers. In winter the soil is thoroughly broken up to a good depth, but the space as far as the branches extend is left undisturbed. The surface soil is merely raked off in winter and buried in the trenching, and a coat of new soil and manure mixed together is substituted; it is the tips of the roots that extend far and wide that we must feed if we wish to finish off heavy crops. It is sheer waste of time to put a little manure or liquid food close up to the stem, as I have seen many doing during the past summer. It is not the large roots that gather up food, but the tiny rootlets. Nature herself even gives us a hint as to where manurial matters are needed by making the rainfall at the extremities of the roots, leaving the space under the branches comparatively dry. We should do well to supply our fruit trees with food and moisture where they can best avail themselves of both. I may add that the whole of the trees treated as has just been described are models of fruitfulness, and their bark has that shining glossy look that betokens luxuriant health, that best of safeguards against disease of all kinds.

Many will doubtless think that giving a common Apple tree or Gooseberry bush as good a root run as a Vine is simply waste, but the results of this experiment show that the owner has received a good return for his labour and outlay. The only drawback to this sort of fruit culture is that it entails a good deal of hard work; but, indeed, little success can be achieved in this or any other branch of gardening without it. Give a liberal diet if you would have good fruit and plenty of it. J. GROOM.

*Gosport.*

**Pitmaston Duchess Pear.**—This Pear is not only good in quality, but makes a grand dish on the dessert-table. I have just gathered some from bush trees that average 1 lb. each, the general run being from 15 ozs. to 17 ozs. Who would not like to grow a few dishes of such a noble fruit? Everyone, however, has not a wall on which to grow this Pear, and on standards such heavy fruits are more liable than smaller ones to be blown down; in fact, one of the strongest arguments against unrestricted trees in a stormy locality such as this is the fact that the fruit gets blown off long before it is fit for gathering. Although I am as great an admirer of large orchard trees as any one, I must confess that they are not the best for all sorts of situations. We top our trees or bushes so as to get the limbs as stiff and immovable as possible. Any sort of shape answers if the branches are well thinned out so as to let sunshine have full play. Even, however, after taking every precaution a good many are blown down. I have seen Pitmaston Duchess this year in grand condition as a cordon tree, and in exposed situations I should certainly recommend all such heavy Pears as this to be grown on a trellis of some kind, as when they fall they get so much bruised that decay follows before they are ripe enough for dessert.—J. G. H.

**Prices of Grapes.**—The prevailing prices of hot-house Grapes are almost alarming. When really good samples fetch from 1s. to 1s. 6d. per lb. only it is obvious that there is something amiss, and if growers and salesmen combined cannot discover the cause of this distressing fall in prices, even a royal commission can hardly be expected to do so. Some probably rush to the conclusion that foreign competition lies at the bottom of the mischief. A large market grower the other day tersely put the matter thus: "The thing is overdone;" and no doubt it is. When producers almost outnumber consumers it becomes evident that the game is not worth the candle. Over-competition really then becomes ruinous; and this is not limited to Grapes. It is seen in everything which we produce. How is the evil to be remedied? The consumer gains in the fact that he obtains his commodities cheaply, and thus can enjoy what once

was to him, and perhaps to the mass, luxuries. That, so far, is a consolation, but still it does not cheapen the cost of production or render cultivation less difficult.—A. D.

### APPLE CULTURE.\*

OWING doubtless to the numerous exhibitions of fruit held in various parts of the country, and to reports of the immense quantity of Apples imported, the interest taken in their cultivation has much increased within the last few years, and the demand for good fruit trees is also increasing. I have often thought that it would be better to plant Apple trees in villa gardens than so many forest trees, which, in the majority of instances, are so crowded together, that they have not sufficient space in which to show their true character. The Apple is more suitable, as regards size and habit of growth, for planting in gardens of limited extent than any kind of forest tree. There are few more attractive objects than a well-grown Apple tree when in full flower, and it is scarcely less interesting when in fruit. I would not, of course, wholly exclude forest trees from gardens of any kind, but I would use them only for wind-breaks and for shutting out unsightly objects. In no instance should they be planted where they cannot grow to their full size. Many object to planting fruit trees in this manner, thinking that the fruit would be stolen; but cases of robberies in that way, except near large towns, are few and far between. All, therefore, who design and plant new gardens or renovate old ones should plant fruit trees in every suitable situation. In the case of gardens already planted with the usual kinds of forest trees I should recommend the occupier to obtain permission from the owner to remove a certain number of such trees and substitute Apple trees. A common saying, probably correct some years ago, was "Plant Pears for your heirs," but that remark cannot be applied to Apples, for some fruit very early, notably Stirling Castle and Lord Suffield varieties, which usually produce fruit in two years from the time of being grafted or budded.

THE SELECTION OF VARIETIES proved to succeed in the soil and atmosphere of any particular district is of the greatest importance, for although some sorts may be seen in many orchards or fruit gardens throughout the country and usually produce good crops, there are also many sorts which fail to fruit except in the most favourable situations. Those, therefore, who contemplate planting fruit trees should visit neighbouring gardens and get the names of the best varieties found to succeed in them. It is better to plant several trees of one variety known to succeed than to plant a large number of doubtful sorts. New varieties, too, should not be planted extensively until they are proved to be useful sorts and an improvement on older kinds. Owners of trees injudiciously

\* Read before the Sale Botanical Society by Mr. W. Neild, Wythenshawe, Northenden, Manchester.



selected often complain of want of success. It is useless, they say, trying to grow fruit in their gardens, as their soil and atmospheric conditions are unsuitable for fruit growing. Now, if in this case good local free-fruited kinds had been planted, failure under good management would have been next to impossible. The following culinary varieties have been proved to succeed in this neighbourhood. They are placed in the order in which they come into use—viz., Lord Suffield, Grenadier, Pott's Seedling, Echlinville Seedling, Stirling Castle, Old Hawthornden, Cellini, Wareham Russet, Dumelow's Seedling, Golden Noble, Alfriston, and Northern Greening; these will form a succession for several months. For market purposes there is no Apple in my opinion that will give as good returns as Lord Suffield. Of dessert varieties the following are the most reliable with which I am acquainted. They are placed in the order in which they ripen—viz., Devonshire Quarrenden, Summer Thorle, Kerry Pippin, King of the Pippins, Adams' Pearmain, Golden Reinette, Cox's Orange Pippin, Ribston Pippin, Blenheim Orange, Court Pendu Plat, Old Nonpareil, and Sturmer Pippin. It will be seen that I give the preference to culinary varieties by placing them first, as I consider them of more importance than dessert sorts.

IN PURCHASING FRUIT TREES it is important to have them true to name. It is very disappointing when, after a year or two's culture, it is found that some worthless variety has been substituted for a good one. I am aware that mistakes do sometimes happen which are difficult to avoid, but I can also say that there are instances in which wrong varieties have been sent out that could scarcely be attributed to mistakes. Choose clean evenly-balanced young trees vigorous in growth, and avoid those of a sickly stunted character, as such seldom make thrifty trees. Never purchase trees with Moss or Lichen growing on them, or any that are affected with canker or blight. Those who have not sufficient knowledge or experience to select good plants will find it best to leave their selection to some reliable nurseryman who makes a speciality of growing fruit trees for sale. This has been a good year for most kinds of fruit, especially Apples, though the yield is not so abundant as was anticipated when the trees were in flower. Fruit-dropping has been very prevalent, owing to its having set so thickly and to the want of rain at a time when it was greatly needed to assist the swelling thereof. The rainfall for July was 1.36 inches, the average for the same month during the previous four years being about 3.70 inches. Strong winds have also been prevalent and have blown off large quantities of fruit. Standard trees have suffered much more in this respect than bushes or pyramids. In this neighbourhood the spring was cold and late. Vegetation may be said to have been almost at a standstill from the middle of February to the middle of April; then we had some fine warm days,

the thermometer registering between 70° and 80° in the shade; this had a quickening effect, and everything then made rapid progress, so that before the end of April our Plums, Currants, and Gooseberries, and many Pear trees were in full flower. A sharp frost, however, which occurred in May proved most disastrous to the Plum crop, and in a less degree to Pears and bush fruits. Apple trees escaped with comparatively little injury, although large numbers of flowers were fully expanded and the remainder were far advanced towards that stage. Not only were fruit trees full of bloom this year, but also all sorts of flowering trees and shrubs, a condition doubtless brought about by the unusually dry and warm weather which we had last summer and autumn having thoroughly ripened the wood.

SOIL AND PLANTING.—Apple trees may be grown in almost any description of soil provided it is properly drained, but they succeed best in a moderately heavy loam from 12 inches to 18 inches in depth. If the land to be planted is of a very sandy description, a dressing of marl in proportion to the character of the soil to be dealt with should be applied and thoroughly incorporated therewith by trenching. The marl, being very retentive of moisture, will act as a reservoir for storing water for the use of the tree during a season of drought; upon examining the marl it will be found that the roots have taken possession of it. It will be much better if the land to be planted has not previously been occupied by trees of any description; if it has, a few barrowloads of fresh soil should be introduced; that from a pasture field will answer best if it can be conveniently obtained, but any other good soil not recently occupied by trees will do. In this the tree should be planted in order to give it a good start. In planting on light land a hole, or pit as it is sometimes called, is made slightly higher in the centre than the outside, and wider than the extremities of the roots will reach. As regards depth, the planter should be guided by the formation of the roots and the size of the tree; generally, from 6 inches to 8 inches will be sufficiently deep for young trees six or seven years of age. In planting on heavy retentive land it is best to place the trees on the surface and cover their roots with the surrounding soil; but if the land be low-lying and subject to periodical floodings, the best plan is to throw the soil into mounds or broad ridges and plant a row of trees along the centre of each ridge or one tree on each mound. By adopting this method the roots may be kept above the water-level. All injured roots or any that appear likely to grow in a downward direction should be cut off with a sharp-edged knife in a slanting upward direction. The tree should then be placed in the hole or on the level, as the case may be. Its lower roots should be spread out in all directions, and covered with fine soil up to the level of the next tier of roots, when they also must be spread out and embedded in a

similar manner, and so proceed until all the roots are covered to a depth of 3 inches or 4 inches. It is a great mistake to bury all the roots at the bottom of the hole. They should be spread out in a nearly horizontal position. The soil should be firmly trodden down as the work proceeds.

TIME TO PLANT AND STAKING.—October is the best time of year in which to plant, as then the young wood of the current year's growth is getting matured and not likely to shrivel, and there is sufficient warmth in the earth to keep the roots in a state of activity, so that the tree becomes fairly established before severe weather occurs. It is important for the after well-being of the trees that they should not be transplanted during frosty weather, nor when the soil is in a wet condition. All, except very small ones, should be staked to prevent the wind blowing them over or swaying them to and fro, as their small, fibrous roots would thereby get broken or injured. The best method of staking small or medium-sized trees, by which they receive less injury to their bark than by any other with which I am acquainted, is to place a stake of sufficient length and strength at an angle of 45° 2 feet or 3 feet from the bole thereof, so as to avoid injury to the roots. The main stem, at about two-thirds of its height from the ground, should be fastened to the stake by means of a handful of straight straw passed round the tree and tied with tarred cord on the side next the stake, then part the straw and place it round the stake, to which it should be securely fastened. After planting and staking, there should be a mulching of partially decayed manure 6 inches deep applied over the roots to exclude frost and to prevent the too rapid escape of heat and moisture. All trees, especially such as have been transplanted or root-pruned, should be well watered during the following summer if they exhibit any signs of dryness at the roots. The surface of the soil in which the roots are placed should frequently be disturbed with a Dutch hoe to keep down weeds and prevent evaporation during dry and windy weather. The ground, so far as the roots extend, should not be dug, as it is impossible to do so without destroying some of the fibres, which are of the utmost importance to the tree, and which we should by all means endeavour to keep near the surface.

OF THE SEVERAL FORMS OF TREES, perhaps the most useful for gardens is the bush-shaped; this offers many advantages to the cultivator compared with standard trees. It is much more convenient for pruning, cleaning, and gathering the fruit, and is not so liable to be injured by high winds, which frequently destroy a great portion of the fruit of large trees and cause irreparable injury by breaking off branches, while low-growing trees escape with comparatively little injury. Bushes on the Crab or free stock may be planted from 10 feet to 12 feet apart; but from 6 feet to 8 feet will be sufficient for those worked on the Paradise stock. When



planted at these distances, there is a free circulation of air amongst the branches, and they do not overshadow each other. The intervening spaces may be planted with vegetables or bush fruit until such time as they are required by the roots of the permanent trees. Standard trees may be planted in sheltered situations where there is sufficient space for them to develop their full size. Such trees, if the variety is suitable for the district, generally bear heavy crops—probably more than could be grown on bush trees on the same area of land. Apple trees in this neighbourhood, particularly young ones, frequently produce a large number of gross watery shoots, especially if their roots are allowed to go down into cold, heavy soil which contains a large amount of water. These continue to grow far into the autumn, and require a higher temperature and drier atmosphere to thoroughly mature than moderately strong wood, and unless properly ripened it will be of little value for fruit-bearing. Unripened wood cannot withstand sharp frosts without injury. The sap channels get ruptured, and canker as a consequence destroys the tree, or renders it of such little value that it has to be removed. I have frequently noticed the flowers of various kinds of fruit trees drop off in the course of two or three days after they have opened, the cause of which is generally attributed to the effects of frost or north-east winds, but the real culprit is unripe wood. If the flowers are carefully examined, they will be found to be imperfectly formed. In order to assist the thorough ripening of the wood in the case of over-luxuriant trees, I would recommend root-pruning or transplanting, operations which will seldom be required after the trees have been brought into free-bearing condition. By root-pruning a tree may be prevented from making a quantity of superfluous growth that would have to be cut off at the winter pruning. Trees that have set their fruit too thickly will be benefited by thinning out all unshapely ones, or any that are shaded by overhanging branches; afterwards apply a mulching of good manure to assist the swelling-off of the fruit, and to prepare the tree for bearing future crops. When attention is not given to this matter, the tree frequently becomes too exhausted to bring its fruit to perfection.

IN ROOT-PRUNING, the size of the tree to be operated upon must be taken into consideration in order to determine the length of root to be left; from 3 feet to 6 feet from the bole will be sufficient for medium-sized trees. The best way is to dig a trench about 2 feet deep and sufficiently wide to allow the workmen to undermine the ball of earth in order to ascertain if any roots are taking a downward direction; any found doing this should either be cut off or brought nearer the surface. Trees that have been annually or bi-annually root-pruned or transplanted may have their roots shortened entirely round, but any that have not been accustomed to

this treatment should only have one side operated on at once. A few years ago there was a theory promulgated that a fruit tree was possessed of three distinct sets of roots for three distinct purposes—firstly, the wood roots, which were for the purpose of carrying on the enlargement of the tree; secondly, the tap-root, which was for anchoring the tree; and thirdly, the fruit roots, which were said to be solely for the purpose of producing fruit, and had nothing to do with supporting the tree or increasing the size thereof. I never had any belief in this theory, but for the purpose of convincing others that there was no reliance to be placed on it we tried the experiment two years ago of removing all the so-called “fruit roots” from a young Apple tree which had never borne any fruit up to that time. Last year it set its first crop, but owing to the severe check which it received from the loss of so many of its feeders nearly all the fruit dropped off prematurely. This year it has brought a good crop to perfection, and has every appearance of doing so next year and for many years to come. When removing the earth from amongst the roots we carefully looked for a tap-root, but there was none to be found. Amongst the large number of trees that I have either planted or assisted in planting, I do not recollect having seen one with a tap-root where the tree had been previously transplanted. Such roots are invariably removed when the plants are taken out of the seed bed; therefore when root-pruning there need be no fear of cutting off the “fruit roots,” and if there happens to be a tap-root the tree will be all the better for its removal. The principal objects of

BRANCH-PRUNING are that light and air may be freely admitted to all parts of the tree to ripen the fruit, which should be equally distributed thereon, and to prepare the wood for producing future crops. When summer pruning is considered necessary, it should be done during the latter part of August; if performed much earlier in the season, it causes a number of shoots to be produced which has an injurious effect, and which have to be cut off at the winter pruning. The upper half of the tree should be done first; all shoots except leaders should be shortened to within 6 inches of their base and a week later the lower half may be treated in the same manner. The winter pruning should be performed as soon as convenient after the fall of the leaf in order that the wounds may soon heal and cause as little injury as possible from loss of sap. Leading shoots should be left from 12 inches to 18 inches in length according to their strength and state of maturity. All unripened wood should be removed, cut to a bud placed in the direction in which it is desired the branch should grow in order to form a symmetrical tree. Lateral shoots, with the exception of any that are required to form fruit-bearing branches, should be cut back to within two or three buds of their base. When the tree has attained the desired size, the leading shoots may be treated the same as lateral shoots.

Standards should be allowed to assume their natural habit of growth, merely thinning out superfluous branches or any that rub against each other; all dead spurs or branches and young shoots which spring from the bole should also be removed. In pruning, a sharp knife should be used; draw it in an upward direction, leaving a smooth clean cut. In removing young shoots, about an inch of wood should be left above the bud which is intended to take the lead; in cutting out a thick branch, it should be cut as close as possible to the bole or branch from which it proceeds in such a manner as will prevent water from lodging upon it, and in order that the bark may cover the wound as soon as possible. When a saw is used to remove a branch, the wood should afterwards be trimmed with a knife, and a coat of painter's knotting applied to exclude moisture.

FOR DESTROYING MOSS OR LICHEN on fruit trees, there is nothing better than lime thinned to the consistency of whitewash, and strained through a fine sieve or thin canvas to exclude all rough sediment. It will then be ready for applying to the trees either by means of a syringe or garden engine. For the destruction of scale and American blight I have tried many insecticides, but have found nothing better nor so cheap as soft soap and paraffin oil prepared in the following manner: To make four gallons of the mixture, take half a pound of soap and half a pint of paraffin; place them in a bucket or other suitable vessel, and add two to three quarts of boiling water; stir the mixture until the soap is dissolved, and then add the remainder of the water. This mixture may be applied by means of a syringe in the following manner: Draw up a syringe full and discharge it into the bucket, and when the mixture is agitated draw up another and apply it to the tree. As American blight winters in the soil underneath the trees, it would be advisable to have the soil removed from under affected trees to a safe distance and burned, so as to entirely eradicate the insect.

HARVESTING THE FRUIT.—It is important that fruit should be carefully gathered and stored in some suitable building. It should not be shaken off the tree, as in that way it is certain to get damaged, and all injured fruits soon decay. The trees should be gone over twice, each time selecting only fruits that are quite ready for gathering. This may easily be ascertained by gently lifting each fruit into a horizontal position; if the stalk parts freely from the wood, it may be assumed that the fruit is ripe. When gathered let them be taken to the fruit-room and there placed on wooden shelves without any covering of hay or straw, as these deteriorate the flavour. All fruits should be placed in single layers, and should not be disturbed until required for use. They should, however, be examined at least once every week for the purpose of removing any decaying ones, as if these are allowed to remain they affect the others.



**Free-bearing Apples.**—The following is a selection of sorts that will certainly give a long succession of fruit, and that would be difficult to surpass by any others, new or old, viz., Mr. Gladstone, Irish Peach, Red Quarrender, Kerry Pippin, Summer Golden Pippin, Worcester Pearmain, King of Pippins, Cox's Orange Pippin, Mannington Pearmain, Mother Apple, Melon Apple, Ribston Pippin, Scarlet Nonpareil, Ashmead's Kernel, Hughes' Golden Pippin, Wyken Pippin, Reinette du Canada, Redleaf Russet, Golden Harvey, and Court Pendu Plat. Procure well-established trees and plant at once; mulch the roots, and there will be little trying of the patience in waiting for a crop.—J. GROOM, *Gosport, Hants.*

**Peaches and Nectarines out of doors.**—What a grave mistake people make when they say that Peaches and Nectarines cannot be grown on good walls out of doors. I say that they can, and grand fruit, too, if people would go the right way about it. The following are the conditions: Good walls, well prepared borders, no green fly to be allowed to live on the trees in spring, disbudding properly, laying in the shoots wanted early in order to get well-ripened growth, protecting the trees with properly applied porous shading during the spring months, but so arranged that it can be drawn up and down or sideways every fine day. If these matters are carried out, there will be plenty of Peaches and Nectarines.—H. MERRYWEATHER, *Rose Nurseries, Southwell, Notts.*

5403.—**Preserving Walnuts.**—Allow me to tell "Croydon" (p. 363) that if Walnuts are put into a pan and covered with Oak or other similar sawdust (not deal) immediately they are taken out of their outer husk they will keep moist and peel freely all through the winter.—E. A. N., *Leaves.*

**Standard Peaches.**—"T. B." admits that standard Peaches bear such heavy crops, that the branches hang down like those of a weeping Ash (p. 367); but he nevertheless asserts that the fruit is so worthless, that standards are being generally discarded. Most people would think that trees disposed to bear so abundantly would also produce good fruit, because productiveness and good quality are synonymous under good culture.—J. S. W.

## KITCHEN GARDEN.

### EXHIBITION POTATOES.

IN going over the various collections of Potatoes exhibited last week at the Crystal Palace I could not help noticing the comparative absence of American varieties. I can remember, and it is not many years since, when a prize collection of twenty-four dishes included from sixteen to eighteen kinds of Americans. Now we see not more than three or four of these in a good collection; indeed, Mr. Hughes had in his really grand premier collection but three sorts of American origin, and about the same proportion ran throughout all the best collections, if not throughout the entire show. English seedsmen have almost given up importing American kinds, for the simple reason that they meet with poor sale here. On the other hand, our more recently raised sorts have beaten the Americans out of the market, although not a few of these are in part American in parentage. Without doubt the American sorts have given to us considerable prolificacy, whilst we have from our home kinds added quality; hence this combination has assisted to create a race of Potatoes far ahead of the best known kinds of ten or twelve years since. It is probable that in a few years we shall see few but home-raised Potatoes on our show tables, for American sorts do not seem to have kept pace with English kinds in the matter of table quality. Still farther, our own seedlings have given to us much more distinctness and variation; hence their greater popularity. For general culture the two most popular American kinds are Beauty of Hebron and White Elephant, the latter a later and more robust form of the former. Both these are much in favour in markets at certain times, and in good Potato soils turn out fine crops and tubers of capital quality. It is probable that

the white form of Beauty of Hebron which Mr. Laxton has and its close ally, Duke of Albany, would, if better known, replace the coloured form, whilst White Elephant will not long remain popular, as it is big and coarse in strong soils.

THE MOST POPULAR OF AMERICAN COLOURED KIDNEYS are Mr. Bresee, one of the finest and handsomest red kinds ever grown, but its quality will not compare favourably with that of Beauty of Hebron. Curiously enough, Mr. Bresee came into this country accidentally, for Messrs. Daniels, of Norwich, got it in mistake for something else, and gave it the name of Peerless there, whilst it came to me from Germany, and I made it popular under the better-known designation. I have tried several times to make this variety a pollen parent, but so far have had no success, the blooms in all cases falling soon after. Another really good cooking coloured kind is American Purple, a handsome purple kidney and a great cropper. On our show tables this kind has been largely displaced by that handsome deep-coloured Lapstone, Edgecote Purple. The best show American coloured rounds are Adirondack, which has come out remarkably well this season, and Charter Oak, a variety less known, but very handsome, and a great cropper, and has perhaps as good quality as any of the American kinds. Both these have received first-class certificates at Chiswick at the hands of the fruit committee, and both seem to have been well worthy the honours awarded. The two best white Americans seen at the Potato show were Vermont Champion, a Climax-looking round, and Pride of America, well known as resembling Snowflake. It is worthy of remark that of kinds which have proved valuable as seed parents in the production of seedlings the best are Beauty of Hebron, Snowflake, and Climax. I mention seed parents, because very few kinds give pollen, and even those that do, give it but sparingly. The past season promised to be peculiarly productive of pollen, and as bloom was also very abundant, ample opportunities to obtain some good crosses were anticipated, and indeed many were effected. The drought, however, discounted much of this interesting work, and either caused the blooms to fall or else the seed-balls to wither before matured. With respect to English show kinds, I have carefully compiled a selection made from the show tables, and which I believe may be said to include, if not all, at least twenty-four of the very best sorts to be found at present. Some of these kinds are new, and therefore not so widely known and grown as they will be in a year or two; but I think I may safely aver that they are capital cookers, and I am absolutely certain the larger number are.

THE VICAR OF LALEHAM headed the list of purple round sorts shown, just topping Schoolmaster. As I put the Vicar into commerce, I was naturally pleased to see it occupy so good a position. Everyone seemed to speak in good terms of it, and Mr. Hughes mentioned that the cottagers about Byfield grew it largely for winter consumption. The Dean, which is even better eating than the Vicar, is one of its children, with Woodstock Kidney for a pollen parent. The selection of twenty-four kinds of English raised sorts is as follows: White kidneys—Cosmopolitan, Chancellor, Snowdrop, Fidler's Prolific, Edgecote Seedling, and Magnum Bonum. Of coloured kidneys, Prizetaker, Enterprise, Cardinal, Reading Ruby, Crimson Beauty, and Edgecote Purple. Of white rounds, London Hero, Favourite, M.P., Prime Minister, Harvester, and Schoolmaster; and of coloured

rounds, Reading Russet, Vicar of Laleham, The Dean, Radstock Beauty, Lord Rosebery, and Rosebud. I found several very handsome samples of Magnum Bonum, showing that a dry season had well favoured it in some soils. Of course the selections above given apply chiefly to autumn exhibitions. If I had to select twenty-four kinds for summer shows, I should include not a few others which are handsome and much earlier ripeners. A. D.

**International Potato show.**—I think "A. D." over-estimates the importance of this exhibition. I find that the whole of the prizes this year were divided amongst fifteen persons. Three parts of the counties of England, Scotland, and Wales were not represented. I cannot learn that there was a single tuber there from Ireland. Therefore, apart from international, it falls far short of even being a national gathering. The number of exhibitors would not do special credit to even a county show, and if the judges are to recognise a Potato as a new one in 1885, and the authorities identify it as one of the oldest of the old in 1885, the proceedings of this so-called international society will come to be valued less and less by gardeners and Potato growers generally. It is an easy matter for "A. D." to pass over the bad qualities of International Kidney and others of its class by saying they have been displaced by others; but is it reasonable that a Potato which received the highest awards of the International Society three years ago or so should be displaced already? Admitting "A. D.'s" assertion on this point, most people will see I was not far wrong in my estimation of this variety, as a Potato which is so soon displaced must be deficient in some respects. I hold that a really good Potato will never be displaced; and although new Potatoes have been introduced by the score during the last ten years or more, their quality generally has not improved, nor will it ever do so so long as new Potatoes are awarded prizes and certificates from their appearance only.—J. MUIR, *Margam.*

**Sanday's Seedling Potato.**—My attention has been called, somewhat late in the day, to some remarks made by "A. D." (p. 323) respecting this Potato, concerning which perhaps you will allow me to say a word in reply. Although not the raiser of this variety, we placed it in commerce, and one does not like to see one's nurselings denounced. In the first place, I may say that this Potato was raised by Mr. William Sanday, of Ratcliffe-on-Trent, a good judge of Potatoes. It was raised from a batch of seed taken from Crystal Palace crossed with Royal Ashleaf, and its resemblance in quality to the old Lapstone is thus traced through its parent, Crystal Palace. Mr. Sanday asserts that it is the finest eating kidney Potato in cultivation, and many good judges coincide with him. It was with considerable difficulty that I was persuaded to try this seedling, as I thought there were already sufficient in the market. But having grown it for two years, I was convinced that it was worthy of distribution, and consequently exhibited it at several local shows—Lincoln, Loughborough, &c., and finally at the Crystal Palace. In every case it took first prizes. The report on it at the Crystal Palace show will be found in all the horticultural papers of September 15, 1883. We have since proved Sanday's Seedling to be a heavy-cropping early Potato, of equal or superior quality to Crystal Palace, and producing twice or three times the weight of tubers, which are ready for use before being fully ripe, and the first-cooked Potatoes are as flowery as the old ones. I think "A. D." must have been supplied with some other variety instead of Sanday's Seedling, but if he will furnish me with his address I shall be happy to send him a sample of the true seed for trial.—A. H. PEARSON, *Chiswell Nurseries, Notts.*

**Pteris tremula.**—This is one of the best of Ferns for room decoration; it keeps fresh and good in positions where many Ferns not a whit more beautiful would perish or lose their leaves in a very short time. A great advantage belonging to this useful variety, too, is the fact that it seeds freely, and



that young plants spring up on any moist substance on which the seeds fall. If these are potted in 2½-inch pots, they soon make pretty little specimens for filling small vases, now so much employed for indoor decoration, and when too large for that purpose, if shifted on they quickly develop fine fronds for cutting.—J. G. H.

## WORK DONE IN WEEK ENDING OCT. 13.

### OCTOBER 7.

THE heavy rain and gale of last night swilled the walks, and brought down Apples and Pears, so that we have had no time to do ought beside clearing walks, rolling them, and gathering up fruit; and as it was fine in the afternoon we also gathered from the trees such kinds of Apples and Pears as appeared to be ripe. The sorts of Apples gathered to-day were Wellington, Hambleton Deux Ans, Lemon Pippin, Golden Harvey, and Syke House Russet. The sorts of Pears were Beurré Rance, Vauquelin, Winter Nelis, Catillac, and Beurré d'Aremberg. Lifted and planted another lot of Violets in frames. Tied up and housed Tree Carnations, and arranged a few of the best plants of Bouvardias amongst Pelargoniums and Begonias in Strawberry house. Took lights entirely off late Peach house, and they will now be left off till real wintry weather sets in.

### OCTOBER 8.

A thoroughly wet and stormy day, and outside work an impossibility. Fruit rooms have been put in neat order. Apples are so plentiful, that they have to be stored thicker together than we like, but extra care is taken that no bruised fruit is put with any that are to be left undisturbed for any length of time. Space for Pears is greater, and only single layers of these are laid on every shelf; consequently they are easily examined for the removal of decayed fruit; but, being in single layers, there is not much to be removed, except when a quantity ripens together. Clearing out of sheds, washing pots, making labels, washing plants, and tying up climbers in orangery, and rearranging plants generally. Also loosened Peach trees from trellis in early house, and cut out a few of the most budless shoots, this being all the pruning the trees required. Looked over all Grapes to remove decaying berries, and cut the remainder of Hamburgs from the third vinery, and placed them in bottles of water in Grape room.

### OCTOBER 9.

This has been a grand day, and after the necessary cleaning up consequent on the late stormy weather we had another turn at fruit gathering; also at earthing Celery and clearing up in kitchen garden generally, all the decayed leaves on Brussels Sprouts and Broccoli being cleared away, and part of the decayed stems on Asparagus plots the same, and soon as possible the plots will be weeded, and afterwards a good dressing of manure will be laid on the surface. Cut all ripe Tomatoes; in spite of the wet they are ripening off well on the plants in the open air. It is not safe to leave the heads of Cauliflower unprotected, for if frost does not really damage them it discolours them; hence we make a practice of looking them over about twice a week, and bending the foliage over the flowers of such as are ready, but which may not be required for use for several days. Housed a few more Chrysanthemums, put Poinsettias in heat, thinned out the growths of Cucumbers, and exposed the fruit of Melons to the sunshine by tying aside the foliage. Not much root moisture is now required by Melons, but the bottom-heat we strive to keep about the same—namely, from 75° to 80°.

### OCTOBER 10.

Fine, but dull and much colder. Cleaned up flower garden. There are still plenty of flowers, but Coleus and Alternantheras being nearly destroyed, in their place we have been planting Ajuga reptans purpurea and small plants of Euonymus radicans variegatus. In this manner we replace the whole of the tender plants of the flower garden as each kind is destroyed or gets shabby. Rolling walks and a general clear up is all we were able to attempt to-day.

In the houses, too, not much else could be done besides the usual weekly cleaning out, overhauling, and rearrangement of plants. Chrysanthemums are now all housed, and so, too, are all other plants that, if shelter were longer withheld, would be liable to injury from frost. The pit in which to winter Strawberry plants is being prepared for their reception. A good thickness of coal ashes forms the floor on which the plants stand, and this insures freedom from worms and slugs.

### OCTOBER 12.

Our thermometer this morning registered 4° of frost, but as yet none but the tenderest plants are injured, and such, as opportunity offers, we continue to replace with hardy shrubs, &c., for the winter. The day has been so fine and dry, that, except very late kinds, all Apples and Pears have been gathered. Mowed lawn with machine for the last time this year, and as soon as possible mowing will be done with scythes round trees, shrubberies, and verges; thus all will be tidy for the winter. Work in the houses mainly consists in arranging plants in as close quarters as possible for the winter, or rather till more room is available, which will not be the case till Grapes can be used or housed in Grape room. Fermenting material is ready for renewal of heat in Pine beds, and the first warm day this work will be done.

### OCTOBER 13.

No frost, but bitterly cold, though sunny. Finished mowing for this year. Planted a few more Heaths and small shrubs in flower-beds, and took up the more choice varieties of succulents, some of the best kinds of Pelargoniums, and Abutilons that we require for winter flowering, which, if lifted and potted carefully and placed in a house having a temperature of 65°, will quickly recover from the check received by lifting, and flower well the winter through. Hoed between the rows of Broccoli, Spinach, Coleworts, and recently planted Strawberry plots. The latter have not yet been mulched, but soon as the weeds are destroyed, the first dry or frosty morning a thick mulching of well-decayed manure will be put on. Dug up Carrots—James' Intermediate; the tops are screwed off—not cut—and they are stored away in sheds, being packed in sand in the same way as we winter Beetroot. Though we are still gathering good Figs, the wood of the trees is quite ripe and the season so advanced, that what other fruits there are will now be sacrificed that the trees may go to rest at once. The house is now thrown wide open, and will only be shut when there are indications of a severe frost. The top-dressing of borders with fresh soil will be deferred till the roots again become active. Potting succulents, Pelargoniums, Abutilons, and other kinds of bedding plants. HANTS.

## FRUITS UNDER GLASS.

### PINES.

As daylight decreases and sharper fires are needed for the maintenance of top and bottom heat, keep a sharp eye on the trial sticks and thermometers, as it not unfrequently happens that the September renovation and re-arrangement is followed by violent fermentation which may prove injurious, if not fatal, to the active roots now coiling round the insides of the pots. Should the extra firing produce this effect, lose no time in drawing a portion of the tan or leaves away or rocking the plants to let out the superfluous heat before it has time to do irreparable mischief. Where sound Oak leaves harvested last autumn and kept dry are at command, they form the best of all plunging beds, as they do not heat so fiercely as new ones, but, lacking these, tanner's bark is the only material we have to fall back upon. This, however, Pine growers need not be told is now a very different article compared with what we used to get years ago, for, what with grinding to a pulp and the addition of chemicals, it is no sooner in the beds than a violent fit of fermentation reduces it to a pasty mass quite unfit for horticultural purposes. Therefore, where good Oak leaves are plentiful they should receive careful attention, as the time is at hand for collecting and storing a supply for the coming year. Every Pine, Melon, and Cucumber grower cannot obtain

them, but all who can should not neglect the opportunity, as they produce a moist genial heat in which all plants luxuriate, and, unlike tan, they form an indispensable article for use in the potting shed when they have become exhausted in the forcing pit.

### FRUITING PINES

in various stages recently raised well up to the light may be kept in a temperature of 70° at night with a rise of 10° or 15° by day for the present, but when the weather becomes colder and the hours of darkness exceed those of daylight, a few degrees lower will be preferable to hard-and-fast figures, which often entail waste of fuel and permanent injury to the plants. Atmospheric moisture at all times essential must be regulated by the state of the weather and the structure of the pits, and as overhead syringing has long since been dispensed with, a soft growing heat must be secured by damping the surface of the tan or leaves and keeping the evaporating pans charged with diluted liquid varied with a dash of guano water. In order to avoid giving a check to late "shows," remove plants bodily to a dry warm house as soon as the pips of earlier fruit begin to change colour and withhold water from the roots. Cut the fruit when quite ripe, suspend it in a late vinery or Grape room, and return the stools to moist heat for the preservation of the suckers.

### QUEEN PINES

intended for early starting must be kept dry and cool until the end of the year, but not so low as to endanger the roots now coiling round the insides of the pots and about the drainage. If at command, a small compartment in which the bed has not been disturbed and the bottom-heat ranges about 75° will best suit the most promising plants that have been drawn for this purpose, as they can then be properly rested, while those intended to succeed them can be treated to more heat and moisture for some time longer.

### SUCCESSION PINES

that have completed their growth and have filled their pots with roots may now be reduced to a lower temperature with a corresponding decrease in the supply of moisture. Let the bottom-heat range about 75° and the air-temperature from 65° at night to 75° by day; discontinue syringing, but damp the paths and walls on bright mornings and economise fuel by running down the blinds at night throughout the winter. Examine the beds occasionally, and if any of the plants immediately above the bottom-heat pipes are likely to become too dry, apply water to the plunging material and cover the pots with tan or leaves to prevent the escape of moisture. Maintain a circulation of fresh air in every department and wash the glass occasionally to give the plants the full benefit of every ray of sun and light.

### WINTER CUCUMBERS.

The growth of Cucumbers in pits and frames being pretty well over, attention must once more be directed to efficiently heated houses and compartments generally devoted to the culture of Melons during the summer. As few fruit-eaters set much value on October Melons, late crops, still unripe, should be very good indeed if their retention is allowed to interfere with the final disposal of good plants of Telegraph or other suitable kinds when ready for turning out of the nursing pit. Should delay be necessary, by no means allow the Cucumber plants to become root-bound, but shift them into their fruiting pots and keep them near the glass where they will not become drawn until their winter quarters are ready for them. This preparation for tropical annuals that have to be grown entirely against nature through the worst half of the year should be thorough and lasting. Pits should be cleared out down to the hot-water pipes, scalded and lime-washed to destroy insect and reptile enemies preparatory to their being refilled with fresh, sweet fermenting material for the reception of the pots. Every inch of glass should then be washed, as winter Cucumbers require all the light they can snatch from our murky November days, and finally the woodwork should be well painted to destroy the larvae of insects left behind by the Melons. Success-



ful growers give preference to a series of small compartments for winter work, as not only do the plants thrive better, but they can always have one or more of these filled with plants in a fruit-bearing condition, from which they can cut throughout every month in the year. If one of these is now coming into bearing, the plants of which I am now treating may be kept steadily progressing quite up to Christmas, a period which will have enabled them to fill their pots with roots, and the trellis with short-jointed vines and foliage. These October plants should not be stopped until they have nearly reached the top of the trellis, neither should they be allowed to carry male blossoms or form laterals below the bottom wires.

#### SOIL

for winter Cucumbers should be carefully prepared. Many people entertain an idea that a tender exotic whose season has been turned round cannot be overfed, but this is a mistake which leads to many failures, as we sometimes see plants that are most carefully relieved of every male and female flower until their constitution is thoroughly formed carrying enormous leaves which they cannot support when the dark, dull month of December overtakes them. The growth that is best adapted to winter culture should be free, healthy, and wiry (hence many growers choose plants from cuttings), and this can always be secured by the use of good light turfy loam, a little rough peat, if within easy reach, and a liberal admixture of charcoal or old hair-plaster. Abundant drainage is imperative, but stimulants may be dispensed with until the plants are allowed to commence bearing.

#### CUCUMBERS IN FULL BEARING,

if cropped lightly and divested of all male blossoms, can without much difficulty be kept going till Christmas. If space admits, discontinue close pinching after the end of this month, remove all superfluous fruits as soon as they are visible, and cut those allowed to swell before they have attained their full size. Leave off systematic overhead syringing, as atmospheric moisture can be secured by damping the paths, walls, and surface of the bed with warm diluted liquid, varied with an occasional dash of soot or guano water. Top-dress with rough pieces of turf, flaky leaf-mould, and charcoal as the roots appear on the surface, and give liberal supplies of tepid liquid whenever they require water. Renovate the beds with previously well-fermented Oak leaves to secure a steady bottom-heat about 80°. Cover the glass at night to economise fire-heat, and at the same time to prevent sudden depressions from laying the foundation for attacks of mildew. The old remedy for this is sulphur, but a safe and easily applied antidote for all fungoid growths and spider will be found in sulphide of potassium, quarter of an ounce to a gallon of warm soft water. This excellent insecticide does not injure the most tender foliage, neither does it harm the roots when applied for the destruction of worms, which often find their way into the pots and beds in winter.

#### EARLY VINERIES.

In last week's calendar I directed attention to the importance of pushing forward the work in early Peach and Fig houses. At that time my own early vineries were not quite ready for pruning, but finding the warmth carried down into the external borders had produced a tendency to elongation of growth in the few remaining laterals, the operation has since been performed and the usual course of cleansing is now going on. The barbarous practice of stripping off the old bark does not find favour, as we have no insects to destroy; but the rods are well washed twice over, the first time with soap and water, the second with a solution of Gishurst compound 4 ozs. to the gallon of warm soft water. The Vines being old and trained on the extension principle, we always prune to a good bud and tie up to the wires as soon as the house is cleansed and painted. The old mulching having been cleared away as soon as the Grapes were cut and replaced with a top-dressing of fresh turf and bone-dust, the internal borders will not require further attention until they receive the first supply of tepid water at a temperature of 90°. The

outside borders will receive all the rain that falls up to the end of the month, and will then be covered with a thick layer of dry Bracken followed by sheets of corrugated iron supported by longitudinal rails raised well above it. The first house will be shut up about the middle of November, and when the buds are fairly on the move the covering of Fern will be taken off and replaced with newly-collected Oak leaves in a fermenting state, but not in sufficient quantity to produce violent heat, or anything approaching it, as that would do more harm than good, by destroying instead of drawing the surface roots upwards into the top-dressing. While keeping out rain and snow, the weather-proof sheeting prevents the escape of genial warmth, and we rarely find it necessary to renovate more than once during the season.

#### POT VINES.

Although late Grapes are now extensively grown for early spring use, there are still a few places in which pot culture is practised; in some instances to save forcing a house of established Vines, in others to secure a supply of thin-skinned Grapes for the use of those who cannot eat or do not like the tough-skinned Lady Downes—still the very best for late keeping. If the Vines from which the early crop is to be taken have been grown from cut-backs, their forward ripening would admit of a long rest, most likely against a warm south wall in the open air. From this situation their removal would take place about the end of September, more for the protection of the roots than the canes, as few good growers care to have them saturated with cold rain after the leaves fall. The laterals having been carefully removed some weeks ago, the buds will now be full and thoroughly ripe, and the canes will be fit for shortening back to lengths that will suit the situations they are intended to occupy. The pit or house being ready, lose no time in getting them placed in position, with their pots standing firmly on sods of light rich turf immediately above the bottom-heat pipes, or, better still, on dry brick pedestals—an arrangement which will admit of the introduction of a good depth of fermenting material. Wash the canes with soap water, dress the points with syptic, and sling them from the wires in a horizontal position. Keep the structure dry and well ventilated until the time arrives for starting; meantime remove all loose soil from the surface of the pots, give sufficient water to moisten the roots, and top-dress with rich compost. If well-worked Oak leaves, to which a little short stable manure may be added, are used for giving bottom-heat, much time will be saved not only in breaking the buds, but also in syringing and watering, as the moist, genial warmth playing about the pots and canes will be constant and highly stimulating, and in every way preferable to the cold sloppy condition produced by incessant syringing.

Eastnor Castle, Ledbury.

W. COLEMAN.

**Salpiglossis sinuata.**—One seldom sees this annual well grown, a circumstance to be regretted, as it is a plant of easy culture and one well adapted for many purposes. The various shades of colour in the flowers and their exquisite pencillings render them extremely interesting. Planted in front of Rhododendrons, it has succeeded admirably with us this year. The soil being strong and heavily manured, it has made vigorous growth, and produced blossoms in profusion. As the flower-spikes advance in height they should be neatly tied to stakes, or they are liable to be broken by strong winds. The seeds should be sown in sandy soil about the middle of March in pans, which should be placed in a gentle hotbed and shaded from bright sunshine. As soon as the young plants are large enough to handle prick them off into boxes and keep them close for a few days until re-established, when more air should be given till they are thoroughly hardened off preparatory to being planted out towards the end of May. They grow about 2 feet high, and are useful to plant in lines in a ribbon border, or they may be planted in vacant places in herbaceous borders. Copious supplies of water and occasional doses of liquid manure will assist their growth very much during summer.—E. M.

## ROSE GARDEN.

### CULTURE AND ARRANGEMENT.

ROSES may be grown to perfection in ordinary garden soil, but they must be cultivated, and the ground thoroughly drained, dug, and fertilised, and rendered as porous as possible. In clay loams the use of sand, lime, soot, burnt earth, and loose, light vegetable matter, like leaves decayed to mould, will alter the texture and improve the quality. At the time of planting strong fertilisers are not required, but when the trees have become established they like rich soil, which should be made light for the delicate rooting kinds, and more tenacious for the robust and hardy; and it would be reasonable that the classes and varieties differing in their nature should have more than one soil, that each may receive that which is the most suitable. A knowledge of the several ingredients of the earth in which our bed of Roses is planted would afford desirable information, in order that we might apply at the right time the proper kind of fertilisers; and a renewal of the surface soil with old pasture loam every two or three years will supply important elements unattainable by any other method. The upper stratum should be kept light and loose, in order to readily admit those constituents which induce growth, and the soil should be filled with such particles of food in the particular form necessary to unite with the air and water, avoiding the application of more fertilisers in a soluble state than the plants can consume. A critical observer and careful grower might say that the soil should be filled with stimulants in different stages of decomposition, that the tree may, in all conditions of growth, have plenty of food to be applied often, in a weak liquid form, when the plants are growing and especially flowering. An application of bone and potash acts favourably when the earth is removed from the bushes in the spring. A frequent sprinkling of water at evening adds health to the foliage, and is a preventive of insect destruction; and it is best to imitate Nature and water the ground thoroughly only when dry, withholding water until again needed. Plant deeper in light dry soil than in that which is strong and retentive.

PRUNING is the most important and difficult operation to perform with success, on account of the varieties differing so much from each other in habit and character; and as so much is dependent on circumstances, much must be left to the judgment of the operator. Autumn and spring pruning both have their helps and hindrances, for with some Roses the latter is unfavourable to the development of branches and flowers. It is a good rule to prune all but the tender kinds in the autumn, but to leave the shortening of the shoots until spring. An improved symmetrical form is obtained by dis-budding or rubbing out some of the eyes when swelling, which method of pruning takes the place of thinning out the weaker branches, whereby the remaining buds produce stronger wood, and consequently there is a healthier and larger surface of foliage. The important results which arise from pruning are, the maintenance of the tree in health and vigour giving a form agreeable to the eye and advantageous to the development and display of its blossoms, and securing an abundance of fine flowers. The most desirable and pleasing form for trimming is that of a pyramid or open bush, where all of the shoots and branches receive a due portion of air and sunlight; and we should never forget to look to the name, to know the habit and



character of the variety to be pruned, to ascertain if it is a strong or weakly grower, and whether or not the finest flowers are produced indiscriminately from the low, middle, or top germs. Although a more generally diffused taste for the cultivation of this charming race of plants is manifest, few have a sufficient knowledge of their habits to know how to grow them intelligently. Besides, we must see these choicest gifts of Nature to be acquainted with their excellences. In most of our gardens there are no special attractions to the rosarian, but a happy, peaceful home to the entomologist. Yet there are pleasing spots which receive studious attention where Nature seems to have expended all her wealth in rendering the earth beautiful with Roses.

THE ARRANGEMENT of Roses cut from the tree is a matter of taste, in regard to which there does not exist a unanimity of sentiment, else we should be wearied with a continued sameness. But there are certain fixed laws that regulate the decorative art in flowers. Too many blooms are used for single baskets and bouquets, where they are crowded together promiscuously, exhibiting a mass of petals, the form and colouring of each separate flower being indistinct, with little of its own foliage to render the proper effect. The more nearly Roses are shown as they naturally grow the better effect they produce. The stiff, artificial stem, without the leaf of the flower, propped up by Ferns and other greenery not its own, is not like nature. Hand bouquets of Roses and buds are most beautiful when made of the same variety with its own foliage, stems long and loosely bunched, having a small number, well chosen, of sweet odour. A collection in basket form, or for parlour decoration, had better lack a flower than have one too many, the object being to form a graceful, refreshing, and suggestive picture, preserving an "easy negligence mixed with art." Show each bloom separately, reposing on its own foliage, and remember that a few colours have a prettier effect than many. If a combination is thought to be desirable, red, white, and buff are pleasing. The beauty of Roses is much impaired when they are displayed in masses. As a rule, if there are to be many flowers, use delicate shades; if few, the deeper tones; and we should not forget that large and choice Roses are always most effective when displayed in vases proper for their reception as single specimens.

Rhode Island.

J. H. BOURN.

**Rose Marie Van Houtte.**—As the season for purchasing Roses is now at hand, I would call attention to the good qualities of this charming Tea-scented variety. Its flowers are fairly large and full, of a most delicate yellow, the outer petals having a bright red streak, especially attractive in the bud stage. It is a vigorous grower and free bloomer, surpassing in the latter quality most Hybrid Perpetuals. Here (Dublin), if in a sheltered situation, it does well as a bush. Mine is now about 3 feet high and 4 feet through, and has still many buds.—T. P.

**Polyantha Roses.**—This is a very interesting group of small-flowered Roses, excellent for forcing in pots, and as they continue to make growth, they also have a perpetual habit of flowering, each new shoot terminating in a cluster of blossoms. They flower freely in 5-inch and 6-inch pots, and are easily propagated either by means of root-grafting or by cuttings. They are also cheap enough now to enable everybody to grow them either in pots or in beds. Mignonette is a charming little Rose, bright pink when it first opens; Anna Maria de Montravel, white, is a perfect little fairy Rose, and forces well; The Pet, white, shading to pink; Perle d'Or, nankeen-yellow; Paquerette, white, very double; and Mlle. Cécile Brunner, bright peach, with a yellow shading, are all good.—E. HOBDAV.

**Rosa rugosa.**—Despite the fact that many of the leaves have already dropped from Roses, this Japanese Rose still continues to expand a few of its large showy blossoms, which, standing almost alone as they do at the present time, appear even brighter than in the summer months. The same bush is also thickly studded with large red fruit, so that taken altogether it is one of the most ornamental of outdoor shrubs; indeed, ever since the expansion of its first blossoms it has kept up a conspicuous supply of bloom, which increased as the season advanced, and now it is covered with green and ripe fruit. Some time ago it was stated that this Rose did not reproduce itself true from seeds, but that statement is without foundation, as several seedlings flowered here this year and differed in no way from the parent plant.—H. P.

**Late Roses.**—These have been uncommonly plentiful this autumn; indeed, I never saw them so numerous, and many of the blooms cut late in September were as fine as midsummer blooms. They were full, highly coloured, and very sweet—more so, in fact, than the early ones, as the powerful sunshine which plays on them in July, and causes them to fade so quickly, is not strong enough in autumn to influence them injuriously. Duke of Edinburgh and John Hopper are two of the most floriferous in autumn. The blooms of the former are so nicely formed, that they are always admired, and the exceedingly rich colour of the Duke is unique amongst Roses at this season. The selection named by "W. I. M." (p. 347) is a good one, and the secret of getting plenty of fine autumn blooms is to manure heavily in summer, and secure plenty of strong, well-developed shoots, which invariably produce plenty of flowers in September and a good many in October.—J. MUIR.

**Rose W. F. Bennett.**—We send you two blooms of this new Rose, which, as we presume you are aware, was sent out through Messrs. W. Paul and Son, of Waltham Cross, as agents for Mr. Evans, of Philadelphia. We shall be glad if you will kindly let us know through THE GARDEN whether you consider it bears out the high character with which it was sent out, and which induced purchasers to pay such an extraordinarily high price for it. A large proportion of our flowers have come absolutely single.—JOHN COWAN, *Horticultural Company, Liverpool.*

\*\* The Rose sent is doubtless W. F. Bennett, the expanded flowers of which are always thin. It is described as a valuable Rose for cutting, especially in winter, and for this purpose it is of course used in the bud state, the colour of which is very beautiful. Very double Roses are not always the handsomest, and we think W. F. Bennett, though nearly single, should not be despised on that account, especially as its colour is so rich and good.—ED.

#### "GARDEN" COMPETITION.

WE have now to acknowledge the receipt of the photographs for our competition, in which attention is called particularly to garden lawns.

The best are from Mr. George F. Jones, Quarry Bank, Malton, who sends us photographs of lawns, trees, and country seats, picturesquely chosen; Mr. H. Rokey Price, Down Lodge, Epsom, pretty creeper-covered house, simple lawn, and avenue of Ferns; Miss Jekyll, photographs of Cedar-planted lawns at Pepper Harow; Mr. Charles Jeffries, The Gardens, Boston House, near Brentford, very beautiful photographs of Boston House.

Among those commended are Mr. James E. Backhouse, Hurworth Grange, Croft, Darlington, good and pretty garden subjects, but photographs small and not well printed; Mr. James Thorpe, Ardbeck-nish, Cladich, Argyllshire, photographs of Conifers of types frequently figured before; Mr. J. Brown, Salisbury, small photographs of interesting subjects, one of a very fine Yucca 11 feet 10 inches high; Mr. A. C. Monk, St. Anne's, Lewes, pretty old garden, but photographs not well taken; Mr. J. Reynolds, Hall Barn Gardens, Beaconsfield, Bucks (property of Mr. E. L. Lawson), bold views of evidently a fine place, but photographs not right in light. Miss Woodall, small photographs of beautiful border groups.

#### NOTES OF THE WEEK.

**Royal Horticultural Society.**—A meeting of the council and committee of this society was held at South Kensington on the 13th inst., to consider the desirability of holding an international horticultural exhibition at South Kensington in 1887, and it was resolved that, with the view of obtaining a larger representation of horticulturists than was then present, another meeting be held on November 10. The council invite the co-operation of all who are interested in this matter, and also invite them to take part in the proceedings of the forthcoming meeting.

**Michaelmas Daisies.**—I send you a few Asters (noteworthy because they are all from wild plants) dug up and brought home by myself from America two years ago, as were some of the Cypripediums. The pink and the pale mauve are very pretty, I think, the latter making a very handsome bush, covered with large soft-looking flowers. I do not see better Asters than these among the cultivated forms.—H. STUART-WORTLEY (Colonel).

\*\* The specimens sent include such beautiful kinds as *A. laevis*, *Novæ-Angliæ*, *pulchellus*, and *Chapmanni*.—ED.

**Double-flowered Blackberry.**—Of this beautiful, hardy, rambling bush, Mr. Baylor Hartland, of Cork, sends us some flower sprays in full beauty, and he states that his bushes have been in similar bloom throughout the summer. To those who do not happen to know this shrub, it may be described as being in growth just like an ordinary Bramble bush, but its flowers are so double as to be button-like, and as large as some of the Pompon Chrysanthemums. The colour is a soft rose-pink. We like to see bushes of this Bramble spreading itself on a lawn untouched by other things and allowed to have its own way. From early summer till autumn its abundant flowers are a great attraction.

**Adhatoda cydonæfolia.**—We might call this plant a climbing *Justicia*, as the flowers are similar in shape, and the leaves and their arrangement are much like what one finds in some of the *Justicias*. It has dark green leaves, climbing stems, which are rapid growing, and large, hooded, two-lipped flowers, one lip purple, the other white. The flowers are huddled together somewhat closely in the axils of the leaves near the ends of the shoots, and as the plant branches freely, a well-grown specimen when in flower is very handsome. We saw such a specimen at Kew a few days ago—a young plant, only two years old, we believe, but 2 yards high and half that distance wide—with a plentiful crop of flowers. In the stove at Pendell Court (Sir George Macleay's) there is a very fine specimen of this *Acanthad* now in beautiful flowering condition. As a late-flowering climber, easy to manage and thriving in a warm house when planted out, this is most desirable. It is a native of India, and is an old garden plant, now, however, almost forgotten.

**Crinums.**—In the Palm house at Kew these useful autumn and winter-flowering bulbs appear to thrive very well, as there has been this autumn a very nice display of flowers on many of the species. Just now we note as being in flower *C. Kirki*, an African species recently introduced to Kew by Sir J. Kirk, and which is a beautiful stove-flowering plant, having long green strap-shaped leaves, flower-stalks a foot or 18 inches long, crowned by an umbel of large flowers with broad spreading segments, which are white with a band of crimson down the middle of each. Generally, this plant resembles the better-known *C. zeylanicum*, also in flower at Kew. In this the scape is 2 feet or 3 feet long, the colour of the flowers and their size being similar to *C. Kirki*. It is a native of Africa and Asia, and is not limited to Ceylon, as the name might lead one to infer. *C. Hildebrandti* bears a scape 2 feet high with an umbel of about eight flowers, which are 8 inches long, the segments linear, white, the stamens bright red. This is also a new introduction from Africa, and although the flowers are wanting in substance, they are surpassingly fragrant and graceful.



**Guernsey Lilies.**—These are now just in the height of their beauty, and several specimens have reached us from various parts. From Guernsey, Messrs. Hubert and Mauger send us some superb examples, and Mr. Kingsmill sends a spike of a lovely variety different from the common kind, being of a bright cherry-crimson instead of scarlet. It is the prettiest form we have seen, and one which should become common. We often visit private gardens during the autumn, but never see a Guernsey Lily or Nerine of any sort, a circumstance which induces us to think that these lovely bulbous plants are still unknown to many.

**Red Winter Cherry** (*Physalis Alkekengi*).—A bunch of this bright-fruited plant from Mr. G. F. Wilson's garden at Wisley reminds us of its value in the autumn garden, where its showy orange-red bladder-like fruits are conspicuous. On the hillside garden at Wisley this plant thrives to perfection, coming up year after year and fruiting every season abundantly. It is also a useful plant to cut from for furnishing vases, as the fruits last in good condition throughout the winter. They make pretty table ornaments in vases, dangling as they do from the tall stems like miniature Chinese lanterns. Though not one of the hardest of plants, it may be grown anywhere where the soil is light and warm.

**Vanda Sanderiana.**—Of this new Orchid a magnificent spike has been sent to us by Mr. Norman Cookson, Oakwood, Wylam-on-Tyne. The spike carries seven fine flowers, all expanded. They are  $4\frac{1}{2}$  inches long by about  $3\frac{1}{2}$  inches wide. The colour of the upper sepals is deeper than usual, being of a deep rose-lilac, spotted and freckled at their bases with cinnamon-red on a yellow ground. The lower sepals have a ground of yellowish buff, and this is netted and pencilled with cinnamon-red. The lower petals are broadly edged with rosy lilac in a peculiar way. The dull livid colour of the lip is, we think, a detraction, and tends to mar the pleasing harmony of the other tints. It is, notwithstanding, a superb Orchid, noble in growth as well as beautiful in colour. We may expect to hear of some exceptionally fine varieties cropping up during the present flowering season.

**Rhodochiton volubile.**—Of this elegant greenhouse climbing plant Mr. Lynch sends us from the Cambridge Botanic Garden a charming wreath, some 5 feet or 6 feet in length, and profusely strung with blossoms. The bell-shaped calyx of the flower is as conspicuous as the corolla. The calices are bell-shaped, of a claret-purple colour, and remain on the plant, while the corollas soon drop. The latter are of an intensely deep crimson, in fact almost black, and being tubular, they hang prettily out of the bell-like calices. There is a flower produced from every leaf axil at intervals of about 2 inches, and the blossoms dangle on slender thread-like stalks about 3 inches in length. The leaves are handsome also, being heart-shaped and stained with a vinous purple hue. The *Rhodochiton* is, without question, one of the most valuable greenhouse climbers we have, and, being easily grown, requires no attention after being planted well at the outset, and being a continuous flowerer up till the end of autumn, it should adorn every greenhouse. As Mr. Lynch apparently grows it uncommonly well, it would be useful to our readers if he gave a note as to his plan of dealing with it.

**Odontoglossum grande magnificum** at Birdhill.—I have seen many private and public collections of Orchids lately, but cannot remember to have seen anything finer than some specimens of this at Mr. Gough's place, Birdhill, near this town. There are specimens of *O. grande* blooming here now, but both in size and markings they seem inferior to this. One plant received as a small specimen three years since from Chelsea is now in bloom, and is peculiar in having two spikes from one pseudo-bulb, each bearing ten blooms a shade over 7 inches across. It promises to be much finer next year. Hitherto this *Odontoglossum* produced blooms, but they invariably damped off before expanding. Mr. Gough attributed this, and rightly, to his having allowed it to bloom in the cool *Odontoglossum* house. This year, however, before expansion it was removed to the *Cattleya* house, where a higher temperature and

drier atmosphere are maintained, and the result has been most satisfactory. The massive size, colour tinting, and length of flowering time—upwards of five weeks—render this Orchid a desirable addition to every collection.—W. J. MURPHY, *Clonmel*.

**Fuchsia triphylla.**—This pretty little *Fuchsia* deserves to become popular for cultivating in greenhouses, and even as a window plant it merits attention, the bright colour of its long graceful flowers, hanging in drooping racemes from the ends of the semi-erect branches, its dwarf compact habit, and its usefulness as an autumn and winter-flowering plant being characteristics such as should find many admirers. As we noted last year, the history of this little species is interesting owing to its having been the plant upon which the genus *Fuchsia* was founded, and then almost lost to cultivation and even to botanists till a few years ago, when it re-appeared in Messrs. Henderson's nursery, and shortly afterwards found its way to Kew, where it flowered, and was figured in the *Botanical Magazine*. Another interesting and really pretty species has recently flowered in the latter establishment—viz., *F. ampliata*, which is a long-flowered, self-coloured species, like *F. triphylla*, but larger, the colour being in both a bright scarlet. These *Fuchsias* belong to a race or section distinct from that to which our common garden *Fuchsias* owe their origin, and we have no doubt that when these newer kinds get into the hands of clever hybridists they will prove as prolific in new and useful garden plants as the older ones have done. *F. triphylla* is now flowering in several houses at Kew.

**Doryanthes Palmeri.**—A specimen of this giant *Amaryllid* flowered in the Kew collection about three years ago, and now a second one, a sister-plant, we believe, to the first, is rapidly pushing up a stout spike, which promises to be at least as noble as that which attracted so much attention three years back, and was honoured by a beautiful painting at the hands of Miss North, which now hangs in the gallery of her pictures at Kew. There are two species of this genus known, the one, *D. excelsa*, bearing large, bright scarlet flowers as large as the common Lily (*L. candidum*), and collected in an immense globose head, borne upon the summit of a stout, pole-like stem, which is sometimes as much as 18 feet in height. The second species is *D. Palmeri*, and is exactly similar to *D. excelsa* in the habit and form of the rosette of long sword leaves, and in the height of the flower-spike, but the flowers, instead of being arranged in a close head, are disposed in a branching panicle, the branches standing out at right angles to the main axis, each branch bearing about twelve flowers, which open in quick succession. They are both natives of West Australia, and are remarkable in being like some of the *Agaves* in that they perish immediately after flowering. For large conservatories these noble plants are of great value, the bright green, gracefully curving leaves and the great numbers of them which are borne by a large plant being very effective among greenhouse foliage plants.

**Vallota purpurea magnifica.**—This is the name which has been appropriately given to the finest form of the *Vallota* we have yet seen. It has been introduced and brought into notice by the New Plant and Bulb Co., of Colchester, who exhibited a plant of it at South Kensington on Tuesday last. We have a flowering plant of it before us and consider it one of the loveliest bulbs we know, combining, as it does, splendour of colouring with exquisite form in a remarkable way. The flowers are considerably above the ordinary size; they measure fully  $4\frac{1}{2}$  inches across. The colour is a bright clear scarlet, while the interior of the tube is white. The plant is altogether stronger than other kinds in growth; the spike measures just 3 feet in height, and is terminated by three flowers, while the leaves are about 2 feet in length and broader than those of the ordinary *V. purpurea* or *eximia*. The general opinion at South Kensington was that the plant had been "drawn up," but we are assured by Dr. Wallace, of the New Plant and Bulb Co., that such is not the case. In a note before us he says, "The plant I send you, and which is the same as was shown, was grown with others on a stage about 2 feet from the glass, its foliage touching almost the glass, and when the spike touched the glass I re-

moved it to another shelf, where it was again close under the glass. I have over a hundred of these plants, and they all exhibit the same "drawn-up" tendency, though grown in different places and under different conditions, and grown side by side with our other three varieties of *Vallota*, i.e., *purpurea* major and *eximia*, which are all comparatively dwarf, though grown side by side with *magnifica*. Last year I grew twenty-five of these bulbs, and they all gave the same gigantic grown-up appearance. I attributed the tall habit to the natural tendency of the plant and the very large strong bulb."

**Climbers for a warm greenhouse.**—The following are three most useful plants for training over pillars or against sunny walls or upon wire trellises in warm houses: *Plumbago capensis*, *Hibiscus fulgens* fl.-pl., and *Lasiandra macrantha*. All three are now flowering freely in the porch of the Water Lily house at Kew, where, indeed, they have been gay with flowers since early summer. All plants like these are known to almost everybody interested in horticulture; but in the rush of new and rare things one is apt to forget, or allow to fall into neglect, old favourites, which are, however, often safer sources of floral enjoyment than new and untried plants. If anyone has a bare pillar or side of a greenhouse which he desires to see gracefully clothed in green and pale blue let him plant for that purpose the old *Plumbago capensis*, which grows rapidly and flowers freely, and may be cut back as soon as it gets a little straggling, when it soon grows again and flowers as freely as ever in about two months after pruning. The *Hibiscus* may be grown as a shrub, but it looks very well and grows rapidly when treated as a climber, its bright green foliage and large double crimson flowers being always fresh and beautiful as long as summer lasts. The same may be said of the *Lasiandra*, which, to grow well, ought to be planted out and trained flat against the side of a house or round a pillar. It is a perpetual flowerer, the flowers being like little saucers and glowing purple-blue. These are old plants certainly, but they are also useful and full of beauty.

**House for Tree Ferns at Kew.**—It is satisfactory to observe that the large house in which the collection of Aroids, Marantas, and a number of Palms, along with a good many plants of no particular interest or beauty, and which is known as "No. 1 house," is being reconstructed internally with a view to utilising it for a collection of tropical Tree Ferns, which at present are crowded in a wing of the fernery, where their development is much retarded through lack of space. There is a host of noble Tree Ferns in various parts of Tropical America and the East Indies which are comparatively little known in English gardens, but which are deserving of cultivation in stoves, and we are therefore glad to see that the Kew authorities are making provision for the better development of the collection of tropical Ferns grown in that establishment. No. 1 house at Kew has never been quite satisfactory as a whole. It is a tall quadrangular structure, the sides formed of massive square pillars about 20 feet high, with lights between them, and these, together with the flat roof and rather old-fashioned squares of glass, make the inside rather shaded, so that for most plants it was not a favourite house. For Tree Ferns it will, however, most likely prove well adapted; and as beds are being prepared so that the Ferns may be planted out with an undergrowth of noble-leaved Aroids, and some of the climbing kinds trained upon the Fern stems, the appearance of the house when finished will be a welcome change from what it used to be.

**Hedychiums.**—The best known plant among the score or so species of *Hedychium* is *H. Gardenianum*, which thrives out-of-doors in the extreme south of England and in the warmer parts of Ireland, as well as being perfectly happy when planted in a damp border at the foot of a wall in a vinery or greenhouse, where it rarely fails to produce its large lemon-yellow flowers in an erect head, to be followed sometimes by beautifully coloured fruits, which to some are even more attractive than the flowers. This plant is able to take care of itself if kept moist and just out of the reach of severe frost, and as it will grow in out-of-the-way corners where most plants would fail, it is an excellent stop-gap if nothing else. Besides this species there is *H. coronarium*, whose



sweetly-scented, large, pure white flowers gave rise to the name *Hedychium*, from *hedys*, sweet, and *chion*, snow, and which thrives in a similar position to that mentioned for *H. Gardnerianum*, except that instead of greenhouse treatment it requires the temperature of a stove. If planted in a large pot or tub and placed with the pot half submerged in a tank, or even if the pot be half plunged in some moist material, such as a bed of soil or Cocoa-nut fibre, this species will thrive most satisfactorily, the most important points to be remembered in regard to its wants being to give plenty of moisture, a rich soil for the roots, and a warm, moist atmosphere in the house where the plant is grown. The fragrance of the flowers of this plant is most delicious. The stems grow to a height of 8 feet, and are clothed with two rows of lance-shaped green leaves a foot long, and upon the ends of the strongest stems the large heads of flowers are produced, healthy plants bearing heads a foot in length and about 8 inches wide, and which are made up of long-tubed, large lipped, Orchid-like flowers. *H. flavescens* is like the last mentioned, but bears pale yellow flowers, their fragrance, size, and the number of them in a head being exactly the same as in *H. coronarium*. The above three species may now be seen flowering at Kew, whilst cultivated in the collection we noticed *H. acuminatum*, which bears large yellow and white flowers; *H. gracile*, a small species with delicate whitish flowers; and a hybrid raised from *H. Gardnerianum* × *H. angustifolium*, which is now showing flower. For cultivation in moist stoves, and particularly where there is arrangements for planting such things in beds, the *Hedychiums* may be recommended as being especially serviceable.

#### NOTES ON RECENT NUMBERS.

**Flower-wreaths and crosses** (p. 375).—A wreath is not always an easy thing to make for an inexperienced hand; the flowers have an awkward way of slipping about just as one thinks one has finished, and one's work loses the firmness and good shape which one had intended. This is especially the case when hoops or wire are used as a framework, as, indeed, is generally done; but for simplicity and comfort, scarcely anything will beat a good piece of stiff new rope, thick enough to be coiled to the size of the required circle, so that when the ends are tied together it should retain its shape. It is best used double, one coil inside the other, and bound tightly together with fine string. This gives a good flat foundation to start with, and the roughness of the rope prevents the cotton from slipping as it is wound round the stalks. It is a great assistance to clumsy fingers, and is generally easily procurable and stored ready for use. Cardboard, which is sometimes used to start with, is often bad, because if the flowers have to be wetted to keep them fresh, it becomes soft, and is very liable to be torn, and those who try for the first time with wire will very likely find it somewhat slippery, and that their flowers will not always continue to face the right way. The "professionally made" wreaths are often as beautiful as one could imagine them, but it must be remembered that there are many sad hearts who try for the first time to perform such a labour of love, and the value of whose tribute consists in the fact that it was made by themselves, and not strangers.

**Early tree-planters** (p. 377).—Our ancestors in many instances certainly knew how to plant for good effect; whether we are always as wise in this matter may sometimes be questioned. For one thing, they had fewer varieties, and so were able to assign each specimen or group sufficient space and clear surroundings to enable Nature to develop herself. We have now so many "specimenable" trees and shrubs, that there is a great tendency as well as temptation to cram into our landscape as many as we can lay hands on, the majority of which will either have to be sacrificed or will sacrifice each other in the course of the next fifty years. Immediate effect is what is aimed at in most cases, but people, as a rule, are readier to plant what is effective than to cut it down, and the future is sacrificed for the sake of the present. It is not easy to thin without leaving bare places or making a mess, and planters when they go to work should think a little more, not merely what

will have to be thinned out, but what will be the general effect on the landscape as well as on what is left when the thinnings are gone.

***Tritonia aurea*** (p. 379) seems wonderfully hardy if established in a suitable place and in suitable soil. It is most effective about this time in the autumn planted at the foot of a wall or under a window where the flower-spikes can arch forward from a bed of green leaves, the flowers of which have done their duty under the summer sun. *Corydalis lutea*, for instance, is an excellent associate, for it is in itself so pretty and graceful for many months together, and it gives shelter and shade to the young foliage of the other. This *Tritonia* is doubtless very useful grown in pots for conservatories, but I have seen it quite as fine in permanent quarters out of doors, and the spikes are good for cutting, as they open and last well in water. C. R. S. D.

Sussex.

## FLOWER GARDEN.

### AUTUMN CROCUSES.

THESE are just now making a brilliant and varied show. In former years we had only a few that flowered in autumn, the majority being spring Crocuses; but now, thanks to Mr. Maw, of Broseley, we have as good and varied a show at this season as we can reasonably desire. Fourteen distinct species, all of them free flowerers, and representing all shades of purple and white, are now in full beauty, and there is no reason why all of them may not shortly become the property of everybody who has a love for autumn flowers. We have often heretofore advocated the planting of both autumn and spring Crocuses by woodland walks as well as in other wilder parts of our gardens, and we again urge the importance of this kind of decoration not only in our gardens, but also in our public resorts. True, all Crocuses are not so well adapted for this treatment as the taller or more robust growing sorts, such as *C. nudiflorus*, *speciosus*, &c., that are able to raise their heads above the lanky Grass, but a selection might be made; the dwarf or low-growing kinds might be used on the lawn or for bordering shrubbery beds, while the stronger sorts might be naturalised in woods and wild places, a little care at planting being all that is required, as they readily establish themselves; but even this little care is only really necessary where the soil is very hungry. In that case a larger hole should be made than would otherwise be needed, and a handful of good soil should be put round the bulb. The rapidity with which Crocuses multiply if undisturbed is well known; not only do they increase in number of bulbs from that of the previous year, but where the herbage is not too thick they seed freely, and in a short time hundreds of young plants make their appearance. It must also be borne in mind that, although they flower reasonably in the shade, they do best on sunny banks or flats where the bulbs get well ripened during summer and where they are not liable to suffer from stagnant moisture consequent on bad drainage. Why not, too, have patches of autumn Crocuses in our mixed borders? they would not be out of place, and they would give interest to such borders at this late season when little is to be seen except dead brown stems drooping and frost-bitten. Such provision might also be made in the flower-beds as would enable Crocuses to succeed plants unfit to weather the cold and hoar-frosts to which they would be now subjected. We may begin with *C. iridiflorus*, Parkinson's *C. byzantinus*, allied to *C. nudiflorus*, but easily recognised by the smallness of the three inner segments. Its colour, as most of us are well

aware, being clear rich purple and pale lilac, is very effective. *C. zonatus*, rosy lilac with purple veins, is a prettily marked *Crocus*. *C. nudiflorus* is naturalised in the midland counties, where it is said to be quite at home; its flowers are large, rich bluish purple, with orange anthers. *C. asturicus* has handsome flowers varying from purple to white, and which continue in good condition until about the end of November. *C. Salzmani* has purple and lilac flowers with darker featherings. It is larger and more robust than *C. asturicus*, and the anthers are large and bright orange. *C. Clusii*, a rare species from about Oporto, has purple flowers. It is near to *C. asturicus*, but easily recognised by its having a bearded throat and by the leaves appearing with the flowers. *C. Cambessedesi*, a pretty species from Minorca, flowers in October and November, the blooms being pale buff, large and showy; *C. medius* is a fine species with a very handsome scarlet style and bright purple flowers; *C. longiflorus* has lilac and purple-veined flowers, which are very showy; *C. hadriaticus* is a charming species, with pure white flowers of sterling worth for autumn work; *C. cancellatus* flowers until December, and, together with its varieties *cilicicus* and *mazzaricus*, is very effective; *C. speciosus*, a well-known kind, has bright lilac flowers, lined broadly with purple; *C. pulchellus* is nearly allied to it, but easily distinguished by an absence of feathering, and its anthers are pure white; and last, but not least, we have the well-known *C. sativus* forms. K.

***Tricyrtis hirta***.—I think the large amount of space given by "Delta" to this plant wanted another line to say that the plant was not worth a place in our gardens.—J. H. S.

**Primroses**.—Surely "A. D." is wrong in saying that the beautiful plants figured in THE GARDEN last week are not Primroses. I have seen them growing, and know how they came. They are not at all like *Polyanthuses*, which are richer in colour and closer in the head. The mere fact that, owing to the vigour of the plants, they push up their stalks high enough to show the union of the different flower-stems is surely not a reason why a simple matter should be made obscure and complex.—FRIMULA.

***Samolus littoralis***.—This is a plant one rarely meets with now-a-days, though good enough to entitle it to a place in every collection of hardy plants. I refer to the upright-growing kind, for there are two plants cultivated under this name, both distinct. *Sheffieldia repens*, the name under which the prostrate form is known in gardens, has in recent works been called *Samolus littoralis*. It is a very distinct little plant and extremely useful for edging, being never more at home than when creeping between and over irregular laid edging stones. All through the summer months, too, the brownish-green leaves are relieved by a profusion of little star-like white flowers. It is perfectly hardy, and grows well in shady places. The upright form is a more valuable plant, extremely free flowering, and continuing in blossom all through the summer months; even now, when autumn is well nigh gone, it is but little impaired by the weather. It grows best in a damp, peaty bed in full sunshine.—K.

**Renovating herbaceous borders**.—Now is a good time to renovate herbaceous borders. Where they have not been disturbed for four or five years, the plants get exhausted; top-dressings of manure and soil annually and forking over in spring are all very well, but most plants are all the better for being occasionally lifted, divided, and replanted. By this means the ground can be trenched to the depth of 2 feet, which is a great advantage, particularly in the case of strong, retentive soils. Thus treated the roots can ramble much freer than before the soil was disturbed. This is a better time to set about work of this kind than spring, as now the whereabouts of the plants can be seen, and therefore they are not so



liable to be dug up accidentally as at that season. Moreover, if shifted now they will succeed much better next year should that happen to be a hot and dry one than if moved in spring; they will also have become well established before cutting winds in March shall have set in, which are generally so destructive to newly planted subjects. Commence at one end of the border, and take up all the plants for a space of, say, 20 feet, or as far as circumstances will allow; take out a trench, and in each trench place below the first spit of soil a good quantity of well rotted manure, leaves, and wood-ashes. Thus proceed, taking care to leave the top soil on the top, and the stronger or bottom soil at the bottom. Re-plant the piece trenched, first dividing the plants if necessary; then give a mulching of well rotted manure or leaf-soil, and all will be snug for the winter. —E. MOLYNEUX.

### STERNBERGIA LUTEA.

THE pages of THE GARDEN are always so full of useful and profitable information, that some of us shrink from occupying space which would otherwise be more profitably filled and from which they themselves would be able to learn something. But "J. C. C.'s" despair about one of our best autumn flowers tempts me to offer him my experience with the plant. In 1879 I had five small bulbs of this lovely and quite hardy *Amaryllis* given me. I had never seen it and knew not how to treat it, so I planted three in a warm, dry, sunny spot. They came up very feebly and then died. The other two I planted 3 inches deep in the dampest spot I have. My soil is very sandy and in places pure pea gravel, with a subsoil 4 feet or 5 feet down of clay; water poured on it at once passes straight through, and runs downhill between the sand and clay. The home of my *Sternbergias* is at the lowest part of my garden on the outside of a big corner close to the gravel walk, and whenever there is any rain a good deal of it runs down the walks, collects at the outside of this corner, and sinks away within a couple of feet of the *Sternbergias*. Thus they get Benjamin's share of any rainfall there may be, with never a drop of stagnant moisture, which so soon makes the ground turn sour. They are also full in the sun's eye and never shaded, and in the dry summer months are fairly roasted. From the very first, these two bulbs, though small to start with, have done well, and never failed to flower. Last year I had not less than ten or twelve grand flowers, and this year abundance of great fat buds are showing amongst the deep almost black-green leaves, but they are not out yet. I would not on any account disturb the clump, so that the question as to how many bulbs I may now have as the product of those two in 1879 is one of the problems that I do not intend to solve. Possibly out of these minute particulars of success—and I have purposely made them most minute because I think a few generalities are often most misleading—"J. C. C." may be able to pick out something useful. I do not claim any skill in the treatment of *Sternbergias*, nor have I any knowledge of them save the above; my success has all been chance, but I do not think now that I would plant it either in dry sunshine or in shade, but in a sunny spot which is damp in autumn and spring and hot and dry in summer—conditions not so difficult of fulfilment as those sometimes advised for other things, of dry in winter and wet in summer. W. WILKS.

*Shirley Vicarage.*

*Lobelia cardinalis*.—This *Lobelia* when planted in small groups of from five to seven in the flower garden or in the herbaceous border is very effective. A stock of plants of it is easily raised by

dividing the roots in spring, potting them, and growing them on; they soon make strong plants, and the stronger they are at the commencement of the season the better will be their flower-spikes. When grown from seed the best must be selected, as they vary considerably in habit of growth and colour of leaves and flowers. Old roots carefully preserved through the winter are also useful. This is best done by placing them in boxes or pans in October, when taken from the positions which they have occupied in summer; keep them just moist during winter in a cold frame or house where they can be protected from severe frosts. It is best to house them in winter, as they are liable to rot if left in the ground. We have used this *Lobelia* with good effect this summer in a circular bed; the plants were freely watered in summer, and the soil had been previously enriched by adding some well-decomposed manure to it. Many of the bloom-spikes produced were 2 feet 6 inches long, and were furnished with numerous side branches. When the plants were placed in the bed the ground between them was planted with *Antennaria tomentosa*, the silvery foliage of which contrasted strikingly with that of the *Lobelia*. A single row of *L. speciosa*, as an edging, completed the arrangement—a truly charming one.—E. M.

### ALPINE PLANTS AT BOWNESS.

DR. CLOWES' garden at Bowness, overlooking the charming lake of Windermere, has been long and favourably known to lovers of alpine plants, containing as it does many of the rarest and best of our alpine gems, as well as a unique collection of hardy British Ferns. The house itself is well sheltered with beautiful trees, for which the lake district is famous. It also commands an excellent view of the mountains of Cumberland, notably a grand view of Helvellyn and Scawfell, which raise their giant heads upwards of 3000 feet above the level of the sea. The alpine garden, which is the chief attraction of the place, and of which the annexed is an illustration, occupies the highest part of the grounds, and seems especially well adapted for the growth of such plants. The rocks, which are thrown up to a considerable height, belong to the lower Silurian group, and are nearly covered with vegetation. For this purpose, such plants as *Phlox subulata* and the charming varieties raised by the late Mr. Nelson are used with grand effect. *Polygonum vaccinifolium*, several species of *Dianthus*, *Arctostaphylos Uva-ursi*, along with *Dryas octopetala* and some *Potentillas*, were evidently at home in the upper reaches of the rocks. About the middle of this garden is a large piece of rockwork especially reserved for extremely rare species, and also for such things as require to be protected from excessive rain, which in the lake district is considerably above the average of the midland counties. For this piece of rockwork there has been constructed a large glazed canopy made to fit the irregularities of the ground. On this bed may be seen some of the rarest and most beautiful of our alpine plants, notably fine specimens of *Androsace carnea*, *glacialis*, *Chamaejasme*, *pubescens*, *lanuginosa*, *villosa*, *Vitaliana*, and *Wulfeniana*, *Campanula Allioni* var. *atro-purpurea*, *Balfouriana*, *Hendersoni*, *pulla*, *Waldsteiniana*, and *Zoysi*, *Anthemis Aizoon*, *Alchemilla argentea* and *umbellata*, three beautiful and distinct plants with silvery foliage. Associated with these are also several fine plants of *Edraianthus dalmaticus*, a fine collection of rare *Saxifrages*, including grand examples of *S. longifolia*, *cochlearis*, *cæsia*, *aretioides*, *primulina*, *Burseriana*, *coriophylla*, *diapensoides*, *Hausmanniana*, and magnificent clumps of the various forms of *oppositifolia*. The most remarkable plants, however, were specimens of *Dianthus alpinus*, *glacialis*, and *Fischeri*, together with several

intermediate forms measuring upwards of 3 feet in circumference. These last June were covered with large and very beautiful deep rosy crimson-spotted flowers. Besides these might be seen scores of other plants equally beautiful.

THE ENTRANCE to the front door of Dr. Clowes' residence appears to have been cut out of solid rock, shelved down and covered with suitable plants, some of which seem to succeed even without any soil whatever. A *Rhododendron* growing out of the crevice of a huge piece of natural rock was so vigorous, as to have to be cut away in order to afford space for other things. Immediately in front of the entrance are several variegated plants and some of the new Japanese Maples, which have proved to be quite hardy at Bowness. At the base of rocks thus opened up is a small recess kept continually damp, in which is a fine healthy plant of *Darlingtonia californica*, which has grown there in wet mossy peat without protection for a number of years. On the side of the house overlooking the lake, and situated about 200 feet above it, some fine views may be had of the surrounding country. The lower portion of the garden is not of such a rocky character as that which lies higher. In the middle of a fine velvety lawn is a small pond in which aquatics are grown with considerable success. In the centre of this pond is a large plant in a pot, submerged, of *Richardia hastata*, which, when I saw it, was just showing for bloom. The sides of this bit of water are converted into a bog garden in which many interesting plants may be found, notably *Cypripedium spectabile*, *Calceolus*, and *pubescens*, *Rhexia virginica* and *Orchis foliosa*. Scarlet *Rhododendrons*, *Azaleas*, and other interesting plants may be seen here judiciously intermixed with new Japanese Maples, choice Conifers, New Zealand Veronicas, *Olearia Haasti*, *Diplopappus chrysophyllus*, *Choisya ternata*, several varieties of *Cistus*, and rare evergreen shrubs, besides some fine *Yuccas*, which have quite a charm of their own.

In a shady retreat is a fine collection of Ferns, consisting of *Athyriums*, *Polystichums*, *Lastreas*, and *Scolopendriums*. I nearly forgot to say that in the bog garden is a second plant of *Darlingtonia californica*, in this case fully exposed to the sun without shelter or shade, and associated with it are *Sarracenia purpurea*, *Wulfenia carinthiaca*, *Xerophyllum asphodeloides*, *Helonias bullata*, *Mimulus primuloides*, *Houstonia cærulea* and *serpyllifolia*, *Gentiana Andrewsii* and *Pneumonanthe*, *Primulas*, and two North American *Kalmias*. Close to the pond is a conservatory furnished with a large number of interesting and half hardy shrubs. Here I noticed a fine plant of *Carpenteria californica*, a valuable introduction from the Sierra Nevada, somewhat closely allied to the Mock Orange. There was also here another plant not yet common in gardens—viz., *Ilex insignis*, from Japan, a plant likely to prove quite hardy, though as yet not tried here out-of-doors. It had grown to a height of 6 feet or 7 feet under the protection of the conservatory. The lower portions of the garden contain evergreen shrubs and strong growing herbaceous plants, amongst which are some fine clumps of *Helleborus maximus* and *H. angustifolius*. *Bambusa Metake* had grown here to a height of from 10 feet to 12 feet, a noble object, evidently well suited for this district. There are also some fine clumps of *Arundo Donax* and *Pampas Grass* which look well seen against the dark green foliage of surrounding shrubs. Plant-lovers visiting the lake district should not miss the opportunity of seeing this charming collection. W. H. STANSFIELD.



## GARDENING IN CALIFORNIA.

BY C. H. SHINN.

No writer has yet attempted to give a careful account of early horticultural experiments in this State, and if the work be not undertaken before the last of the pioneers has passed from the field of his triumphs, many personal reminiscences of value will be lost. The generation that has seen the transformation of cattle ranges into wheat fields, and, within less than two decades, the change of wheat fields into orchards and vineyards, can tell stories of unequalled horticultural work. Thirty years ago each planting of a Vine or tree was considered a hazardous experiment on this coast, except, indeed, in those favoured spots where the Spanish padres had tested the fertility of the soil. It is almost impossible for the younger people of California to realise how slowly the horticultural possibilities of this domain of coast range, great central valley, and Sierra foothills were at last revealed. The discussions that took place in the columns of early works on California show how little men knew of the soil they were beginning to cultivate, and of the climate which was adapted to such a variety of fruits and flowers. For years the worthlessness of the southern counties of the State was considered axiomatic, despite the beautiful oases of Vine and Orange about the old missions. For years no man dared to plant an orchard anywhere except on a river bottom, and the necessity of irrigating vineyards was widely proclaimed. Horticulture in California properly begins with the Franciscan priesthood, whose gardens flourished in San Diego, Los Angeles, Santa Barbara, and many other beautiful spots. The Palm trees that the priests planted in San Buenaventura still add a charm to the landscape. A few of the Olive trees they planted near San Luis Obispo yet shade the crumbling walls. The tall Pear and Fig avenues they set out at the Mission San José were cut down in their prime. At San Gabriel the celebrated "Mother Vineyard" contained three thousand Vines at first, but this number was soon increased to one hundred and fifty thousand, in small vineyards separated by Pomegranate hedges, and surrounded by a high fence of Mexican Cactus. Padre Salvadea, a botanist and classic scholar, had flowering shrubs brought from the mountains, Roses from Mexico, and rare seeds from Spain and Portugal. In the midst of the flower garden an hour-dial stood, and streams of water flowed along the rows of Orange trees, which had been planted about 1820. In 1857, Mr. William Meek possessed the best Apple orchard on the coast. It was in Oregon, and occupied about 50 acres of land. The *California Cultivist* for June, 1858, reports that the sales from this orchard for the previous season had been 4000 bushels, or 180,000 lbs., which sold at an average price of 1s. per lb., making the gross returns £9000. He had discarded as worthless the methods of picking, preparing for market, and shipping, to which he had been accustomed in his boyhood, and had adopted large fruit houses, well ventilated, and much the present method of packing in boxes at the proper time of maturity, but not before. This orchard supplied San Francisco with its choicest Apples. In 1859 Mr. Meek sold his Oregon property and moved

to San Lorenzo, where he purchased some 2000 acres. By 1864 he had 260 acres in fruit. The writer has heard him speak of the large prices paid for fruit and fruit trees in early days in Oregon. Four shillings a pound was a common price, and often more. Twenty shillings apiece for grafted trees was not considered extortionate. Men came for many miles to get them at that price, and they were taken overland to the California mines. Apple orchards now growing in the Siskiyou, Trinity, and Klamath region were from the noted Willamette nurseries. Nearly all who had bearing orchards before the mining era closed made large sums of money. In numbers of cases grafts from the early Oregon orchards were set in wild stocks, Cherry, Apricot, and Plum, in the mining camps of Northern California, but few of these flourished.

## THE PRICES FOR FRUIT

mentioned above may seem extraordinary for 1857, but in May, 1858, a San Francisco journal said: "The first ripe Cherries the present season appeared May 3. They were from the Lee Gardens, Oakland, and of the variety known as the Van Slyke, medium

in the favourite varieties. In 1852, Mr. Lee, of Oakland, succeeded in saving two plants of British Queen received by mail from the east, and the variety soon became the leading one. Wilson's, and many of note elsewhere, had previously failed to give satisfactory results. In 1858, of 160 acres in Oakland and Alameda planted in berries, all but 15 acres were British Queen. Hovey's Seedling was planted to some extent, also Ajax, Prince of Wales, Jenny Lind, Peabody's Seedling, and a few others. The Hovey and Peabody were extensively planted in later years, but of the dozens of other varieties described in flamboyant terms by the horticultural writers of the time, hardly one is to be found in any private collection, much less in market gardens. In October, 1853, Dr. Henry Gibbons delivered the first lecture on horticulture of which I have been able to find any record. He said, "Three years ago, when I landed here, it was a question whether California would ever produce a good crop of Potatoes; now the soil is full of them, and thousands of bushels will rot in the earth not worth the digging; even in Contra Costa, almost at the door of this great market, the farmer will give half his crop to the labourer who gathers it." "Oats," he added,

"are exhibited 9 feet 4 inches high, and one specimen 10 feet 7 inches." Mention is also made of a stale of Oats shown in San Francisco in 1851 which measured 13 feet in height. In 1853, Mr. John M. Horner raised 400,000 bushels of Potatoes on his farm in Alameda County.

CALIFORNIAN POMOLOGISTS are beginning to place great faith in the value of native seedling fruits, which are often better adapted to the soil and climate, longer-lived, more prolific, and better flavoured than many others. New varieties of Peaches, Apricots, Almonds, Plums, Cherries, Apples, and Pears are becoming widely known as choice market fruits. It should therefore be of interest to horticulturists to know that nearly thirty years ago valuable new Californian fruits were brought to public notice; some of these are still cultivated,

others have been superseded. For instance, the once widely disseminated Myer's Rareripe, originated at the Pioneer Nurseries of Alameda, took the lead as an early market Peach until Hale's Early supplanted it, to be in time superseded by Briggs's Early May and the remarkable group of Eastern seedlings, such as the Alexander. We also find that a seedling clingstone grown about 1855 attracted much attention, and took premiums at State fairs a few years later. The first nurserymen's convention ever held in the State took place on November 9, 1858, in San Francisco, and its object was to regulate prices and to drive out tree-peddlers, there being inferior imported trees in the market. The State fairs of 1857 and 1858 brought to the front a Beet that weighed 125 lbs., a Turnip upwards of 30 lbs. in weight, a Cornstalk that was 25 feet in height, and Pears that weighed 4 lbs. apiece. The noted Pear that was grown in 1858 on a three-year-old tree in the garden of Mr. Beard, at the Mission San José, weighed 2½ lbs.; and although specimens of this variety (the Pound or Winter Bell) have since been grown of equal or even greater size, yet this one became known abroad as none since, a life-size engraving of it being produced in several journals.



Rock garden at Bowness, Windermere.

size, pale red, inclining to yellow, slightly mottled, and of excellent flavour. To us they possessed so strong a 'taste of silver,' it was difficult to distinguish between them and the real shining metal, selling as they were at 4s. a dozen." On May 22 Black Tartarians were in market, and sold for 20s. per lb.; in June they brought 8s., which was considered quite reasonable. May 15, the first Blackberries of the season appeared. They were wild, gathered in the coast range valleys and ravines, "plentifully mingled with red ones," and better adapted for cooking than dessert; but they commanded 2s. a lb. May 22, Water Melons from the Hawaiian Islands arrived, and were sold at 8s. apiece. Seven years before, in 1851, the late Mr. George G. Briggs, of the well-known Briggs' Orchards, near Marysville, on the Yuba River bottom, had planted 25 acres of Melons, which he cultivated, gathered, and sold at his own door for £3200 above all expenses. This story seems well authenticated, as it appears in State reports. Santa Clara County supplies the bulk of the Strawberries. But thirty years ago the sandy levels of Oakland and Alameda were almost the only spots in the State devoted to this fruit. Since then there have been numberless changes



Prior to 1852 there was found about early mission gardens, and around Los Angeles, a native seedling Peach, of small size, white or yellow-fleshed, globular in shape, with a deep suture, and leaves much liable to curl. The Spanish Pear was much earlier than the Madeleine, a good bearer, but poor in quality. The Spanish Prune grown by the padres was like the German Prune, and was propagated in many cases from seeds.

#### THE FIRST GOOSEBERRIES

in the State came from Messrs. Hovey, of Boston. With Currants the story of beginnings is quite remarkable. In 1853 Messrs. Beard and their friends sent Dr. Whaley to visit Eastern nurseries. At Ellwanger and Barry's, in Rochester, he was shown some plants of the Cherry Currant, then highly spoken of in France, but a decided failure in the United States. Mr. Ellwanger wished Dr. Whaley to try it in California, and in a few years the Cherry Currants at San Lorenzo began to bear fruit. Mr. Beard's plants had mostly died, and the discovery of the great value of the variety came from Mr. Crane, who by 1858 had one-fourth of an acre, and paid Mr. Lewelling £20 for enough cuttings to plant as much more. Rooted plants were soon sold by the thousand, propagated from single joints, but the San Lorenzo and Haywards region proved the best for their growth. In 1865 Mr. Crane sold 6000 lbs. of fruit at prices ranging from 1s. 3d. to 2s. a pound. The sales for some years averaged from £400 to £800 per acre. Over-production then followed, and about 1878 Currants were a drug in the markets, were given to whoever would gather them, until no more could possibly be utilised, and many tons rotted on the bushes. The nominal price was 6s. per chest, or about three farthings a pound, which did not cover the expense of gathering and shipping. Since that time Currants, although often low, have never again reached so small a price. The Grape interests of the State, as is well known, attracted much attention, and at an early date. Almost every pioneer soon became aware of the extent to which Grapes were grown in the prosperous mission gardens, and cuttings were widely distributed. Essays upon wine-making, varieties to plant, choice of soil for vineyards, and similar topics form a noteworthy part of early State reports.—*Overland Monthly*.

#### SEEDLING DAFFODILS.

##### DEAN HERBERT AND EDWARD LEEDS.

MR. ENGLEHEART makes statements (p. 363) which require a reply from some friend of the late Edward Leeds. He says: "It always seemed likely to him that many of the Longford Bridge varieties were not raised by Mr. Leeds at all, but were either old garden forms collected by him as materials to work with, or were Herbert's productions, which are not likely to have been retained wholly in his hands during his lifetime, and entirely lost afterwards. . . . At all events," he adds, "Herbert has not yet received his due in the matter of Daffodil raising, for both Leeds and Backhouse certainly 'picked his brains,' whether they actually obtained his plants or not."

By innuendo we have Mr. Leeds here made to appear capable of putting forth old forms raised by others, and some probably by Dean Herbert, as seedlings of his own raising. Allow me most emphatically to deny that Mr. Leeds was in the smallest degree likely to do, or that he ever did, so unfair a thing. I challenge Mr. Engleheart to give one single reason for harbouring such a suspicion in his heart, and—as he professes to be related to the late Dean Herbert—to say if he has any positive knowledge that he ever exchanged a word with Mr. Leeds, or perhaps he can say further if the dean ever gave Mr. Leeds a bulb? I do not believe he can give any evidence whatever, and if so, he will no doubt be ready to apologise for the wrong he has done to the

memory of a worthy florist, who is no longer here to defend himself.

It is a pity that we do not know more of Edward Leeds, his life, and his works, than we do. I have for some time been collecting materials for supplying this want by a brief memorial of him. It is nearly ready for publication, and I hope will appear shortly. It is only waiting for some notes by Mr. Barr, who has promised to look through the correspondence he had with Mr. Leeds, as he alone can thus furnish the particulars as to the varieties raised at Longford which passed to Mr. Nelson, Mr. Barr and others by purchase shortly before the decease of their raiser.

If any of your readers who were acquainted with Mr. Leeds can furnish any information I shall feel very grateful for it, as there is but little to be learned about him, so quietly and unobtrusively did he live and pursue his horticultural work on the outskirts of this busy centre of commercial activity, where he was but little known beyond his own small circle of intimate friends.

The memoir of Dean Herbert has also yet to be published, but this is nearer accomplishment in two quarters. The Hon. and Rev. William Herbert was the last warden of the Collegiate Church of Manchester, and the first dean when it became a cathedral, and an account of his life will be included in a work which has been written for the Chetham Society by Mr. J. Eglington Bailey on "The Wardens of Manchester." It is now in the press and will shortly be issued to the subscribers. For this work I was asked by the Rev. Canon Tonge to write a brief account of the botanical side of Dean Herbert's character, and this will be included in Mr. Bailey's memoir. The worthy dean, who was a good classical scholar and linguist, as well as a good botanist and horticulturist, was one of the trustees named by John Owen in his will, and he took a most active part in carrying out this trust in the founding of the Owen's College. He thus comes within the scope of a memorial volume which is now being written by Alderman Joseph Thompson, of Manchester, on "The History of the Owen's College," and a brief memoir of him will appear therein. For this also I have had the privilege of adding a few paragraphs on the botanical view of his life and work. When these are published they will serve as a foundation for a more complete botanical memoir, which I hope some one will write, as a more interesting and worthy subject could scarcely be found. The life of Herbert at Spofforth, where he ministered to the spiritual wants of a country parish, and busied himself with a most painstaking course of experiments in the hybridisation of plants, and which resulted in his "Amaryllidaceæ" and numerous other botanical treatises, is quite unknown to me, and has been passed over, as being beyond the scope of either of the above-named works. It would, however, be of paramount interest to the botanist and florist, and I should be very much obliged if any of your readers could put me in the way of obtaining information on the subject. I understand that the dean left a large mass of correspondence and unpublished manuscripts, and these are probably accessible, if one knew how to find them. He was an accomplished draughtsman also, and it is likely that many of his drawings are in existence. In all probability, these manuscripts would furnish information which would be of great interest to us now that the seed sown by the dean is bearing fruit. W. BROCKBANK.

*Brockhurst, Didsbury.*

#### MICHAELMAS DAISIES AND THEIR NAMES.

PERENNIAL ASTERS, probably better known by their own name—Michaelmas Daisies—are now at their best, being at least a fortnight later than usual; and gardening correspondents favour us, according to their tastes, with lists of the best kinds. Most of these lists contain some names which were never known to botanists, and others of species not known to exist in cultivation in England. But it would matter little by what names good garden flowers were called if we could but insure uniformity in the naming; unfortunately, no kind of uniformity exists. Gardeners speak of entirely distinct Asters under the same name and the same Asters by different names. Who is to blame for this? We have had Asa Gray's "Synoptical Flora," describing the Asters, in our hands for two years, and Mr. Baker has given us a very useful synopsis of the cultivated Asters, including many kinds which, not being American, are not described by Asa Gray. Still we are very little forwarder with the correct naming of Asters. Gardeners are frequently advised to go as often as possible to Kew, where they may see all the typical species in cultivation growing and correctly named; this advice may be sound, but it will hardly tend to encourage the cultivation of these plants in gardens. To speak plainly, the Aster beds at Kew are anything but attractive; a large proportion of the species are quite unworthy of a place in a garden as ornamental plants. Others are left, as they ought never to be where ornament is an object, to grow into such large clumps, that the stalks struggle up to the light in a dense forest, affording no room for the development of side branches, and causing the flowers to be stunted and colourless. People generally come away from Kew with the belief that Michaelmas Daisies after all are not worth growing.

The fact is, that these plants want about as much cultivation as florists' Chrysanthemums or florists' Pyrethrums, and where they get this, they make the garden in late autumn far more attractive than it would be without them. But there is another fact about them, which is very important as far as names are concerned, and it is this, that a very large proportion of garden Asters are hybrids, or have so far departed from the specific type, that only good botanists can recognise them as belonging to it. Two Asters may be true to their specific name by which they are sold in different nurseries, and one may be a weed unworthy of cultivation and the other an ornamental plant. *A. Novi-Belgii* and *A. lævis* are instances of names covering a very wide range both of colour and of habit. Some of the best garden forms are probably intermediate between these species. Again, as regards size, there is a very good flower called *Aster versicolor*. Dr. Asa Gray doubts whether it is a good species, or has any ex-



istence at all except in gardens; but it is best known to us as a tall-branching, very floriferous plant over 6 feet high, with flowers at first white, then turning purple. But this Aster, whether a true species or not, exists in many forms and under many names, two of the best being (1) a very neat flower, about 1½ feet high, sold by Messrs. Smith, of Worcester, as *A. discolor* major, and (2) a dwarf kind never more than 6 inches high, which I have from Messrs. Van Houtte as *A. discolor*. Again, *Aster Amellus* has at least four, perhaps more, distinct forms, all well worth cultivating, and all wanting distinctive names. Whilst speaking of *Aster Amellus*, I may say that its variety, *ibericus* (Boissier), which was sent to me two years ago by Max Leichtlin, appears to those who, like me, are not botanists so utterly unlike the type, that I am quite prepared to believe anything about Asters if told on good authority.

What, then, are we to do about naming our Asters? There are not fewer than forty or fifty really good kinds. These belong, perhaps, to twelve or fifteen species, or to more. The number we ought to retain depends in a great measure on the size of our gardens. After having collected, perhaps, a hundred species and varieties I am gradually weeding out the weeds, but to give the names of those rejected and those retained is impossible. To hybrid garden forms about the merit of which there is no question I give such names as Robert Parker, Harpur Crewe, Van Houtte, and so on. One of these, of which no one ever determined the species, is now widely grown as Archer-Hind. I hope that in time either these names will be generally adopted, or that other more acceptable names will be given by some central authority. It is certainly convenient to have some names, and also that these names should be uniform among nurserymen and gardeners.

Edge Hall.

C. WOLLEY DOD.

**Anemone japonica.**—Among hardy herbaceous plants this Japanese Windflower is now one of the best. It stands out most conspicuously in borders, with its tall branching stems of fine large salver-shaped blooms and big vine-like foliage, which sets them off to advantage. There are two varieties of this fine *Anemone*, the one being rose-red and the other paler; and there is also a white, which is a very beautiful kind, having a conspicuous disc surrounded with bright golden anthers, which make it look like some gem richly set, and render the flower very choice in appearance. For cutting to mingle with single scarlet Dahlias, *Anemone japonica alba* is quite unique, and should be largely grown for this purpose, as the two associate well, and have a remarkably fine and telling appearance. The way to get fine plants is to trench or deeply stir the ground where they are to be planted, working in, when doing so, a good dressing of rotted manure, that the roots may ramify freely and have plenty to feed on. The right time to divide and transplant is just as the plants begin to move in spring; but except for the purpose of increase, they should never be disturbed, as the less they are interfered with, the finer and better they grow.—D.

**Pelargonium Duke of Wellington.**—I consider this to be one of the most effective zonals in cultivation; the trusses are when well developed quite out of the ordinary size, of a rich crimson and more

numerously produced than is generally the case with varieties bearing very large trusses. It is a good pot kind, and is very effective as a bedder. For the latter purpose I consider two-year-old plants to be superior to young ones, for the reason that in a month after setting them out they are a mass of blooms, and they seem to yield proportionally more flowers throughout the summer, young ones being so apt to run much to leaf towards the latter end of the season.—J. C. B.

#### ALONSOA INCISIFOLIA.

THIS pretty little herbaceous perennial is cultivated both out and indoors for the sake of its terminal spikes of scarlet flowers. Of the several species known in gardens this is by far the most attractive and useful, the bright colour of its flowers, their abundance on well-grown plants, and the length of time during which the plants continue to bloom being points in its favour as compared with the others. As a greenhouse or window plant it is, perhaps, of most value, though it thrives well and looks pretty if used for bedding in summer, lasting in flower till



*Alonsoa incisifolia* (flowers scarlet).

October. Seeds of it sown early in spring will yield a crop of young plants which, if properly managed, ought to flower in the following summer. They prefer a light loamy soil, plenty of water, a sunny position in a greenhouse or frame, and a little attention to the development of their shoots, frequent pinching out of the points being necessary for the production of shapely little specimens. As they become leggy or straggling after flowering awhile, it is best to cut them back and start afresh, treatment which will cause them to push into vigorous growth again, and to flower as freely as ever about five weeks after being cut back. *A. Warszewiczii* is a variety of the above, having rosy scarlet flowers. *A. myrtifolia* is a compact growing kind, with large deep orange flowers, which, however, are produced rather sparingly.

**Colchicums from seed.**—I saved a quantity of fine seed last autumn of *Colchicum speciosum* fertilised by pollen from the double white variety and sowed it in boxes as soon as ripe. Of course I do not expect it to germinate before spring, but two good practical gardeners recently told me that I need not expect it to germinate at all, as everyone fails in growing it. Now, it is manifest that when fresh, sound, and fertile seed refuses to grow, the treatment it receives must be at fault, as there is nothing in the nature of things why it should not, but quite the contrary. *Colchicum speciosum* is such a lovely flower and seeds so freely, that even if it only reproduced itself, not to talk of new varieties, it would be a great boon to many to know the successful treatment. I

much hope that my inquiry may elicit the desired information, and thus enable us to enrich our autumn gardens with wide breadths of this beautiful flower.—FREDERICK TYMONS, *Cloghran, Co. Dublin*.

#### NOTES FROM FRANCE.

**LILIPUTIAN PELARGONIUMS.**—This is the name given by a writer in the *Bulletin d'Arboriculture Belge* to a new race of zonals, and as a popular name for this new section will be almost a necessity, I see no reason why the above title should not be adopted in this country. Only three years ago this new race of Pelargoniums was created by the advent of the charming little Princess Stephanie, now pretty generally known in English gardens. Close on the heels of this rose coloured kind came one bearing blooms of a deep carmine, but not differing from it in other respects. The latest and most important addition to these dwarf Pelargoniums is Princess Clementine, which will in due course be distributed by Messrs. Pynaert Van Geert, of Ghent, Belgium. An excellent coloured plate of it is given in the *Moniteur d'Horticulture*, the flowers being double, of a fine crimson, trusses of good size, and foliage yellowish green, and apparently closely carpeting the ground. Undoubtedly this bright-flowered little Pelargonium will find plenty of admirers, and will possibly be much used in bedding arrangements, both on account of its brilliancy, extremely close dwarf growth, and the peculiar hue of the foliage. Other varieties differing only in the colour of the flowers one from the other are Comte de Flandre, bearing numerous trusses of double flowers of a delicate rose tinged with bright red, making a fine effect; Comtesse de Flandre, with tolerably large flower-heads, very double, and of a most striking rose-lilac, in colour unique, and a most charming variety; Comte de Hainaut, flowers very double, in large umbels, purple-rose in colour, even more dwarf than Comtesse de Flandre, a veritable gem; and Souvenir de Louis Van Houtte, with large heads of double flowers of a fine carmine-rose.

**STRAWBERRY BELLE DE MEAUX.**—From what has appeared concerning this variety in various French gardening journals it seems to be a step forward towards a much-to-be-desired race of large-fruited perpetual Strawberries. It is unlikely that the culture of the little alpine will ever be taken up in this country as in France, the fruit being too small for English taste; but when we get a large-berried kind having a true perpetual character, we shall undoubtedly witness a further extension of Strawberry culture in this country. Belle de Meaux is said to be a seedling from General Chanux, a large-fruited variety showing a marked disposition to fruit again in late summer and autumn, but whether it owes any of its parentage to the alpine, I have no means of knowing.

**PEACH CULTURE.**—A medal has just been decreed by the French National Horticultural Society to M. Bouniceau-Gesmon, of Charente, for his efforts to repair the losses to Vine growers occasioned by the Phylloxera, by means of replacing the Vines by Peach trees. It is stated that his efforts in this direction prove that the extension of Peach culture is quite practicable, as, according to a report furnished by members of the society, the plantations are thriving remarkably well. Everyone will be glad to know that there is a prospect of the ruined vineyards being profitably utilised again, although if many of them are planted with Peaches, growers of this fruit in England will have ever-increasing foreign importations to contend with, as a good



portion of the fruit thus grown will probably find its way to this country. A cultivator, writing on the same subject in the *Moniteur d'Horticulture*, warmly eulogises the Amsden, stating that in the open air ripe fruits of it were gathered from standard trees nearly a month earlier than the ripening time of other reputedly early kinds, the Amsden being ripe on July 20. I was not aware that this variety is so much in advance of other kinds as regards precocity, and it is possible that the grower who thus records his experience may be unacquainted with, or has never, tested such early ripening kinds as Beatrice and Early Rivers.

**NEW PEACHES.**—Aubinel is described in the *Bulletin d'Arboriculture* as being a curious kind, remarkable for the dwarfness of its habit. It does not exceed a height of 2 feet, and forms a regular head like an Acacia. The fruit is large, yellow, washed with red; flesh orange, and stated to be of good quality. M. Burvenich says that this Peach must not be confounded with the old Nain d'Orleans, which is nothing more than a monstrosity, and yields small fruit of no value. All who grow Peaches in pots should give this one a trial, as if it does not exceed the dimensions here given it can be grown in small houses. May Red is quite as remarkable, and probably a more important gain than Aubinel, for it is said to advance the Peach season quite a month; but surely the name is a misnomer, for it cannot be possible for a Peach to ripen in that month either in this country or in America, whence it takes its origin, although, according to M. Burvenich, the raiser marketed fruits of it in that month and long ere any other kinds were saleable. Allowing for a little exaggeration as regards precocity, it seems certain that this is the earliest Peach hitherto raised, and as it is stated to be the largest of the early varieties and of good quality and appearance, it behoves market growers to make note of it.

**PEAR MADAME HUTIN.**—This, raised by M. Leclerc, of Laval, is a seedling from the well-known Léon Leclerc de Laval, which it resembles in shape, but is a decided improvement as regards quality. M. Kort, gardener to M. Leclerc, and who has grown this from the time of its being raised, thus describes it: "Growth vigorous, very fertile, numerous branches of moderate length, becoming quickly covered with fruit buds; leaves large, of a fine green, borne on a long foot-stalk; habit close-growing, and fruit tolerably large; skin greenish yellow spotted with fawn colour, especially near the foot-stalk; flesh salmon-yellow, very fine, juicy, and nicely perfumed. Ripens in December and to the end of January."

**ELÆAGNUS EDULIS.**—In a note contributed to the *Journal d'Acclimatation* by M. Joseph Clarté, of Baccarat, Meurthe-et-Moselle, it is stated that the fruit of this Japanese shrub is of much value for preserving, making tarts, syrups, and brandy. The writer of the note in question says: "I would direct the attention of the society to the importance of cultivating this shrub, which is of proved hardiness, is exceptionally fruitful, and which I hope in the future will furnish, when sufficiently large plantations have been made of it—that is to say, when its culture shall have become an industry—fruit in sufficient quantity to furnish brandy of the finest quality equal to that made from Cherries. I have already, a year or two ago, sent you samples of preserve and of brandy, and if desired I will forward some more. I cannot supply seeds, but next spring I will do all I can to supply cuttings, which is the best way of increasing this plant, and which come to fruit in the third

year from striking. I will place all that I may have at the disposal of the society."

**IRON-STEMMED PINKS** (*Eillets à tige de fer*).—Are these grown in England? I ask this question because, with the exception of an illustrated notice which appeared in THE GARDEN a year or two ago, I have never seen them recommended. I am reminded of their existence by observing that a special prize was awarded to a collection of them exhibited by Messrs. Levêque et Fils, of Ivry, at the September Versailles Flower Show. As the great defect of Pinks is that the flowers are too heavy for the strength of the stems, a race of them which would have these latter sufficiently strong to keep the blooms off the ground without staking ought to receive the attention of all who may be interested in this useful family of hardy flowers.

**ANGRÆCUM (ACRANTHUS) LEONI.**—A plant of this is now in flower at the Paris Botanic Garden, being the first time it has bloomed in France. It is quite distinct from all other Orchids in general appearance, and attracted on this account much attention at the last flower show at Paris. It was imported not long since from the Cormorant Isles by M. Léon Humblot.

**CATAKIDZAMIA MACLEAYI.**—M. Chantin, of Paris, exhibited lately a fine specimen of this handsome Cycad, and which is said to be the largest and handsomest plant of it to be found in European gardens. JOHN CORNHILL.

*Byfleet.*

**Michaelmas Daisies.**—These are most effective in the flower garden in autumn. Their soft tints blend well with the brilliant colours of Sun-flowers, scarlet Lobelias, Gladioli, &c. It is better to have twelve or twenty of the best and most distinct varieties than to have a larger collection including inferior kinds. With a good selection, flowers may be had in succession from September until late in autumn. *A. longifolius* is one of the earliest and *A. cassibicus* the latest to blossom of any kinds I know. As cut flowers Michaelmas Daisies are most useful; they last long in water, and the tall white variety, *A. Harpur Crewe*, increases in beauty indoors. A vase of the silvery seed-vessels of wild Clematis and Aster amethystinus or the brighter blue *A. Archer-Hind* (one of the best of all these Asters), with a few sprays of scarlet Lobelia or Montbretia Pottsii, has a very pretty effect.—C. M. D.

**Pansy cuttings.**—Now is a good time to increase one's stock of Pansies by taking cuttings. The latter strike readily if inserted in sandy soil in a cold frame or a temporary frame made with some boards about 10 inches deep. On this place some old lights if nothing better can be spared; they will keep off snow and rain. Place on the bottom of the frame about 3 inches of spent Mushroom-bed manure or rough leaves; into this the plants will root, and when planted in their permanent quarters a good ball of soil to each plant can thus be secured. The best cuttings are those made from shoots springing from the base of the plants which have not bloomed; they are freely produced at this season of the year, and if taken off about 2 inches long and inserted firmly they will succeed. Water them to settle the soil firmly about them, put on the lights, keep them close during the day, and give a little air each night. Thus treated they will soon make roots, when the lights should be taken off so as to expose them to the air on all favourable occasions.—E. M.

**Trierytis hirta.**—"Delta" asks why this is so seldom seen. I never saw it anywhere but in my own garden, but that proves nothing, perhaps, save my own experience. I have three—*T. macropoda*, *T. nigra*, and *T. nigra grandiflora*. *Macropoda* bloomed with me in the early summer months; *nigra* is now (Oct. 11) just past its best; *grandiflora* is not yet open, and I fear though covered with buds that

it is too late for it to open them. The foliage of *macropoda* has long since died down and the plant is resting; *nigra* is still bright and green; of *grandiflora*, the tips of the leaves are just turning yellow. Of the merits of the last I can as yet say nothing, but the other two, although by no means showy flowers, are amongst the most curious and interesting that I know, and have never failed at once to attract the notice of true garden lovers. They are art gems for the enthusiast, not lay figures for the shop window.—W. WILKS, *Shirley Vicarage*.

## GARDEN FLORA.

### PLATE 514.

#### THE PODALYRIAS.\*

PODALYRIA is a genus of South African shrubs now-a-days unknown outside botanical collections, but which about forty years ago was represented in many gardens by several species. According to Aiton's "*Hortus Kewensis*" there were six species of Podalyria in cultivation at Kew at the beginning of this century, and we learn from the horticultural periodicals of that time that some of the species were commonly cultivated in large conservatories, where they were planted out, and formed large compact shrubs flowering freely every year. We have never met with the species represented in the accompanying plate except at Kew, where it is grown in the temperate house and the conservatory, and flowers annually. It is hardly necessary to speak of the plant as being beautiful; the plate is sufficient to show that; but a word may be said to recommend it for cultivation in greenhouses, as it grows fast and flowers freely under ordinary treatment, such, for instance, as is suitable for *Correas*. A mixture of loam and peat with plenty of sand is what this plant should be potted or planted in, and although good specimens may be grown in pots, the plants are happier and more floriferous, as a rule, when planted out in well-drained beds. They should be pruned back a little after flowering, and during winter they do not require any water at the roots if planted out, and only a little now and then when grown in pots. Cuttings do not strike freely; they should be formed of the short ripened shoots and planted in well-drained pots of sandy peat soil, placing a bell-glass over them, and keeping them in a temperature of about 65°. Autumn is the most favourable time for their propagation from cuttings. The name attached to the plant in the plate is what it is frequently known by in some Continental gardens, and we have therefore adopted it here; but we suspect that the correct name, according to botanical authorities, would be *P. styracifolia* var., or, as the latter is now referred to *P. calyptata*, this would be the proper name for the species represented here. Like many other garden plants, the names of the Podalyrias have got very much mixed; for instance, some of the plants figured in the early numbers of the *Botanical Magazine* as Podalyrias are species of *Baptisia* (t. 1177, 1099) or *Thermopsis* (t. 1389); *P. capensis* is *Virgilia capensis*, and *P. genistoides* is a true *Cyclopia*. With regard to the figure in the *Botanical Magazine* of *P. sericea*, we can only say that it represents a much less beautiful plant than is reproduced under that name here.

The plant here figured grows into a bush 5 feet high, with Olive-like leaves and axillary flowers, which are borne near the ends of the branches, forming a large bunch of rosy red pea-shaped blossoms; they are as fragrant as those of Sweet Peas, and are produced from

\* Drawn by Mrs. Rowan in Australia.





PODALYRIA SERICEA.







May to July. *Podalyria argentea* is a compact growing shrub about 2 feet high, with Box-like leaves, which are silky on both sides, and it bears in June white pea-like flowers in pairs upon a stalk  $1\frac{1}{2}$  inches long; the calyx is curiously inflated, and is covered with a rust-coloured tomentum. It is sometimes known as *P. biflora*. Cultivated by Loddiges in 1803. *P. buxifolia*.—The leaves of this are also Box-like, silky on the underside only, and the flowers are purple, large, and borne singly upon axillary stalks. They are produced on the upper part of the shoots, which are numerous and compact in habit, the height of the plant when full sized being about 6 feet. *P. hirsuta* has oval or oblong leaves, both sides covered with a thick layer of brown silky hairs and large purplish pea-shaped flowers; it forms a bush 3 feet or more high. The remarkable woolly or silky covering on the leaves gives this species an ornamental appearance when not in flower. *P. styracifolia*.—A variety of *P. calyptrata*, and a very handsome old plant. It is a stout grower, 6 feet high and branching freely, the leaves green or glaucous, slightly pubescent,  $1\frac{1}{2}$  inches long. The flowers are axillary on short stalks on the

brown tints are chiefly seen in varieties which, I suspect, have been produced in nurseries or gardens, and are evidently hybrids between eastern and western species.—J. M.

## INDOOR GARDEN.

### THE BLADDER-WORTS.

Two of the handsomest of these plants we cultivate in our stoves, treating them as we do Orchids, along with which they are found growing upon the trunks of large trees in moist forests in some of the West Indian Islands and in South America. They are *Utricularia montana*, a species with oblong tubers, which, along with the hair-like roots and tiny bladders, are quite white; long, strap-shaped, green leaves and drooping racemes of large white flowers, the broad flattened lips of which cause many gardeners to mistake them for Orchids. *U. Endresi* is the second species, and in all its characters, except flower-colour, it resembles *U. montana*, the purplish lilac of the flowers alone distinguishing it. A magnificent species

flowers of this latter much that is pretty and interesting to those who can see beauty and attractiveness in flowers less than *Cattleya gigas* or *Victoria regia*. These little carnivora float in stagnant water, and are said to be happiest in foul ditches. They have no roots, and are not attached to soil or anything else, being true floaters with hair-like leaves, upon which are numerous small inflated vesicles or bladders, hence the name Bladder-wort. The object of these organs was the subject of much study on the part of Darwin, the results obtained being given in his work on "Insectivorous Plants." According to this, the real use of the bladders is to capture small aquatic animals, and this they do on a large scale. How the animals are trapped, and what becomes of them, is detailed at great length, but always interesting, in the work above named. Lately, we have been told of the destruction by these tiny bladders of fishes' eggs, so that, taken altogether, these small herbs, like Pixie's rafts, with their little scapes of yellow Snapdragon-like flowers, are bloodthirsty enough, simple and innocent though they look. We have tried to grow the British species in bell-glasses and other small aquaria, but have never succeeded in keeping them long. As seen in the ponds of some parts of Yorkshire and Oxfordshire they have, however, a most luxuriant look, flowering freely during the autumn, and never failing to appear every spring in places where they have become established. B. W.



Native Bladder-wort (*Utricularia vulgaris*). Detached flowers magnified.

ends of the branches, and rosy red in colour, fragrant, and lasting. It requires to be well pruned after flowering, or it becomes leggy. Its pleasing flowers are produced early in the year. We saw a handsome specimen of it in fine flowering condition in the conservatory at Kew about two years ago. B. W.

**Winter colour of Conifers.**—From many years' observation I have remarked that a large proportion of species belonging to the genera *Thuja*, *Biota*, and *Cupressus*, although perfectly green during the summer months, generally assume more or less of a reddish brown tinge in autumn and winter, and return to their usual green colour during the spring months. Some of the varieties, such as the columnar *Biota orientalis* elegantissima and the globular *Thuja aurea*, are generally quite brown in winter, but during the spring months they assume the ordinary green tint, while in summer they take on a rich golden hue. Towards autumn the golden tint disappears, and is succeeded by the ordinary green colour of the original species, and finally they return to the brown, or winter tint. The cause of this remarkable anomaly I attribute to the want of sunshine in winter. The *Cupressineæ* tribe from the western hemisphere do not exhibit the same marked difference which is generally noticed in the eastern species; still in some instances a very slight brown or dull green tint is often observable. The higher

mentioned by Schomburgh in his "Notes on British Guiana"—where we learn he met with it in abundance on the recently explored Roraima Mountain—may possibly have found its way to England along with the plant treasures obtained and sent home during this last expedition under Mr. Im. Thurm. At all events, we may hope now soon to be in possession of this giant Bladder-wort. Like most of the kinds, it is aquatic, but instead of growing in ditches or ponds, as the others do, it is only to be found growing in the water which collects in the bottom of the leaves of a large *Tillandsia*, from which it sends out runners in all directions, Strawberry-like; some of them find their way to the water in the neighbouring *Tillandsias*, and thus the plant reproduces and extends itself. The leaves measure 3 inches across, and the flower-stem is 2 feet long, clothed with large purple flowers. The Rev. Charles Kingsley, who saw some of these plants in the West Indies, speaks of them in his book, "At Last," which should be in every garden library, because of its numerous and interesting accounts of the plants met with during Kingsley's travels in the West Indies. From these beautiful flowered epiphytes to our own little aquatic species of *Utricularia* is a long step, and yet there is in the curiously-formed, bright yellow

**Brightly-coloured Dracenas.**—To the list of *Dracenas* given by "S. D." in THE GARDEN (p. 310) allow me to add a few more both newer and brighter in colour than those mentioned by him. The first is *angustifolia*, a kind admirably suited either for table decoration or grown as a specimen. Its leaves, which are about 15 inches long and 1 inch broad, are dark green, richly marked with crimson and rose, narrowly margined with the same colour. *Angustata* is somewhat similar to *angustifolia*, but more erect in habit and wider in the leaf. *Salmonia* is rather an erect growing kind, with leaves from 10 inches to 12 inches long and 2 inches wide; they are brownish green brightly margined with salmon. One of the best is *bellula*, or *gemma*, as it is sometimes called. It has narrow drooping leaves undulated at the edges; the centre is bright green and the margin dark green and crimson. It is a very suitable sort for table decoration. *Elegantissima* is what its name denotes; it is somewhat similar to *nigro-rubra*, but of stronger growth and habit. The finest of the whole is *Lin-denii*, a kind with bold leaves, sometimes 3 feet long and beautifully striped with rich pale yellow on a bright green ground. *Massangeana* is somewhat similar to it, but its markings are not so distinct; it is rather more erect in habit and darker green in colour. Sir Wilfrid Lawson has a bold erect habit and leaves from 15 inches to 18 inches long, dark bronzy green in colour, richly marked with crimson, some being entirely of that colour, which gives the plant a striking appearance. *Bausei* is very dwarf in habit and bronze-green in colour, margined with deep crimson. *Goldiana* is the most distinct and beautiful *Dracena* yet introduced; it has broad ovate dark green leaves beautifully barred and mottled with silvery grey, their backs being purplish in tint. The foregoing are a few of the best at present in cultivation, but their numbers are continually being added to. *Dracenas* and *Crotons* deserve extensive culture, both being remarkable for the beauty of their leaves.—F. S. J.

**Ardisia crenulata.**—This is a very ornamental plant when clothed with its berries, which are about the size of those of the Holly, bright and coral-like, and borne in clusters at the ends of the various shoots, where they show off in pleasing contrast with the small dark green, shining, crenate leaves, and render the plants valuable for table decoration, a purpose for which their habit and general appearance make them specially suitable. Being a native of the West Indies



this *Ardisia* requires heat to raise it well, although it may be grown in a tolerable state of perfection and will stand in a much cooler temperature, especially during the summer, when it will set its flowers freely in any warm house, where the plants are less liable to scale and other insects so common to them when they are always kept in a stove. The way to get the best and neatest little specimens is to sow seed; for, though cuttings strike readily, they do not furnish such nice neat stems as seedlings, which run up straight and branch freely from base to summit, having most of the shoots quite laden with fruit. The berries may be sown almost at any time, and just as they are when gathered, as the pulpy covering soon rots away, and leaves the seed free to germinate; this it quickly does if sown in sharp sandy soil, and placed where it can have the advantage of a brisk bottom-heat to force the plants up. As soon as these are well out of the ground, the strongest should be picked out and potted singly in 3-inch pots, giving them peat and loam to grow in, which mixture, with a sprinkling of sand, suits them best, and enables them to form the most flowers. To give them a start when first potted, it is necessary to keep them a little close and extra warm for a time; but as soon as they show that they have taken hold of the soil, they should be placed on light shelves, up near the glass, to keep them from drawing, and make them stout and sturdy enough to stand erect without stakes. The next shift the plants receive ought to be into 6-inch pots, which are quite large enough for the first year, or, indeed, as long as they are kept, as they are of little value after the second season, on account of becoming bare and naked below, and if cut down they rarely do so well again as young seedlings. The usual time of flowering of the *Ardisia* is in June and July, when, as stated above, a warm greenhouse suits the plants, and if in light airy positions, they will there set plenty of berries.—D.

**Scented-leaved Pelargoniums.**—Lady Plymouth is one of the most useful of all the scented Pelargoniums. It grows freely, has a bushy compact habit and finely cut green and white leaves, which are beautifully scented. It is very valuable for either the flower garden in summer or the conservatory in winter, and for mixing with cut flowers it is at all times of the greatest value. For some months past we have been cutting shoots of it for this purpose, and although it is only recently that we have discovered its merits in this particular way, and during winter, we would not like in future to be without it.—J. MUIR.

**Rivina humilis.**—This is a good plant for table decoration, and one that may be had in fine condition at any time of the year by simply resting and cutting back a portion of the stock, while others are being grown on to get them into flower and berry. The appearance of the fruit of this plant is much like that of the Red Currant ; it is borne in long racemes much in the same way, and as these tapering bunches hang down gracefully beneath the branches, they look very ornamental and produce a striking effect. This Rivina looks best as a standard, and makes the finest specimens when raised from seeds, which germinate so readily, that many of them may frequently be seen coming up where they fall. There is, therefore, no difficulty in obtaining plenty of plants, which, to have nice stems, should be trained up straight, and kept clean and free from shoots by nipping out any that may show up from their sides. As soon as they reach the desired height, the plants should be stopped, and symmetrical heads formed in the same way by pinching the point out of any shoot that seems to be taking the lead. To grow Rivina humilis well it must have stove heat, and to get a good set the best way is to elevate the plants above others by standing them on inverted pots, so as to bring them near the glass and in full light, where they ripen up and colour their fruit. For late summer and autumn work Chillies are very telling, especially the kinds known as Prince and Princess of Wales ; these bear numerous pale yellow pods of an elegant shape, that hang down beneath the pendulous branches, and are very rich and tempting to look on. There is also another of a very different type called Little Gem, which becomes thickly clothed with small bright red berries, and

forms a pretty object for room decoration or the embellishment of dining tables and vases—purposes for which the others noticed above are likewise well suited. The last named looks best grown as a small bush, but the others are better adapted for standards, and may quickly be trained to that shape by treating them in the same way as the *Rivinas*. To get them early seed should be sown in February or March, and the plants grown on in a temperature ranging anywhere between 60° and 70° till June, when they will succeed well in a pit or frame if kept thin and fully exposed to the light, under which conditions they set their flowers freely, and colour their numerous pods. After the beauty of these is over they come in for culinary purposes, and the plants may then either be thrown away and young ones raised, or cut back and grown on again.—S. D.

**Tuberous Begonias at The Quinta.**—On visiting this beautiful place the other day I found a fine display of Begonias, all in 6-inch and 8-inch pots, occupying the whole of the front stage in the conservatory, some of the flowers measuring 5 inches in diameter, the petals being thick in texture, resembling that of morocco. Some, too, in the flower garden have succeeded admirably, and it is intended another season to plant more of them in place of carpet plants.—J. OLDFIELD, *Chirk Castle*.

**Dipladenias planted out.**—In a small stove, 15 feet by 13 feet, I have grown for some years Dipladenias. They are planted in a border and run up the roof of the house. This year they have been particularly good, and hundreds of blooms have been picked from them. I grow three varieties, one plant of each. Brearleyana bore 58 blooms, boliviensis 79, and amabilis 62. I had the blooms counted on the 10th inst.; several of those on Brearleyana measured 6 inches across. I frequently wonder these plants are not oftener grown than they are. — WILLIAM GULLICK, *Kelly Gardens, Liffon.*

**Cytisus filipes.**—This white-flowered Broom is very attractive when well flowered, especially if grafted on clear straight stems of the common Laburnum so as to form standards; so treated they grow quickly and soon make a head, while the thong-like branches depend therefrom in a graceful manner, and are studded throughout their length with pure white pea-shaped blossoms. It is indeed a plant different from the subjects usually employed for decorative purposes, and, though of undoubted merit, one seldom met with.—T.

## GARDEN IN THE HOUSE.

WREATHS FOR BRIDAL CAKES.

ONE of the latest innovations as regards the decorative uses of natural flowers is the employment of them in the ornamentation of bridal cakes, and I think it will be admitted that it is a fashion well deserving of perpetuation. On each occasion on which I have seen cakes so decorated they were for very grand weddings. There is, however, no reason why the custom should not become common. A bridal cake is generally the most conspicuous ornament on the breakfast table, and when this is properly decorated with a wreath of greenery and choice white flowers its effect is considerably enhanced. These cakes are very frequently of great size, some of them being not less than 2 feet through, probably a few even much larger, while they vary in depth, some being 8 in. deep and others rather less. They are usually iced over and decorated with white raised ornaments and fanciful devices, the centre being surmounted with an artificial vase of white flowers, with perhaps a few sprays of real Orange blossom. When the cake is decorated with natural flowers, it is still iced over and the top variously ornamented, but the centre is surmounted with a silver trumpet-shaped vase or a cornucopia, and this is filled with choice white flowers and Fern fronds. It will be readily understood that a wreath of white flowers and greenery made in the ordinary fashion would not answer for these triumphs of the pastry-cook, as they must necessarily be

both wide and flat ; a little contriving is, therefore, necessary in order to properly form such a wreath, as well as to affix it to the cake without having to handle the latter, and also in order to admit of its being readily removed at any time when thought desirable to adhere to the custom of cutting the cake at the breakfast table.

Not having had an opportunity of closely examining one of these professionally made wreaths, I had to invent a method of forming them, which I am pleased to say proved a decided success. In the first place the dimensions of the cake had to be procured from the maker, and the latter on the first occasion somewhat complicated matters by giving the exact depth and circumference of the cake before it was iced over, the result being a bad fit on the part of the wreath. The next proceeding was to cut a strip of cardboard exactly the length and depth to surround the cake, and from the ironmonger's we obtained a strip of quarter-inch mesh galvanised wire netting—nothing more suitable being procurable. This was loosely secured to the cardboard with a few wire fastenings, and then laid flat on a table, measuring in one instance a little over 6 feet in length. It was then faced over with leaves of *Spiræa japonica*, the stems being threaded in among the wire meshes; then followed the flowers, all pure white, with a light surfacing of fronds of Maiden-hair Fern. Lying flat on the table the flowers and greenery were not, nor ought not to be, very tightly clasped between the wire and cardboard, but directly it was formed into the circle round the cake it was held quite tightly and not a flower shifted out of place. It was an easy matter to fasten the two ends of the wire netting together, either by means of string or wire, and it was, as may readily be supposed, as easily loosened. Being self-supporting, there was no necessity to entirely remove it when the cake was cut, and in many instances the cake is not cut at all.

ONE WREATH that we made had a central ring of small Arums, the slight intervals between them being filled with wired bunches of white Azalea and single pips of Stephanotis, also wired, fringed on each side with spikes of *Spiræa japonica* and Lilies of the Valley. The flowers were disposed rather thickly, occupying nearly the whole width of the framework, and Maiden-hair Fern fronds intermingled gave the whole a most chaste appearance. On another occasion the groundwork consisted of ronds of *Adiantum tenerum*, and the principal flowers employed were Roman Hyacinths, Azaleas, Paper-white Narcissi, double white Primulas, and *Begonia semperflorens*. If the wreath had to be sent to a great distance or had to be formed several hours before it was wanted on the cake, it would be advisable to place a thin layer of damp green Moss between the cardboard and the wire network ; this would greatly preserve the flowers and greenery. This is unnecessary when it is made a short time before it is required, but even in this case it is a good plan to use plenty of flowers and Fern fronds, as they are certain to droop somewhat before the morning is over. If I had to pack a wreath intended for a large cake, I should make it in two or three lengths, and the ends being made rather full they could be easily and neatly joined together round the cake.

W. I. M.

**Portulacas for rockeries.**—It is sometimes difficult to find a suitable situation for *Portulacas*, particularly if the season is a wet one, as they are impatient of much rain. They bloom best where there is a moderate amount of rain and plenty of sun; light soil and a sloping bank suit them well. The



double varieties I think are more showy than the single ones. The position in which I have found them to do best is on rockwork in masses; thus situated we have had them this summer in grand condition; the position being sunny, they bloomed profusely, and their colours have been particularly brilliant. Being sheltered from cold winds during their early stages of growth, and having good soil and abundance of water when necessary, they made a charming display. The seed was sown in pans in peaty, sandy soil early in March and placed on a gentle hotbed. The pans were kept shaded till the seedlings appeared. If great care is not taken at this stage of their growth they are liable to damp off. When large enough to handle, prick them off into boxes or pans, or place two in a 3-inch pot, using sandy soil to which some peat and leaf soil has been added. A good place for them, at least for a time, is a vinery at "work," or on shelves near the glass in a Melon or Cucumber house. When well established remove them to cooler quarters till they are thoroughly hardened off. Towards the end of May they may be transferred to the positions assigned to them for the summer.—E. M.

## TREES AND SHRUBS.

### VARIETIES OF LAUREL.

AMONG the different forms of common Laurel the first place must be assigned to the variety called *rotundifolia*, a name, however, which is somewhat misleading, as the leaves are by no means round, but still rather broader in proportion to their length than those of the ordinary kind, from which it also differs in the whole plant being shorter and more sturdy in growth, of a deeper green tint, and, what is far more valuable than all, much hardier than the type. This latter character was well illustrated here in the severe winter of 1880-1881, in which, while common Laurels suffered severely, those of the *rotundifolia* variety escaped uninjured. Where small or medium-sized evergreen shrubs are in request for furnishing purposes in winter, either in pots or tubs for balconies and such-like places, or to assist in clothing what would be otherwise bare spots at that season, this Laurel is especially valuable, as it will strike root without difficulty in the open ground, and if pinched once or twice in its earlier stages, the young plants quickly form dwarf bushes that retain their deep green colour throughout the winter, and even if any perish from continual shifting, others are soon grown on to take their places. Another hardy variety is the Caucasian Laurel, which is sturdier in growth and has deeper green leaves of a thicker texture than those of the common kind. It is a good free-growing variety, and forms a dense bush of more regular outline than the common Laurel. A third that almost ranks in hardiness with the two just mentioned is the Colchic Laurel, a kind which differs widely from any of the others. While the branches of the common Laurel frequently elongate till they take a downward direction, owing to the weight of the foliage, in this variety that character is much less prominent; as a rule its branches are shorter and grow frequently almost horizontal, so that they are often disposed tier upon tier. The leaves are thinner in texture and of a paler hue, especially on the undersides, than those of the common Laurel, and in point of floriferousness it surpasses all others. So freely, indeed, are the blossoms produced, that, apart from any other consideration, it forms a handsome flowering shrub. Cuttings of this kind do not root so readily as those of the others, with the exception of the broad-leaved or Versailles Laurel, which, like the Colchic, is slow as regards the

formation of roots. The broad-leaved kind, a very fine variety, has bold, showy foliage of a deep green hue, but unfortunately it is tender; our plants of this kind suffered the most of any during severe winters, and by others the same effect was experienced. The above constitute the most valuable kinds from a planter's point of view, but there are still a few distinct forms interesting to the collector. In *camelliæfolia* the leaves on the uppermost shoots are of unusual substance, deep green and peculiarly curled, in the way of those of some *Camellias*. This forms a low, dense bush, as does also the next, viz., *parvifolia*, a little miserable-looking shrub as a rule, and even when healthy of a stunted and by no means attractive appearance. In *angustifolia* the leaves are narrow and seldom healthy-looking. Both the gold and silver variegated-leaved forms are very pretty when young, especially if struck under glass, but



The Oval-leaved Laurel (*Cerasus Laurocerasus* var. *rotundifolia*).

when planted out under the same conditions as other shrubs, as a rule the variegated portion is soon overmastered by the green. T.

**Cryptomeria elegans.**—Amongst the many ornamental Conifers from Japan this is, without exception, one of the most beautiful. It is perfectly hardy, and a free grower in almost any kind of soil and situation. The colour of its dense foliage during summer is pale green, changing in autumn to a purplish tint, and in winter it becomes a bright reddish brown, particularly so when planted in light soils or dry porous subsoils, and in airy, sunny situations; but in heavy soils and damp, sunless positions it does not exhibit its brilliant and lovely colour to such perfection. It sustains no injury from the keenest frosts or the withering influence of prevailing winds; and a deluge of rain only tends to brighten rather than tarnish its colour. When young, it has a tendency to make duplicate leaders and to throw out straggling lateral branches; these should be pinched back, and, of course, in the case of the leaders, the most central and best formed shoot should be left, so as to form the main stem; it is also inclined to produce suckers, which should, of course, be cut off close into the stem at the base, and if the collar or neck of the plants be kept quite clear of branches for about

6 inches or even more above the ground, it will be an advantage. One more good quality this *Cryptomeria* possesses, and that is, it is not difficult to transplant, for under any ordinary treatment it rarely fails to grow after being moved. It is said to reach a height of 100 feet in Japan, where it was discovered in 1863 by Mr. John Gould Veitch. As an ornamental tree, when judiciously placed, it presents a striking contrast to plants of almost any other colour, and, like other Conifers of a decided outline, in which lies much of their beauty, it must have an abundance of room in which to develop its natural shape. It may be added that it is easily increased by means of cuttings.—G.

### CONIFERS AT REDLEAF.

**ABIES GRANDIS.**—We have a tree of this fine Silver Fir—the subject of the interesting article in THE GARDEN of Oct. 3. It is 42 feet high, and has produced cones for the first time this year. They were produced on the second and third tiers of branches from the top of the tree, and have all of them been blown off in scales during the last fortnight; and although I have examined a large number of the seeds, I have not found one perfect yet, owing no doubt to the absence of male flowers, which, as far as I could observe, were not present. The scales and seed-vessels are like those illustrated in THE GARDEN (p. 349), but a trifle larger; while the bractes, instead of being somewhat forked, are level, and have a sharp point in the centre. This is the only difference of any importance I can observe in our tree and the description given by Mr. Webster. The tree was moved to its present position some thirteen years ago, and is now a very handsome specimen, and has made some splendid growths during the last ten years, being now 42 feet high and 67 feet in circumference 5 feet from the ground.

**PICEA NOBILIS** (Picea we have this named here) has also produced some fine cones this year, which are very handsome, but soon drop after they are ripe. Here again there are no perfect seeds, which seems a pity, as one would like to try and get plants from home-grown seed. Our tree is about 20 feet high and growing in stiff clay; it is perfectly healthy, but not making such rapid growth as *P. grandis*, which is on rather lighter soil and in a warmer position. The Conifer here this season have most of them produced more cones than usual. *Pinus macrocarpa* has several very fine cones upon it. This Pine for several years past has had one or two on it every year, but not so many as this. An *Araucaria imbricata*, about 12 feet high, has produced a cone (female) which I have not observed before on such a young tree. W. HOLAH.

Redleaf.

**The white Poplar.**—The beauty of Poplars in autumn is far more noteworthy when numbers of trees are taken together than in any single specimen. Sometimes the Mountain Ash fades to a splendid red colour and is very beautiful in itself, but it is very uncertain, and one specimen will do so while another will not. The white Poplar, however, is the most beautiful common tree in this respect when half of its leaves are turned a fine yellow, while the rest show all manner of weaker tones of yellow till you come to the youngest, which have their own inimitable pearly sheen in the most bewitching contrast with the yellow in the middle of the tree; the great openness of the foliage in this tree also allows a full light to pass through it to show it up to the best advantage.—D.

**The common Barberry** (*Berberis vulgaris*).—This berry-bearing shrub is now in its full autumn beauty, and, common as it is, few shrubs can equal it at this time of the year, with its long pendulous shoots hung with berries like strings of the brightest coral. Among the many beautiful hardy shrubs for the lawn or shrubberies, or indeed in any part of the garden where it can be seen standing clear from other things, this will always hold its own. It being a shrub that will thrive in almost any position, it does not require that special preparation of the soil that some things do. We have them grown in various positions here, and all do well and make handsome bushes. Growing on the rocks, by the side of a rock path, and overhanging the green turf, or among other



shrubs, both evergreen and deciduous, it would be hard to say which are admired most. The long shoots with the berries are very useful for indoor decorations and are used in various ways, lasting a long time after being cut. The birds are very fond of the berries, and soon clear them off, often long before the cold weather comes. This year they have been very sparing of them so far.—W. H., *Kent*.

#### THE ALGERIAN SILVER FIR.

THIS very handsome Fir is a native of Algeria, from whence seeds were sent to France 20 years ago by M. de Lannoy (a French government official), under the name of *Abies numidica*, a title which is still retained in some books, viz., Veitch's "Manual of the Coniferae," and R. Smith and Co.'s "Fir Tribe." The species had, however, been previously discovered and named *Abies baborensis* by M. Cosson, who has done so much in working out the flora of this part of Africa. At Kew, in the pinetum, there are some handsome young trees, and the contrast between them and similar specimens—in regard to age and size—of *A. Pinsapo* is very marked. Indeed, so different are these two Firs in appearance, that it is difficult to understand how Parlatores, the monographer of the Coniferae in De Candolle's "Prodromus," ever concluded that the two were identical. *A. baborensis* has peculiarly bright and pleasing green foliage, totally unlike the more rigid-pointed glaucous leaves of *A. Pinsapo*. The few words of description given in R. Smith and Co.'s "Fir Tribe" happily hit off the general aspect of this very handsome and interesting Fir—"A species in appearance between *P. Pinsapo* and *P. pectinata*." Perhaps it may be as well to mention here that the generic names, *Picea* and *Abies*, have long been confounded; owing to a series of blunders the true *Piceas* were long—and are sometimes still—called *Abies*, and, on the other hand, those Firs which should have been classed as *Abies* were spoken of and written about as *Piceas*. This point has been cleared up in Veitch's Manual and elsewhere, but in the work just mentioned a wrong specific name is given to the Algerian Silver Fir, viz., *Abies numidica*. At Kew, in a poor gravelly soil where the common Silver Fir, *A. pectinata*, refuses to grow, the subject of this paragraph succeeds thoroughly. It is perfectly hardy, and is well worth the attention of planters. In its native mountains it grows on almost bare limestone rocks, on slopes so abrupt that it is difficult to obtain a foothold, and at altitudes where in certain spots the snow is almost permanent. N.

**Abies orientalis.**—Apart from its economic value, this Spruce, among those of moderate growth, somewhat resembles the Norway Spruce (*A. excelsa*), but differs from that species in several respects. Besides its smaller growth, the branchlets of *A. orien-*

*talis* are very slender, but are borne so thickly that the habit of the tree is unusually dense. These numerous branchlets, too, are more drooping than those of the Norway Spruce, thereby presenting a much more ornamental appearance. The colour of the foliage is a beautiful bright green, surpassing in this respect any other Spruce. It is a native of the Caucasus, and is quite hardy in this country. Its growth is too slow, and is usually insufficient in girth to be of any value for its timber; therefore it will only be grown for ornament.—W.

**The Mountain Ash.**—This tree, when laden with bright scarlet berries, forms a most conspicuous

it. Its effect is most striking when planted in groups —S. W. J.

#### NORDMANN'S SILVER FIR.

(*ABIES NORDMANNIANA*.\*)

THIS Conifer is, without question, one of the most valuable for ornamental planting that has been introduced to this country, having proved itself more suitable for our climate than any other European or Asiatic Silver Fir. Introduced from the Crimea Mountains in 1845, it has been long enough with us to exhibit its true character, and in every respect it promises to fulfil the predictions set forth at the time of its introduction, not only as regards its use for ornamental planting, but for timber production.

As an ornamental tree, few other Conifers can compare with it for beauty of outline, stately growth, and the rich contrast produced in summer by the dark glossy green of the old and the light, fresh, lively tints of its young foliage. Whether planted on the lawn or mixed with other trees, it never fails to produce the most pleasing effects. *A. Nordmanniana*, happily, does not suffer from unseasonable spring frosts or cold winds, as it does not put out its tender new growths until summer has commenced and is, moreover, capable of accommodating itself to a great variety of soils and situations. However, like its allied species, it prefers a strong, deep loam not liable to dry up in summer, or retain too much moisture in winter, although it rarely suffers even during our hardest winters. In places where the subsoil consists of hard gravel or stiff argillaceous clay, this Fir makes decidedly less progress; therefore, under such circumstances it is necessary to have the ground thoroughly prepared by trenching and breaking up the hard crust, particularly if the trees are planted for ornament.

The tree flowers early in April. The male flowers, or catkins, can easily be distinguished from the females, or cones, as the former are generally pendent, in groups or clusters, whereas the latter are generally solitary, produced upon the upper surface, and always stand erect. Old trees of the Silver Firs generally produce an abundance of male flowers, and when the pollen is ripe, the

\* DESCRIPTION.—Tree conical in outline in a young state; branches horizontal, stiff, and densely clothed with leaves arranged in two rows, mostly curved upwards, and of a rich dark green above and glaucous beneath; cones from 5 inches to 6 inches in length, somewhat ovoid, by about 2½ inches in diameter, and borne erect on the upper surfaces of the branches; scales of cones large, heart-shaped at base and closely arranged one over the other; seeds usually ripe about September. Grows from 100 feet to 125 feet in height in the forests of its native countries—the Crimea and Caucasus.



A young Nordmann's Fir (*Abies Nordmanniana*).

object in the landscape; indeed, its merits in this respect are not sufficiently appreciated, for it is oftener found growing in out-of-the-way situations than as an ornamental tree. Like the Barberry, it delights in a somewhat strong soil and damp climate. Under such conditions its graceful foliage is luxuriant and green, and the berries large and bright. I remember being very much struck with the effect produced by the trees when in fruit, on one occasion when travelling between Hawick and Carlisle, in the valley of the Esk. In that locality it seems to be at home, for I do not recollect seeing such large and brightly-coloured berries as I saw on these trees, though, no doubt, it would do as well in any similar situation. The wood is also valuable for many purposes, so that there is some inducement to plant



least shake by the wind causes the catkins to throw off a cloud of yellow dust, with which the cones are fertilised without artificial assistance. Young trees, however, are rather tardy in producing male flowers, and often yield cones for a number of years before a male cone is seen.

After some twenty years' growth, *A. Nordmanniana* begins to produce cones, and generally continues doing so for a number of years previous to bearing male flowers. Even then the flowers are few in number, and the pollen so scarce, that the cones are not capable of being fertilised without artificial assistance. Under these circumstances it is important, in order to procure good seed and economise the pollen, to fertilise the female cones artificially.

The cones ripen in autumn, and should then be collected, for if left upon the tree after maturity, the scales and seeds fall off and are lost. Each cone contains about 160 seeds. It is a good plan to allow the seeds to remain in the cones during winter and until they are wanted for sowing. The seeds may be sown during April, in well-pulverised sandy soil, in small beds prepared in the manner usual for Conifer seeds. When the seedlings in the beds begin to touch each other, they should be planted out in nursery lines about a foot apart, so as to avoid injury from overcrowding. Should any of the plants produce a plurality of leading shoots, the strongest and best should be retained for the leader, and the top buds of the others be pinched off by the finger and thumb. When large specimen plants are wanted, they should be again transplanted, as soon as the side branches begin to touch each other. In lifting the plants, the ground around them should be carefully loosened with a fork, that the plants may be lifted without tearing them from the ground.

In preparing ground where *A. Nordmanniana* is to remain permanently, thorough draining should be done first of all. The ground should lie after the draining for at least six months, to give it time to dry and purify itself before the trees are planted. The pits for the plants should be opened in autumn, and of such a size that the roots can be extended to their full length. The surface should be laid on one side of the pit and the clean earth on the other, and left during winter to the pulverising effects of frost. When planting the trees, the surface, cut with a spade, is put into pits first and a little soil along with it; part of the soil is then gathered to the centre of the pit in a conical form; the plant is then placed in the centre, and the roots carefully spread out to their full length; the soil is put into the pit and made firm by tramping, which finishes the operation. The trees thrive best when planted a little above the level of the ground. By this mode of treat-

ment the tree will not be injured by removal, but will soon establish itself, and make rapid progress.

**Ornamental Willows.**—Independently of the very considerable profit attending the growth of tree Willows, some of them are of great beauty. The white Willow (*Salix alba*), when not mutilated by pollarding, has both a beautiful and cheerful appearance in a landscape. The golden Willow (*S. aurea*) is also very handsome, and worthy of more notice than it has yet received, both as an ornamental and a timber tree. The Carter or red-twigged mountain Willow (*S. Carteriana*), with its dark red branches and spiry head, is also eminently calculated to add

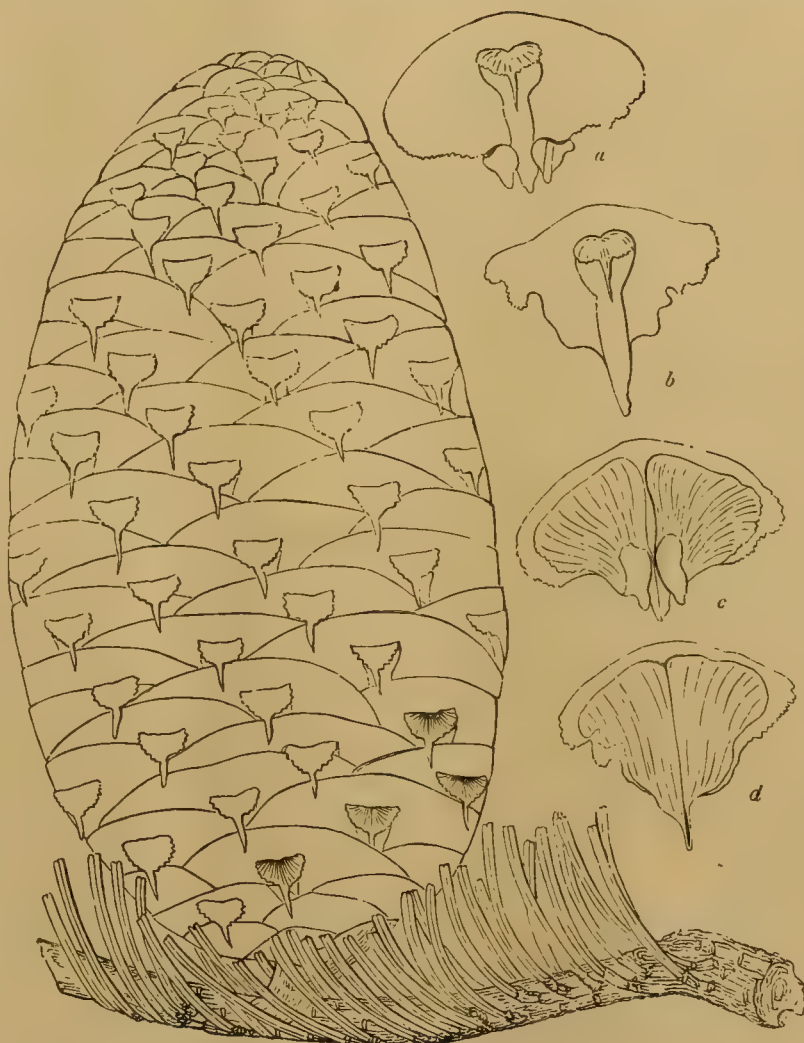
posed situations. It is also worthy of remark that the dense smoke of a town does not materially interfere with the healthy growth of Willows. To grow Willows in perfection they must be planted closely, say 3 feet apart each way, or 4840 to the acre would not be too close for the first eight or nine years, when they might be thinned out to half that number. The thinnings would find a ready sale for general purposes.—W. S.

### SOME GOOD HOLLIES.

HOLLIES rank amongst the very cream of Evergreens. Even in places where the woods and plantations seem full of them they never seem monotonous or wearisome, like Laurels. Perhaps this may arise in some measure from the fact that in winter the crop of scarlet fruit which many of them carry is so effective. Some soils are better adapted for Hollies than others, but if well cultivated and manured before planting, the Holly succeeds fairly well everywhere, except in the Fens, or in land liable to be flooded. For hedges, the common kind (*Ilex Aquifolium*) is best, and, though slow-growing at first, when well established they grow freely. Small bushy plants set from 12 inches to 18 inches apart in a single row soon make a good hedge with care and attention.

In selecting the plants, have them as near as possible of one size and strength, so that all may come on together. Trench up the site and manure it if necessary. If the ground is at all damp, elevate the site of the hedge, but if well drained, there is no occasion for it. May has generally been considered to be the best time for transplanting Hollies, but I have had them do quite as well moved early in October, and I have seen them moved successfully in July. A good deal depends upon the character of the soil, and something upon when the work is performed. No matter when moved, a good mulch of manure over the roots will be found beneficial. As regards pruning, Hollies of all kinds may have their symmetry improved by a little knife-work early in summer just as

the new growth is breaking out. This is simply to mend Nature, not to mar it by doing too much. Hedges must, after the first few years, be cut annually, but I was thinking more about specimens standing about the grounds than hedges, and which will if rightly managed continue to improve in appearance for many years. The following short list contains the names of a few good varieties specially adapted for single specimens on the lawn, or to break up monotonous clumps of heavy dumpish shrubs by dropping one in here and there. The best green varieties are *Ilex Aquifolium* (common Holly), *I. A. contorta*, *I. scotica*, and *I. Hodginsi*. Vigorous growers with large handsome foliage are *I. latifolia* and *I. madeirensis*. Variegated kinds should consist of Milkmaid, silver and



Cone of *Abies Nordmanniana* and cone scales; *a* and *c* upper scales, showing outer and inner surfaces; *b* and *d* lower scales (all natural size).

beauty to our woodlands. The Royal Willow (*S. regalis*), although not attaining to the size of some of the other tree Willows, is one of the most silvery trees that we have, and although it was introduced in the last century, it is hardly yet known to cultivators. *S. Basfordiana* and *S. sanguinea*, two comparatively lately introduced varieties, are amongst the most beautiful deciduous trees we now possess. They are spiry-topped, and their manner of growth is similar to the well-known Bedford Willow, *S. Russelliana*. The branches of *S. Basfordiana* are of a brilliant orange colour, tipped with red, and the branches of *S. sanguinea* are of a clear vermilion colour, and in winter, when divested of foliage, with the sun shining upon them, are as bright as if varnished. They are both vigorous growers, and attain a large size, *S. Basfordiana* being the more vigorous grower of the two. They are perfectly hardy and will thrive in very ex-



gold—the best of the latter being Gold Queen, variegated Hedgehog, and Silver Queen.

E. HOBDAV.

### TREES IN AUTUMN.

I WOULD like to say a word or two in support of the views of "C. R. S. D." (p. 370), as, although one does not question the beauty of the trees mentioned in the paper which gave rise to this note, it seems a little remarkable that so much store should be set by trees which are not readily available, whilst there are numerous subjects quite as lovely which may be had almost for the trouble of lifting and planting. Where every hedgerow is clothed in such tints as Turner would have found it impossible to reproduce, it is somewhat of an invidious task to particularise which are the most lovely. Taking the district from which I write, however, amongst our common deciduous trees, for a beauty peculiar to itself, *Viburnum Opulus* bears off the palm, but closely followed by the common field Maple. In "C. R. S. D.'s" remarks he referred to the Cockspur Thorn, and rightly too. A specimen I know is now very beautiful, and as it has a somewhat remarkable and regularly formed head, the effect is very striking; nevertheless, what is true of this is true of many other Thorns if in a less degree, and amongst them there are few more beautiful or varied than the common Hawthorn. Of the Oaks, Elms, and other timber trees I do not now speak, as they would be too ponderous subjects for grouping in the ordinary sense, but the same cannot be said of the common Elder. This, although often looked upon as an intruder, has many points of beauty about it, as not only in the autumn when its leaves assume so many hues is it an attractive object, but also in the summer. Indeed, speaking of our commonest trees and shrubs generally, it seems to one as though the effect was never so grand as it is, and promises to be this autumn. This idea probably arises from the fact that we have not the splendour of previous years to set side by side with this; but, be it as it may, one can cordially endorse what "C. R. S. D." remarks that we have "many beauties of our own," and we may safely go further than this and say that if careful attention was given to the selection and planting of our commonest hedgerow trees, we need not seek the trees of other countries to produce grand autumn effects. D. J. Y.

**Varieties of Pernettya.**—The coloured plate of these pretty shrubs given some time ago has doubtless served to call the attention of a great many to the diversity of colour in the berries, and the high ornamental qualities of all the varieties of *Pernettya mucronata*. They may be said to be all-year-round plants, for the neat bushy habit, dark green glossy leaves, and coloured stems all combine to form at any season an attractive feature, while about May the small white flowers are borne in great profusion. It is to the fruits, however, that we look for the greatest display, and when freely produced, as they are wont to be, a bed or mass of these plants is a sight to be remembered. Though the ordinary form of *Pernettya mucronata* has reddish berries, there is a wide range of colour in the newer varieties—viz., from white to dark crimson-purple, through all the intermediate shades. As a rule, the berries are not much sought after by birds, yet occasionally they will play havoc amongst them, certainly not in consequence of severe weather, while others of the same kind at but a little distance away will be left untouched. This attack often lasts but a day or two, and if then arrested the berries probably will be touched no more throughout the season. Small sprays of *Pernettyas* with their different coloured fruits are very pretty when cut and placed in water. In this way they will last in beauty a long time, a remark that also applies to them when in the flowering stage.—ALPHA.

### ABIES CEPHALONICA.

A BRANCH of this handsome Conifer has been sent to us by Mr. Gaiger, from Burton Closes, Bakewell, which is the finest fruited we have ever seen. It is a flat and spreading branch, about 3 feet long by 2 feet broad, and carries no fewer than two dozen cones, which stand erect and which are clustered on the twigs. A tree so richly furnished with cones must present a fine appearance. Accompanying the branch are the following remarks from Mr. Gaiger. He says, "The tree from which the branch sent was taken is growing in the pinetum at Burton Closes, the residence of Mr. S. Taylor Whitehead. It is planted in an elevated position, well sheltered from the north and east, but fully exposed to west and south-west winds, which at times sweep over "The Peak" district with great fury. It is perfectly hardy, having withstood the severe frosts of 1878, 1879, and 1880 without injury. In its young state it is, however, liable to be injured occasionally by late spring frosts. The soil in which the tree is growing is a heavy loam resting on beds of limestone boulders. This tree has fruited more or less for these past fifteen years, but this season the quantity of cones is far greater than in any previous year. Its height is about 48 feet, and the girth of the stem at the ground 4 feet 8 inches. It was planted about forty years since during the time Burton Closes was the property of Mr. John Allcard."

## SOCIETIES.

### ROYAL HORTICULTURAL.

THE hardy fruit show was the great attraction at this meeting, and a more representative exhibition of Apples and Pears could not be wished. Plants and flowers were not abundant, and not many novelties were submitted to the committee. The following seven plants were awarded first-class certificates:—

**BEGONIA JOHN HEAL.**—A remarkable hybrid variety obtained by intercrossing *B. socotrana* with one of the small flowers of tuberous-rooted varieties such as *B. Davisi*. The progeny is a most beautiful plant, extremely graceful and bright in colour. The flowers are about 1½ inches across, produced several together in a raceme-like cluster on slender stems which droop prettily. The colour is a rich deep rosy pink, brighter than *socotrana* itself. The flowers possess the desirable property of decaying on the plant after being for some weeks expanded, not falling off while in a fresh state, as in most of the tuberous race. The foliage is apparently intermediate between the two parents, the growth is free, and the plant shown seemed to be extremely floriferous. The whole plant is only about a foot high. A bright future may be predicted for this novelty, which no doubt is the forerunner of an entirely new race of *Begonias*, and the fact that it is an autumn-bloomer greatly enhances its value. Exhibited by the raisers, Messrs. J. Veitch and Sons, Royal Exotic Nursery, Chelsea.

**EUCHARIS MASTERSI.**—A newly-introduced species and a most valuable addition to stove bulbous plants. It is different from the other four *Eucharises*, but most resembles *E. Sanderiana*, inasmuch as the flowers have the corona almost if not entirely suppressed, as in that species. In growth it most resembles *E. candida*, and the flowers are about the same size as those of that species. They are of snowy whiteness, and are produced in clusters from five to nine on each stem; two or more are expanded at one time. The plant shown by Mr. W. Bull, of Chelsea, was a fine specimen, showing a floriferous tendency, as the plant was crowded with spikes. It is, without question, one of the best new plants of the year.

**PELARGONIUM ALICE CROUSSE.**—A new double-flowered variety, apparently an improvement on others of a similar stamp. It is a free-flowerer, the trusses are good, as are the flowers, and the colour, a

vivid magenta, is highly attractive. Shown by Mr. Bealby, of Roehampton, who has brought into notice so many of these Continental varieties of *Pelargoniums*.

**RHODODENDRON MINERVA.**—A splendid new seedling greenhouse variety, different in colour from the rest of the race. The trusses are massive and the individual flowers are large, well formed, and of a delicate apricot-yellow, with red stamens protruding from the tube. Shown by the raisers, Messrs. J. Veitch & Sons.

**BEGONIA EARL OF BESSBOROUGH.**—A tuberous variety, with single flowers borne profusely on dwarf, sturdy plants. The colour is most pleasing, being of yolk-of-egg yellow, flushed with indian red—a singular, yet pretty, combination of hues. Its habit of growth, extreme floriferousness, together with its colour, render it a most distinct plant well worthy of the award bestowed upon it by the committee. Exhibited by Messrs. Cannell & Sons, Swanley.

**CHRYSANTHEMUM L'ÎLE DES PLAISIRS.**—A Japanese variety of French origin. The flowers are of moderate size, the florets slender, of a bright cinnamon-red on the upper side, and a bright golden yellow on the under surfaces. As the florets twist in all directions, the two colours intermix in a beautiful way, and give the flower a bright and pleasing appearance. Exhibited by Mr. Forbes, gardener at Dover House, Roehampton.

**RHODODENDRON APOLLO.**—Another new seedling of the Japanese race. The colour is a soft orange-gerise, and in every respect a superior variety. Shown by the raisers, Messrs. Veitch.

Messrs. Veitch showed a group of plants comprising *Amasonia punicea*, the new stove plant recently introduced, and which was recently figured in *THE GARDEN*; *Babingtonia camphorosma*, a pretty little Australian shrub, with Heath-like foliage and wreaths of small white flowers; and a magnificent specimen of *Callicarpa purpurea*, having drooping branches crowned with clusters of bright purple berries. The exhibitors were awarded a cultural commendation for this plant. A group of greenhouse *Rhododendrons* was shown also by Messrs. Veitch. There were about a score of varieties shown, some unnamed seedlings, and the whole group exemplified in a striking way the wonderful strides which this firm has made in the improvement of this valuable class of greenhouse shrubs. The group included, besides those certificated and the seedlings, the following named varieties: *Queen Victoria*, salmon-red; *Maiden's Blush*, soft pink-blush; *Princess Frederica*, salmon, flushed with yellow; *Duchess of Connaught*, bright crimson-red; *Princess Alexandra*, the best white sort yet raised; *Princess Royal*, soft pink, one of the earliest raised; *Cardinale*, remarkable for its brilliant red colour; *Princess Christian*, one of the finest yellows; *Crown Princess of Germany*, yellow, flushed with pink.

Mr. Bull exhibited a choice group of new and rare plants, which included besides the *Eucharis Mastersi* certificated a finely-flowered specimen of *Oncidium tigrinum*; *Alocasia Reginæ*, a noble species with showy foliage; *Lælia autumnalis atrovirens*, *Cypripedium Spicerianum*, and a few new *Chrysanthemums*, among them being *Roi des Précoques*, a Japanese sort of a deep buff red; *Fleur d'Été*, also Japanese; and *La Bien Aimée*, a pretty pom-pom variety.

Mr. Hill showed from Lord Rothschild's garden at Tring Park a flowering specimen of the beautiful *Vanda Hookeri*, bearing three flower-spikes with four expanded flowers. It was admired by everyone. Dr. Duke, Thè Glen, Lewisham, showed a finely-flowered plant of *Barkeria Lindleyana* var. *Centeræ*, recently figured in *THE GARDEN*. The plant bore four spikes, and its condition indicated skilful culture. *Cattleya speciosissima* was shown by Mr. Smee, of Wallington. Mr. Crawshaw, of Rosefield, Sevenoaks, showed *Odontoglossum odoratum leucochilum*, but which appeared to be *O. constrictum*. A fine specimen of *Oncidium tigrinum* was shown by Mr. Heims from Mr. Philbrick's garden at Bickley. It bore about half-a-dozen branched spikes crowned with glowing yellow flowers, which shed their delightful Violet-like fragrance around. A cultural commendation was worthily awarded to the grower.



Messrs. Cannell, of Swanley, made a bright display of florists' flowers, including Pelargoniums, Begonias, and other flowers. The Pelargoniums comprised a selection of good kinds for winter flowering; among them were Lady Chesterfield, Kentish Fire, Swanley Gem, H. Cannell, New Guinea, Queen of the Belgians, Mrs. Robertson, Edith Little, Ajax, W. H. Swainstead, W. G. Gumbleton, and Cyclope. These are all zonal varieties, and first-rate in every respect.

Messrs. Hooper sent from their Twickenham nursery the following seedling Tree Carnations, all of which are high-class sorts: Jean Naturelle, large bloom, marbled with pink; M<sup>me</sup>. Morel, flaked pale pink; Dr. Raymond, deep crimson, like the old Clove. Mr. J. Hudson, of Gunnersbury House Gardens, showed *Ixora Morsei*, a very fine sort with large bright-coloured trusses of flowers. He also showed for comparison *I. coccinea* superba and Prince of Orange. Mr. M. Young, of Milford Nurseries, Godalming, sent the new "Milford dwarf Ivy" named *Hedera Helix minima*. It is as small in foliage as the conglomerata variety, but the growth is erect. It is a very pretty plant and will, no doubt, become popular.

Mr. Forbes, Dover House, Roehampton, showed four new Chrysanthemums, all of the Japanese race. They were Brise du Matin, a beautiful pink-flowered sort; l'Île des Plaisirs, certificated; Margot, pale pink, delicately flushed with white; and M. Mousallic, of a rich deep crimson-red. Mr. Stevens, St. John's Nurseries, Putney, showed the pretty white Pompon Chrysanthemum Early White Perfection, one of the most desirable of the early-flowering race. Mr. C. Herrin, Chalfont Park, showed some nice specimens of *Celosia*, representing a first-rate strain.

Some beautiful blooms of Chrysanthemum Elaine were shown by Mr. Sadler, gardener at Oakham Place, Leigham Court Road, Streatham. The dozen flowers shown were as fine as could be seen anywhere or at any time. The same exhibitor sent also grand blooms of other Japanese Chrysanthemums, such as Peter the Great, Margot, Flamme de Punch, Comte de Germiny, and Mons. Farin.

One of the chief attractions of the show was a magnificent collection of Gladioli from Mr. Campbell, of Cove Gardens, Gourock, who has of late years become a prominent grower and exhibitor of these grand autumn flowers. His collections invariably excite admiration on account of the fine development of the spikes and the rich colouring that his locality produces. These northern blooms are all the more welcome, inasmuch as they come chiefly when the Messrs. Kelway's Gladioli are past. On such a dull and cheerless day as last Tuesday was, the sight of this splendid collection was greatly appreciated. The collection included no fewer than fourteen dozen spikes in about fifty varieties, and these represented the cream of Gladioli. For this display Mr. Campbell was deservedly awarded the highest class medal of the day—a silver-gilt Banksian.

Mr. Ware again had a remarkable display of autumn, consisting for the most part of early-flowering Chrysanthemums, in about eighteen varieties, all very useful for cutting purposes out-of-doors. Some of the best are La Vierge, Mrs. Cullingford, White St. Crouts, Albion, and Fred Pélé. A collection of Michaelmas Daisies was also shown, a few of the best being *A. multiflorus*, *A. ericoides*, *A. Novæ-Angliæ* ruber, and *A. hybridus nanus*. Some fine flowers of the new yellow Cactus Dahlia Mrs. Hawkins were shown, also flowering plants of *Lilium neilgherense*. A few autumn-flowering bulbs, such as *Nerine venusta*, *Nerine amabilis* (new), *Colchicum autumnale*, *C. speciosum*, and *C. speciosum rubrum* (a much superior variety with dark red flowers), *C. autumnale fl.-pl.*, *C. autumnale albo-plenum*, *Crocus speciosus* made up an attractive and interesting display.

A large and exceedingly well-grown collection of Ferns and fine-foliaged plants was shown by Mr. May, a well-known market grower at Edmonton. All the plants were small, but were the perfection of health. The Crotons and other coloured-leaved plants were much admired for the rich colours of

their foliage. The crested variety of *Pteris serrulata* and the tasselled *Nephrolepis furcans* were shown admirably, and these seem to be specially adapted for the market grower's purpose. A silver medal was appropriately awarded to the exhibitor.

**Fruit and vegetables.**—First-class certificates were awarded to—

APPLE SEPTEMBER BEAUTY, a dessert Apple of medium size, roundish, and high coloured, and of excellent quality, as may be imagined, or it would not have been certificated. It was shown by Mr. Laxton, Girtford, Bedford.

CHOU DE GILBERT, a new kind of Cabbage or Sprout, of pale yellow colour, and delicious when cooked. Exhibited by Mr. R. Gilbert, Burghley.

There were a good number of other exhibits submitted to the committee, the chief being the following: Some grand examples of Black Alicante Grape were shown by Mr. Tate's gardener, Mr. Howe, Park-hill, Streatham. There were three bunches shown, the aggregate weight of which was 18½ lbs., the average of each bunch being 4 lbs. They were simply perfect in every way, large berried and beautifully finished; such fine examples were a credit to Mr. Howe, and the committee appropriately accorded him a cultural commendation. Mr. Gilbert, of Burghley, showed a new green-fleshed Melon named Her Ladyship's Favourite. The fruit is round, of large size, and beautifully netted; the flesh is thick, succulent, juicy, and of delicious flavour, notwithstanding the lateness of the season. The committee thought highly of it, but express a desire to see fruits of it again under more favourable circumstances. In the height of the season with plenty of sun and heat we can imagine how delicious this new Melon would be, seeing that it is now of superlative merit. Mr. Wallis, of Keele Hall, sent a fine bunch of white Tokay Grape with foliage for comparison with Foster's Seedling, respecting which there has been some discussion of late. Mr. Herrin, Chalfont Park, again showed his new Raspberry, Late Prolific, in full fruit, and a new Grape, Chalfont Black, the result of intercrossing Madresfield Court and Abercainey's Seedling. An American Pear named St. Michael's was shown by Mr. Morgan's gardener (Mr. Forbes), Dover House, Roehampton, but the fruits were over-ripe to judge of the quality. Mr. Roffey, of Croydon, sent samples of a Cucumber he calls Roffey's Improved Telegraph. A noble fruit of Charlotte Rothschild Pine-apple was shown by Mr. Pettigrew, of Cardiff Castle gardens. It was one of the largest we have seen, and a cultural commendation was accorded to the exhibitor. Messrs. Veitch showed fruit of their new Apple Prince Bismarck, which was certificated at the Crystal Palace last week. The committee thought highly of it, but desired to see fruits from out-of-door trees. Mr. Gilbert showed samples of a new Tomato called Burghley Champion. It is a handsome sort, and no doubt excellent in other respects. Mr. Marriott, of Boston, Lincolnshire, showed a dish of Laxton's Evolution Pea, remarkable for being so late. It is a fine Pea and said to be first-rate in quality. Mr. Divers, of Wierton, showed a good collection of fruits, including late Peaches, Salway being very fine, Wyedale and Reine Claude de Bayay Plums and Figs. Messrs. Rivers, Sawbridgeworth, sent samples of Salway Peach and Golden Eagle, the latter a fine handsome fruit not unlike Salway, but more highly coloured. They also had a dish of Grand Duke Plum, a fine late black sort.

#### Fruits.

The remarkable display of Apples and Pears which was seen on this occasion somewhat took us back to the Apple congress at Chiswick in 1883, and made us look forward to the Pear congress of the coming week. Probably very many of the samples of the latter fruit shown on this occasion will figure at Chiswick on Wednesday next.

APPLES came first in the schedule, and whilst without doubt the finest samples were found in the smaller classes, no small amount of interest attached to the collections of 100 kinds shown by nurserymen, of which there were five, and wherein Mr. Bunyard, of Maidstone, reversed his position at the Crystal

Palace last week, by placing his then competitors, Messrs. Lane, of St. Mary's Cray, second. Mr. Bunyard set his interesting and finely-coloured collection up with much taste. He had fine samples, as also did the other competitors, Messrs. Paul and Sons taking third place with a very meritorious collection. The amateurs' collections were represented by five lots also, Mr. S. Ford, of Leonardslee, Horsham, having in his much beautiful colour, although in this collection and those of Messrs. Powell and Waterman size was not very prominent. The collection of twelve kitchen kinds brought only four lots, one exhibitor, who had capital samples, having staged only nine dishes. Mr. C. Ross, of Welford Park gardens, is a veteran Apple cultivator, and his collection well merited the first place. In this class were good Tower of Glamis, Mère de Ménage, Annie Elizabeth, Lord Derby, and Peck's Pleasant. The tug of war really was found in the smaller class for six kinds, in which Mr. Miller, of Margate, was first, with grand samples, Mr. Rutland, of Goodwood, and Mr. C. Ross taking the other prizes. Here there were really grand samples of Peasgood's Nonsuch, Emperor Alexander, Annie Elizabeth, Waltham Abbey Seedling, Kentish Fillbasket, Blenheim Pippin, Mère de Ménage, Frogmore Prolific, Tower of Glamis, and Lord Derby. Turning to dessert kinds, Mr. Rutland was first with some capital samples, especially of the old Nancy Apple, Melon Apple, Adams' Pearmain, Blenheim Pippin, and Brownlee's Russet, while Mr. Miller had richly coloured Fearn's Pippin (good), Cornish Aromatic, and Scarlet Pearmain. In the class for six dessert kinds, Mr. W. Jacob, of Petworth, put up a beautiful lot of fruits, Lady Sudeley coming out with rich colour, also did the Nancy, which seems to be a peculiar Sussex kind; Incomparable, a pretty, round, rich coloured sort; Ribston, King, Cox's Orange Pippin, Cornish Aromatic, and Blenheim Pippin were also well shown; there were twelve lots in the class.

OF SINGLE DISH CLASSES there were 14; Blenheim Orange came first, represented by fine samples, the best, a grand lot, coming from Mr. Rutland. Then there were no less than sixteen lots of Cox's Orange Pippin, the best, a wonderfully fine and coloured sample from Mr. Bunyard, having been grown under glass. Ribston Pippin was represented by eleven dishes, Mr. Folkes, of Hemel Hempstead, having the finest of this favourite old kind, and there were fifteen dishes of that not less favoured King of the Pippins, including some very handsome samples from Mr. Bunyard, though there were some rather larger, if more angular. Mr. Richards astonished many with his fine samples of Dumelow's Seedling, so richly coloured and closed in the eyes, but they could not be gainsaid. Messrs. W. & E. Wells, of Hounslow, had the finest ordinary sample as usually known. There were ten lots of that kind, and but six of that highly coloured kitchen variety, Mère de Ménage, the best of which as usual came from Mr. Ross, and full of colour. Then there were ten lots of the class for Golden Noble or Waltham Abbey Seedling, the judging in which was very unsatisfactory, as really superb examples of Waltham Abbey were ignored for the smaller, but prettier Golden Noble, Mr. Bunyard having some as yellow as Oranges. We hope these two good kinds will not again be linked together, as all Apple growers now know which are which. The delicious old Cockle Pippin brought seven dishes, and there were nine lots of Court Pendu Plat. Next came four dishes of that huge kind Warner's King, Mr. Bunyard again having the best. Alfriston came out indifferently with but five dishes, Mr. Neighbour, of Bickley Park, having the finest, whilst there were but three dishes of Gloria Mundi, Mr. Rutland having grand samples. Then came that wondrously handsome Apple, Peasgood's Nonsuch, in grand form, Mr. Miller coming first with superb fruits, Mr. Roupell also having beautiful samples. There were nine dishes of these and seven of Lane's Prince Albert, a handsome thinskin Apple, but wondrously productive.

PEARS.—The first place in the class for fifty kinds, open to trade growers, was taken by Mr. Thomas, of Sittingbourne, whose fine samples, especially of Louise Bonne, showed excellent colour. Besides this collection Mr. Thomas had placed quite a big heap of Pitmaston Duchesse d'Angoulême, really monster



fruits, showing what Kentish soil can do in the way of Pear production as well as of Apples. Those famous growers, Messrs. Rivers, of Sawbridgeworth, and Bunyard, of Maidstone, came second and third with fine samples. In this class we noted Beurré Clairgeau, King Edward, Beurré Diel, Beurré Bachelier, Doyenné Boussoch, Durandeau, Pitmaston Duchess, Marie Louise, Glou Morceau, Doyenné du Comice, and Beurré Benoist, all uncommonly fine, although it is but fair to say that many of these do not comprise the highest quality. In a corresponding class for amateur or private gardeners, Mr. Roberts, of Gunnersbury Park, who had set up his collection with much taste, came first; Messrs. Hoare, Beckenham, and A. H. Smee, Wallington Grange, followed. Here, also, the finest examples were those above-named. There were five collections here. Coming to the class for twelve kinds, we found really fine samples in all the dishes, Mr. Allan, of Gunton Park, showing that he can grow grand Pears as well as other garden products. His twelve dishes comprised Maréchal de la Cour, Pitmaston Duchess, Glou Morceau, Beurré Diel, Doyenné du Comice, Beurré Clairgeau, Marie Louise, Marie Louise d'Ucle, Beurré Hardy, Louise Bonne, Winter Nelis, and Fondante d'Automne. The other collections comprised similar kinds, and there were seven lots altogether. In the class for six dishes, however, there were no less than sixteen collections, and generally samples very fine. Mr. Allan was again a worthy first, his lot consisting of Maréchal de la Cour, Pitmaston Duchess, Doyenné du Comice, Fondante d'Automne, Jersey Gratiola, and Marie Louise d'Ucle. In other collections were fine Brockworth Park and Van Mons Léon Leclerc. Stewing Pears brought nine lots, Mr. Rutland having huge samples of Uvedale's St. Germain, Gros Calebasse, and King Edward. Single dishes in some fifteen sorts brought interesting competitions, because in these cases there could be no doubt as to correct nomenclature. The first class was that for Doyenné du Comice, a delicious kind when ripe, and was represented by seven lots, Mr. Allan having the finest. Then of Beurré Superfin there were twelve lots, the first, and very handsome fruit too, coming from Mr. Bunyard. Mr. Burnett, of The Deepdene, also had some superb fruits. Maréchal de la Cour brought but four dishes, Mr. Allan having grand samples, whilst not less than thirteen dishes were staged of that favourite Pear Marie Louise, the best a pretty clean sample coming from Lady Fletcher's gardener, Mr. R. Smith, Yalding. Mr. Powell, of Powderham Castle gardens, had fine, but less handsome samples. There were also thirteen dishes of that grand winter Pear Glou Morceau, Mr. Ross having the finest samples; and of Beurré Rance there were twelve dishes; then of Beurré Benoist, evidently a moderately cultivated kind, there was but one dish, a good sample from Mr. Rutland; whilst Mr. Thomas had the solitary sample of Urbaniste. On the other hand, Beurré Diel was represented by not less than thirteen dishes, mostly fine samples. That less showy Pear Winter Nelis brought but eight dishes; whilst the large and handsome Pitmaston Duchess was shown only by three growers, Mr. Thomas having wonderful fruits; then came Beurré Bachelier with only three dishes, the same of Fondante d'Automne, and but four lots of Passe Colman; whilst of that beautiful kind Louise Bonne of Jersey there were sixteen dishes, Mr. Thomas having some most richly coloured samples.

The trade collections of Apples and Pears were extensive, and must have comprised several hundreds of dishes; indeed, Messrs. Veitch and Sons, and Messrs. Cheal and Sons, of Crawley, each showed some 200 dishes; Messrs. W. Paul and Sons, Waltham Cross, some 150 of Pears besides a great collection of Apples. Messrs. Paul and Sons, Cheshunt, in addition to showing in the 100-dish Apple class, also had a very large collection, as also had Messrs. C. Lee and Sons, of Hammersmith. Messrs. Veitch's samples generally were very fine, whilst Messrs. Cheal's fruits showed much rich colour. These collections required a long study rather than the passing hurried notice we can now offer.

#### Vegetables.

Messrs. Sutton & Sons', of Reading, offer of liberal prizes for collections of eight kinds of vegetables brought no less than eight competitors, and the

samples were throughout remarkably good. Specially handsome were the new Intermediate Carrots in Messrs. Haines', Meads', and Pope's collections, absolutely so beautiful as to be perfect. Autumn Giant Cauliflowers, rich coloured Perfection and Trophy Tomatoes, good Snowdrop and Schoolmaster Potatoes, Rousham Park Onions, all very fine samples; Exhibition Brussels Sprouts, perhaps a trifle too large, and good red and white Celeries comprised the chief features of these collections, for which no less than five prizes were awarded.

A full list of awards will be found in our advertisement columns.

**Scottish Horticultural Association.**—At this, the seventh ordinary meeting of this association, Dr. Macfarlane, of the Royal Botanic Garden, Edinburgh, gave a paper on "Nepenthes," in which he drew attention to the history, general structure, affinities, microscopic structure, and physiological action, species, and cultivation of this curious class of plants. He stated that about forty species are known, of which about twenty have been introduced during the last thirty years. He pointed out the arrangement by which insects are caught in the pitchers and digested, and drew attention to the very remarkable peculiarities in the species which have been introduced, as well as in those that are still known only in the form of dried specimens. A discussion followed, during which the chairman, Mr. Lindsay, stated that the first seedling Nepenthes raised in Scotland was reared by Mr. Kelly, of Messrs. Dicksons and Sons' Nursery, Edinburgh, about forty years ago. Mr. Burbidge, of Trinity College Botanic Garden, Dublin, gave the result of some of his observations in Borneo, the principal habitat of Pitcher plants. Various exhibits of new varieties of fruits and flowers were shown, as well as fruit of the Aberia caffra, ripened at La Mortola, Italy, and likely to be a serviceable half-hardy fruit, suitable for cultivation in Peach houses in this country. This fruit is from Africa, and belongs to the Order Bixaceæ. In size and shape it resembles a Green Gage Plum, being of a soft yellow colour, and of agreeable flavour when eaten with plenty of sugar. The specimens exhibited came from Mr. Hanbury, in whose garden at La Mortola it recently fruited for the first time in Europe.

**5407.—Law respecting fences.**—In answer to "Delta" (p. 363), I may state that some years back I was troubled by a neighbour's sheep turned out on a common straying and getting over and through my fence into a field of Mangold Wurtzel. I consequently had them pounded. The neighbour paid a certain amount into court and summonsed me. The magistrate sitting at Lambeth Police Court gave the case in my favour, and stated that I was only bound to keep my fences sufficiently good to keep my own stock in, but not to keep other people's stock out.—M. D.

—The contention of "Delta's" neighbour is wrong, as it is clearly the duty of the individual who owns animals to keep them on the land which he occupies. If he fails to do this, an action would lie against him for damages by trespass. One does not like to recommend a course which would be sure to engender discord, but as the law is commonly laid down, "Delta" would be quite within his right to impound the animals found straggling upon his property. If he did this, however, the responsibility of finding food and proper shelter until they were claimed and expense and damage paid would be upon him.—D. JOY.

—"Delta" and his neighbour should make up the fences between them before the sheep are put on the grass, and then if the sheep enter the ground, "Delta" can proceed against him for trespass and damages, as it is his business to keep them in his fields.—BELFAST.

—No person is bound to fence against his neighbour unless the obligation is thrown upon him by an inclosure or other award, or by some covenant or agreement of himself or a former owner. The fence is practically to prevent your own cattle, &c., straying and thus being liable to be impounded, but for this you may throw down your fence, unless under an obligation as above stated, and if your neighbour's cattle or sheep stray, they may be impounded.—E. A. NICHOLSON, *Leves.*

**Rosemary and Lavender.**—No matter how small or how large a garden may be, these two small shrubs never seem out of place in it. In large gardens they may be formed into considerable masses with good effect, and in cottage gardens they may be represented by single plants. Immense bushes of Rosemary are occasionally met with in cottage gardens. I saw one the other day 7 feet or 8 feet in height and as much in diameter, and very effective it was, much more so than many things of greater pretensions. In spring, when in flower (and it flowers early), few plants are superior to a good bush of Rosemary. Lavender is not quite so hardy; old plants of it often suffer in severe winters. The best way of meeting this difficulty is always to have some young plants coming on. Cuttings of both Rosemary and Lavender will root if planted now in a shady border; nearly every cutting will strike if put in under a hand-light or in a frame.—E. HORDAY.

#### LATE NOTES.

**Fruiting standard Peaches (Rydal).**—Fruits from standard Peaches out-of-doors in this country are not common, and, as they never ripen, are not edible.

**Diseased Grapes (R. H.).**—We cannot tell what ails your Grapes. They do not appear to be mildewed. We fancy your house must be too cold or damp. If not, then the cause of the mischief must be sought for in the border.

**Fungi (B. B. H. B.).**—The fungus is the young or egg state of *Phallus impudicus*, a common and very offensive-smelling fungus in plantations. The root-like spawn or mycelium referred to by you is a common character in this species.—W. G. S.

—(J. S.).—The fungi sent were smashed to atoms and all the numbers off. The large example was, perhaps, *Agaricus grammopodius*; the rotten brown one, one of the smaller puffballs. It is useless for correspondents to send fungi for naming unless each example is perfect; it is not possible to name little bits of fungi. Each example should be wrapped separately in a small piece of newspaper and numbered.—W. G. S.

**Spotted Carnation leaves (W. M. H.).**—The spots are caused by a fungus named *Helmintosporium echinulatum*. In its earlier stages this brown mould grows beneath the cuticle of the leaf, and is consequently beyond the reach of remedial agents. Species of *Helmintosporium* have been very common this year.—W. G. S.

**Azalea-destroying grub (T. F. Burbidge).**—The caterpillar which you send is that of the scoloped Hazel moth (*Odontopera bidentata*), a very common insect. The caterpillar feeds on various plants, and when full grown buries itself in the earth and becomes a chrysalis. These caterpillars are not at all easy to find, as they generally feed at night, remaining motionless during the day in an almost erect attitude, exactly resembling a dead twig. Hand-picking is the best means of getting rid of them.—G. S. S.

**Vine excrescences (W. Forrester).**—Your Vines are very unhealthy, but the woody excrescences on the piece of one of the shoots which you send are the result rather than the cause of the unhealthy condition. I could find no insects on them but one solitary mite. I cannot see that you have proved my last reply, that "The Vine leaf excrescences do no harm," to be incorrect. The Vine is unhealthy, but that is no proof that the leaves are in fault. Probably there is something wrong with the roots; have they been allowed to get too dry? The piece of shoot which you forward is covered with a minute fungus, but I should hardly think it was the cause of the mischief.—G. S. S.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—J. E.—1, *Polystichum angulare* Henleyæ; 2, *Polystichum angulare proliferum*; 3, *Laetia Filix-mas furcans*; 4, *Polystichum angulare cristatum*.—N. H. P.—Without fertile frond it is not easy to identify with certainty, but a very close examination and comparison with your fronds (barren) and the barren ones of *Allosorus crispus* leaves no doubt as to their being the same thing, although the latter is essentially a Scotch Fern.—H. Elliott.—Cannot name from seeds and leaves only.—E. F. C.—*Rubus fruticosus corylifolius*.—H. R.—1, *Serratula alpina*; 2, *Erigeron strigosus*; 3, *Dracopis amplexicaulis*; 4, cannot name.—D. J. J. Co.—Wild Service, *Pyrus torminalis*.—C. M. O. *Clethra alnifolia*.—C. D.—The *Ægilops* or *Valonia* Oak is very wrongly named; specimens are simply common Turkey Oak (*Quercus Cerris*).—J. H. K.—1, *Kennedyia Marryattiana*; 2, cannot name; 3, *Kleinia repens*; 4, *Aloe variegata*.

**Names of fruits.**—T. E. F.—1, Queen Caroline; 2, Yorkshire Beauty; 4, Yorkshire Greening; others not recognised.—F. C. P.—1 and 3, Beurré Diel; 2, Easter Beurré; 4, Beurré Bosc.—J. Tubbs.—Peach is Late Admirable; Pear, Vicar of Winkfield; large round Apple, Golden Noble; other, Lord Suffield.—Anon.—Mother Apple.—H. Stemp.—1, Flower of Kent; 2, Queen Caroline; 3, Lord Suffield; 4, Lord Derby.—E. M. P.—1, Hollanbury Pippin; 2, Scarlet Nonpareil; 3, Celini; 4, probably Duck's-bill, but not good specimens; 5, not known.—B. B.—Beauty of Kent.—A. P., *Hants*.—1, Beurré d'Amanlis; 2, Marie Louise; 3, large Apple is Beauty of Kent; other not recognised.—Other senders of fruit to name will be answered next week.



## WOODS & FORESTS.

### NOTES FOR THE PLANTING SEASON.

Now that the planting season is at hand, the question may be asked, What shall we plant in order to give the quickest and best return for the capital expended? The Larch, without question, will head the list, as it will not only grow to a useful size on a great variety of soils and situations—in fact, from the sea-coast up to the highest limit of tree-growth on mountains. It is also put to a greater variety of purposes than any other tree, and finds a ready market at all stages of growth, from small thinnings up to the larger size of scantlings for boat-building and a variety of other purposes where strength and durability are requisite. In short, the fact is, we cannot have too much Larch. Other kinds of trees are sometimes rather difficult to get rid of at anything like remunerative prices, but not so the Larch, the price of which may fluctuate, but, on the whole, I have never found any difficulty in selling it at fairly good prices, even when other classes of timber were seldom sought after at any price.

Although Larch only attains its full development and a sound, healthy condition on soil of a loose, open, friable texture, yet the tree can be grown for utility and profit on a great variety of soils, and should the soil only be capable of producing trees suitable for telegraph poles, purlins for country houses, ladder poles, posts and rails for fencing, and mining timber of various sizes, all of which give an impulse to demand, I have found it pay better even when grown under adverse circumstances as regards soil than any other tree in the same period of time.

**TREES FOR DIFFERENT SOILS.**—The Larch, however, is not to be relied upon as a crop by itself, and in planting a tract of moorland ground that contains a variety of soils, it is advisable to plant a mixture, so that should the former fail there will still be a crop left upon the ground, by which means there will be no risk of having the whole or any part of the ground to replant should such failure occur. Such a mixture should be regulated in a great measure by the class and texture of the soil—that is to say, Ash should be planted on good sound loam, in rather a sheltered situation; Oak upon stiff plastic clay; Alder upon damp boggy ground; Beech upon siliceous soils; Birch upon high, rocky, exposed situations, where the soil is thin and poor in texture, as well as damp peaty soils that cannot be well drained. Sallow and Poplar may likewise be planted upon the latter class of soil; Elm upon good sound loam of average depth; Sycamore on a great variety of soils if well prepared, including boggy ground thoroughly drained; Silver Fir on good sound loam well mixed with organic matter. Scotch Fir, Austrian Pine, and the common Spruce are all adapted for hill planting on exposed situations, as well as deep peat bog. On the latter class of soil they pump up the moisture and prepare the bog for the Larch, and upon the exposed situations they are invaluable in the way of affording shade and shelter to the Larch from cold cutting winds in spring, as well as the protection which they afford from late spring frosts, and the burning heat of the sun after a frosty night when the foliage is bursting from the buds.

**SELECTING STOCK FOR PLANTING.**—Much will depend upon the selection of properly prepared healthy plants and the way in which they have been handled at the time of planting whether the plantation will prove

a failure or a success. Larch in particular should be thoroughly examined in the nursery previous to making a purchase, in order to make sure that they are not infested with the Coccus insect, and that the constitution of the plants are not impaired from any cause whatever, such as using inferior half-ripened seed that has been collected in autumn, which produces a weakly, stunted progeny. Good plants may be known by the clean, clear, transparent colour of the bark upon the stem, as well as by the healthy appearance of the previous year's growth. On the other hand, inferior diseased plants may be known by a weak stunted growth, the bark on the stems being of a dull blackish colour, and on removing and cutting it up with a knife it will be found to be riddled by small holes, which contain resinous matter, and as this is the first stage of the so-called Larch disease, they should be committed to the flames at once. It is also a matter of importance in the selection of plants to choose such as are well furnished with roots, and this holds good in respect of hardwoods as well as Firs. When planting ground with Firs on high exposed situations, I have always found the best results by using two years' seedling plants one year transplanted into nursery lines previous to being removed to the forest. Such plants should be grown in an open, exposed situation and allowed plenty of space in the lines to encourage the formation of stout stocky plants. Plants that have been grown in sheltered situations, and that are of a slender drawn-up character, should be avoided for exposed ground, although, at the same time, I have planted such with success on moderately sheltered ground at a lower elevation.

J. B. WEBSTER.

### REMOVING TIMBER.

I DO not think that three-fourths of the value of timber being absorbed in the carriage to the place where it has to be used either extreme or unusual, as has been stated, at least at present prices, for while the price of timber has gone down from 50 to 100 per cent., the price of haulage has not subsided at the same rate. There is being delivered at the principal stations round here at present a large quantity of timber at 1s. per foot from the merchant, who bought it at about 4d. per foot. The cost of haulage in the first instance from the wood to one of the Great Northern stations would be about 3d. per foot, and the delivery of it to customers at stations further on would cost 4d. more, thus leaving 1d. per foot for the purchaser. The consumer would have to pay from 1½d. to 2d. per foot to fetch it from the station, thus bringing the cost of carriage up to 9d. or thereabouts per foot. Our Spruce here cannot be delivered to the consumer for less than 3d. per foot, and the price we get for it is 2d. in the wood. Examples of this kind can be furnished in plenty. Your correspondent's remarks last week about tenants hauling timber and often giving the work up in disgust for want of skill and proper appliances are not quite correct. In the north of England, at least, or wherever I am acquainted, indeed, the practice of employing tenants in such work is almost universal, and a very good plan it is, and about the only practicable plan, and for the following reasons: First, few or no timber leaders can find constant work in hauling timber, because timber is not always being felled, and restrictions are placed upon buyers against taking the teams into the woods except in frosty weather if it be winter, or in dry weather if it be summer. The repair of roads cut up by the wheels under

heavy loads of timber is a heavy item on all estates, and in all sales of timber by contract good roads are stipulated for by the buyer. Very well, as a rule a properly equipped timber hauler will have six horses and two four-wheeled cuts or carriages, as they are called. These horses must be kept, and so must experienced men to go with them, and if they are not found work of some kind between the timber-leading times, they "eat their heads off," as the saying goes; hence the need of combining the timber leader with the farmer. Purchasers of our timber do the best they can for themselves, but in our own case our timber leader, who has been at it all his life and his father before him, rents a moderate-sized farm as well, and keeps six horses available for timber hauling when wanted. We have a kind of sliding scale as to terms, and the arrangement has always worked satisfactorily. A better trained lot of horses and men for the purpose it would be difficult to find. Situated in this way, the removal of the timber is one of the things that gives the forester very little anxiety or trouble. He knows beforehand what any lot of timber will cost to haul to its destination, and in valuing the cost of haulage is always reckoned in. Very often purchasers have teams of their own, and in such cases, of course, haulage is allowed for. There is of course a limit to price at which horse power can be got for timber hauling, and at the present rate of wages here 10s. per horse is about the least sum it can be done for.

YORKSHIREMAN.

**Growing wood from stools.**—The principal objection to this plan of raising timber lies in the tendency the trees so grown have to form badly shaped butts, which are occasionally unsound as well. This, however, is not a sufficient drawback to nullify the value of the method, as undoubtedly a return is derivable from woods so formed sooner than would be the case by any other means. It is somewhat unfortunate in collecting information with regard to existing woods, which from internal evidence prove that they were so grown, that reliable data is seldom forthcoming as to the approximate date at which the present growth was left to mature. There is a wood of large area within a short distance from where I write almost entirely formed in this manner. The trees are as yet comparatively small, but there are few woods within my knowledge more productive. It is on the Oxford clay, and covers the north and western sides of a high knoll. The trees are principally Oak, with here and there an Ash and a fair proportion of underwood; this latter consists of Hazel, Willow, Maple, Hawthorn, Blackthorn, and other plants common to the soil. It is not, however, with this we have now to do, but with the stool-grown timber. It appears from tolerably reliable information, that in the earlier years of its growth the produce of the stools which, of course, then were poles, were sold for mining timber, but so far as my personal knowledge goes back, which is only some ten or a dozen years, the thinnings have been essentially timber. The practice has been the common one of cutting a certain proportion of underwood each season, and in the spring of thinning out the Oaks over this area to the necessary extent. We have had to do personally with the use of some of this Oak, and with the exception that it was somewhat crooked in the stem (the straightest and best being left to grow on), which necessitated using in short lengths to economise the wood, we do not wish for wood better in texture or for strength and durability. The agent tells me that for the present his thinnings to any extent will cease, as he has now gone through the entire wood, and so far as one can judge he has done so judiciously, as, taken on the whole, a finer lot of young Oaks one would not see in a day's journey. They now range from 20 feet to 30 feet or 35 feet apart, and are in vigorous health. Now and again one meets with a badly deformed trunk for a few feet from the ground, but to a cursory observer the majority would pass muster as well as if grown from nursery stock.—D. J. Y.



## THE COST OF TREE PLANTING.

WE have already stated, says a contemporary, the principal causes of failure and loss to woodland proprietors, and if the true causes of failure are known their antidote will prove the success. One chief cause of failure, as pointed out, is the waste and extravagance incurred in the original forming and planting operations; and when this is the case, all future efforts and the best possible management can never redeem what is lost. Only a few shillings per acre saved at the outset will make the investment a profitable one, and *vice versa*.

As a rule, ordinary hill and moorland planting with Pine and Fir, where the primary object is that of making it a profitable investment, should not cost much more than 40s. per acre, and, as the following statement will show, in many cases considerably less than that is sufficient to accomplish the work. Without going into details, it may be said in a sentence that the whole has proved a thorough and complete success up to this date, the plantation being a little over twenty years' growth. It is to be seen from the Highland Railway, in the district of Strathspey, in Scotland:—

FENCING.		£	s.	d.
5680 yds. of turf dyke, at 4½d. per yard		106	10	0
5680 do. 1 bar paling and posts, at 1d. per yard, for top of turf dyke		23	13	4
1112 do. 4 bar post and rail fence, at 7d. per yard		34	15	0
DRAINS.				
900 chains open drains, at 2s. 9d. per chain		123	15	0
PLANTS.				
1,100,000 one and two-year Scotch Fir, at 6s. per 1000		£330	0	0
450,000 one and two-year Scots Firs at 4s. p. 1000		90	0	0
220,000 one and two-year Larch, at 8s. per 1000		88	0	0
25,000 one and two-year Norway Spruce, at 10s. per 1000		12	10	0
		520	10	0
PLANTING.				
1,795,000 plants, at 3s. 9d. per 1000		336	11	3
Carriage of plants, at 3d. per 1000		22	8	9
Incidental expenses		9	16	8
		32	5	5
Total expenditure		£1178	0	0

Or thus, £1178 ÷ 550 = £2. 2s. 10d. nett cost per acre; and to the above may be added, say £20 per annum for keeping up fences and clearing drains, &c., till the plantation is about thirty years old, when the fences may be let down, and the plantation laid open for depasturing with sheep, which will bring in some revenue—small at first, but gradually increasing.

**The present season's growth.**—As a general rule forest and ornamental trees have made satisfactory progress this season, and as some species have continued to grow on till a later period than usual, we have heard it suggested that it was doubtful if some of them would ripen their seed. This is especially the case with some of the *Abies* and *Piceas*, but we think no fear may be entertained on those grounds. The greater number of the *Picea*, or Silver Fir tribe, ripen their seeds in early autumn, as well as some of the *Abies*, or Spruce tribe, so that the cultivator should examine his trees frequently at this season, and as soon as he finds them matured he should lose no time in having them collected, otherwise he may soon find his cones minus their seeds. In addition to the above named Conifers a great many of the Pines which contain five leaves in a sheath also ripen their cones in autumn, as well as some of the *Cupressus* tribe, so that they will all require to be looked after at this season, as some of their seeds are very valuable. In collecting these cones I have

always tried if possible to choose a fine, dry day for the purpose, and after being collected they are stored away in a dry airy place, without extracting the seeds, till wanted in spring. Care, however, should be taken not to mix the cones, and each kind should be correctly named to prevent confusion.—J. B. WEBSTER.

## A FORESTRY SCHOOL.

IF the commission of inquiry into our woods interrogates past practices, it is pretty safe to predict that mismanagement, if any, will be found to have consisted in want of method in planting, not planting enough, planting the wrong sorts of trees, in mixing all species together in the same plantations, and in prostituting our woods to purposes of sport instead of profit. I should be frightened to even guess at the destruction that has been done to our woods by game in some shape or other, but, judging from what one knows of the matter from their own experience, I should say the country has lost millions through destruction by rabbits alone. If the committee will put a few questions on this point alone to one or two English foresters, they will elicit some startling facts, and, as a consequence, one would naturally expect "rabbits" to be prominent school subjects when the time comes. But the great fault consists in not planting extensively enough and planting unprofitable trees. Oak seems to have been planted in times past more extensively than any other tree, because it seemed at that time that Oak would always be required for ship-building and other purposes, as it was required then; but it is not so extensively used as was anticipated, and has become a drug in the market. Nor are there any signs that Oak will in the future be in great demand. Ash probably will be used in increasing quantities, also Sycamore and Larch, or its substitute. These two, to judge by the signs of the times, will be the paying crops of the future. The mixed system of planting, which has been generally followed in the past without any good excuse, will also probably be condemned. I do not go so far as to say that it is wrong to grow more than one sort of tree on the same spot, but I maintain that it is wrong to mix trees that are very dissimilar in habit, such as putting slow-growing trees with fast-growing ones, branchy-headed deciduous trees with Firs, and so on, a system which has given rise to cultural practices, such as thinning and pruning, that would not otherwise have been necessary. The question is, once the Government have found out what is right and wrong in our woodcraft, what will they suggest to mend it? The dissemination of useful knowledge through generations of future forestry pupils will be rather a tedious process, and by that time the current literature on the subject will have anticipated them. It is landowners more than foresters that have to be educated, because, unless they realise their responsibilities in the matter, their servants cannot do much good.

At the present time, owing to the depression of the land interest and trade generally, more and more timber is being cut down, much of it far from mature, while planting is either being neglected altogether, or is not being carried on at the same rate, and the consequence will be that there will be a great scarcity of timber on many estates that will not be made up again for perhaps a hundred years. I could name large estates on which there will be a clean blank of nearly a century between present and future crops, so little planting has been done, while the mature timber is being steadily removed.

YORKSHIREMAN.

## OSIER CULTURE.

I HAVE had an Osier ground for some years, and I find it to be profitable. The popular notion of an Osier bed is just any piece of land that will not grow anything else, where water stands all the winter, that you have only to dig over, push cuttings in, and take the crop off when the time comes round for that purpose. Osiers grown in this fashion will just cover expenses. To make them pay, the business must be well started, and the little that has to be done must be thoroughly done, and at the right time of the year.

First, shallow drain the land—say, 18 inches or 2 feet, not deeper—with pipes; for Osiers live in dry, thrive in moist land, and die out in stagnant water. If you use hand labour instead of horse work in the draining, cut open drains and keep them clear; but, if possible, use horse work, as it will make a considerable difference in the expense. Trench the land 12 inches deep, and plant the cuttings 12 inches apart and 18 inches row from row. Cuttings made of one-year shoots are the best. They should be cut about 10 inches or 12 inches long and pushed into the ground the whole length. If planted too late (after the sap has begun to rise), the bark will peel up the cutting, and it will die. February is the planting month. For the first year keep the weeds under with a sharp hoe, and also keep rabbits down, unless you grow only the better kinds, which are not quite so profitable. Do not cut the crop later than February, and replace any cuttings that may have died.

Osiers are sold as a standing crop, or in some places by weight or bunch. Whichever plan is adopted, let your own men cut the crop. The Osiers should be cut off close to the ground, or as nearly so as practicable. A bunch of Osiers is a number of rods tied together by two bands (made of Osier). The lowest band should be 12 inches from the butt end of the bunch, and should measure 36 inches in circumference; the other band is put round any distance up the bunch, and has no fixed length, being intended only to keep the bunch together. As soon as the crop is cut and weeds being to appear, plough the land and harrow it; for, if the weeds once gain a good footing, it will make a large difference in the yield. About six or eight sorts are enough to grow, and about three-fourths of them should be kinds for peeling, which fetch a better price than those that will not peel. As soon as the shoots burst, use the hoe, or you may damage the plants.

Any land, however poor, will grow some kinds of Osier; but the better the soil the better the kind that may be planted. Clay is hardly suitable for them, and sand is almost as bad. The value of an Osier rod depends upon its toughness and straight length. An acre of land will take about 28,000 cuttings. The cheapest way is to grow a small bed the first year for cuttings for the next. A well-grown one-year-old rod will make three cuttings—not more, safely. Bought cuttings cost about 12s. per thousand. The shape of an Osier ground is material; it would be long and comparatively narrow, with vacant paths every now and then running quite through it, to enable rabbits to be shot as they pass over them. In a large square piece of ground it is almost impossible to get rabbits out. If pheasants are near, they are sure to go to an Osier ground—partly for cover, and also for insects, which they find in abundance in such places.

W.

**Wood of the Ailantus.**—Of trees introduced into the United States, says the *American Lumberman*,



the *Aliantus* is said to be a much more valuable one than is generally admitted. For posts no timber is better suited. The testimony of many farmers shows that it is nearly as good as Locust, and for fuel is equal to Oak. It is hardy, grows rapidly, and is said to be well adapted to growth on the prairies in the Western United States. In its native country (China) it often attains a height of 175 feet, while the finest trees in this country are not above 60 feet high.

**Removal of old tree stumps.**—Having had considerable and varied experience in the removal of old tree stumps, I can confidently recommend the following *modus operandi*: If the roots are in the ground, a hole should be bored at an angle of about 45°, with an auger between the two strongest fangs; a charge of dynamite should be inserted, and exploded by means of detonator and fuse. Should the stumps be out of the ground, a 1½-inch hole, half the thickness of the stick, should be bored with a Gilpin auger; a small charge of dynamite, exploded by means of detonator and fuse, will shiver the stump into pieces, suitable for firewood. I may add, holes bored the cross grain of the timber suit best.—T. J., in *Field*.

## TWO CLASSES OF FOREST TREES.

THE remarks recently published under this heading serve to indicate in general terms, and as near as is possible in such a short space, the two principal classes of trees growing in this country, although there are an infinity of grades between them, but if we are to accept the views of some reformers who have been expressing their opinions on the subject, these classes should be reduced to one. The first tree referred to, with the large head, abounding limbs, small branches, and thick foliage, is essentially the field and hedgerow tree, as it in a great many cases does exist, though unfortunately not in all. "T. B." (p. 355) stated that my article on page 304 was as unreserved a condemnation of hedgerow trees as could well be, but from this I dissent. If he had stated that it was a condemnation of the types of them to which he referred in his previous paper he would have been repeating what I stated in as many words. Where our views differ, however, is as to what is a typical hedgerow tree. Your correspondent apparently looks upon the attenuated objects which we are both agreed in condemning as being the type, while as nearly as may be I look upon the class of tree first spoken of as being a fair representative, and that it would be desirable to annihilate or even curtail the numbers of such trees I as much disbelieve as I did when I first broached the subject. "T. B." on taking up the cudgels very strongly implied that the existence of timber would appreciably diminish the letting value of the land on which it stood, but when I ask him to prove that such is the case, he simply says that he could specify instances where this has occurred, and then declines to do so, as it would be an unwarrantable proceeding on his part. This is scarcely a fair way of arguing, as your correspondent having laid down the presumption, it is his duty to prove that what he says is correct. We do not want names or even the county, but as "T. B." asserts he can easily specify instances, I ask him to do so, categorically, suppressing only names and places. I take it that we are discussing these matters for mutual information; therefore if a correspondent has evidence which would have an important bearing on the question at issue, it is hardly fair for him to withhold it. Then, again, as to the question of shelter, I do not think your correspondent can point to where I have said there is any virtue to the crops in the existence of timber, or at any rate in the sense in which he puts it, but that trees have their value in cul-

tivated districts for shelter and climatic reasons there is abundant evidence, although it is not about such situations I have been arguing, as I have all along confined my remarks to pasture fields. My predilection in favour of these trees may arise partly from the fact that I have spent a considerable proportion of my time on some estates where the field and hedgerow trees are the principal features of the district, but, be this as it may, I am still a firm believer in their judicious cultivation. D. J. YEO.

## PRUNING FOREST TREES.

A GREAT deal of "Glendye's" criticism (p. 358) is merely playing upon words, and this is not the way to dispose of facts. He has a perfect right, of course, to set his own value upon what I may say, but it is scarcely fair to try and draw a plain statement into a maze, which, however, he is only able to do by incorrect quotation.

In order to clear the way for him, I will take his questions *seriatim*, and if this is not enough, he is at full liberty to put what others he desires. To ordinary minds there can be nothing very inscrutable in my remarks, but your correspondent seems to think otherwise. In the first place, "Glendye" seems to be in doubt whether I am for or against pruning. To this I reply, if he would take the trouble, instead of picking out any particular sentence or part of a sentence, to judge by the tenor of the whole paper, he need not be in any great doubt, as I plainly enough indicated there that I did not believe in it, or, at least, that if I did it was only to a very limited extent. I quoted a case where pruning was not permitted, and another where it was common. If I had been in favour of the saw and the knife, it is highly improbable I should have brought these facts in to tell so greatly against their use. In the second place, "Glendye" criticises my not stating in my remarks the precise point between the extremes where the truth laid. This he could have drawn by inference had he wished to do so, as the concluding paragraph is pretty conclusive upon it. In the next case it appears that "Glendye's" system of pruning is effected without "chopping and lopping," as he states "those who advocate such treatment deserve to be themselves treated in the same manner." It is easy enough to use strong words to dispose of an argument, but if pruning does not consist in "chopping and lopping," perhaps "Glendye" will inform us how it is usually performed.

Again, "Glendye" gets himself into a mist over a remark which certainly should not have wanted explanation, viz., what I mean by stating that "if, when a young tree was pruned, the growth up the stem was entirely checked and the growth directed upwards, there may be something in it." I simply mean that if no fresh shoots started out throughout the length of the stem, but if, instead of wasting itself upon the infinity of small branches which invariably do start out, the same energy was directed upwards to the increase of the usable timber, there may be something in the pruning. Your correspondent tries to throw the onus of the second growth on the farmer's men, who, he says, do the work, but still, "when secondary branches follow the operation of pruning, they are very easily got rid of, and do the timber no harm." To this I am bound to demur. It is easy enough to say that the growths which almost invariably follow pruning may very easily be got rid of, but is it so in substance and in fact?

Of course, if men were kept throughout a tree's existence to watch for any such sign of sprouting, and when it appeared to immediately remove it, no great damage would ensue, so far as the quality of the timber is concerned; but to assume that each individual tree will be so looked after is ridiculous, as the cost of such attention would probably exceed its value when grown. When Nature does her own work, and does it well and without cost, what iota of common sense there can be in thus playing sentinel over her products I cannot conceive.

J. N. BLUNT.

**Timber-markers.**—I regret I cannot inform "C. M." where these marking hammers can be

purchased, but any local ironmonger would probably get one made. The one I use is merely a plasterer's lathing hammer with the initial cut into the face, which was done by a "handy man" on the place. It has already served my purpose for several years, and will probably for a long time to come. As a guide to "C. M.," or anyone who would like to get one made, I will mention that the length of mine from face of initial to cutting edge of hatchet is 5½ inches, and the width of blade of hatchet a little less than 2½ inches, the depth of initial being from a quarter of an inch to three-eighths of an inch. The initial itself is perfectly flat, the heavy strokes being about one-eighth of an inch broad, as the idea is to drive the mark into the wood rather than to cut it. The handle I now use is 18 inches long, which makes the work easier than with the shorter one previously used. The timber scribe spoken of can be obtained from Townsend's, of Hereford.—D. J. Y.

## SAWING AND SEASONING TIMBER.

WITH respect to the methods of sawing and seasoning timber, concerning which some remarks have already been made, much depends on the character of the wood to be sawn and seasoned, and on the purposes for which it is intended to be used. In some cases seasoning is dispensed with altogether, as in situations where the wood will be always wet it is entirely unnecessary. Woods, it is well known, also vary greatly as to the time they will remain uninjured after they are felled before they are sawn. It would be hard, however, to lay down any definite time which a given kind of tree may remain in the round before it comes to the saw, as the conditions under which it is lying will have a great influence in inducing or checking decay. There are some woods which may be felled a considerable time before they are required for sawing up, whilst others, if not taken in hand and sawn up without delay will for all the better class of uses be rendered valueless. There are also other reasons beyond those of the conditions under which a tree lies which have to be taken into account when reckoning upon the time it will probably remain without injury before it is sawn, viz., whether the tree when felled was in vigorous health, had arrived at maturity, or was in a state of decay. Other things being equal, the young and vigorous tree would remain unaffected longer than the one which was mature, or in which decay had set in.

THE OAK, of all timber trees growing in this country, if we except its sapwood, is probably less affected by the time it lies upon the ground before it is sawn than any other, and so far as freedom from actual decay goes it will submit to more neglectful treatment than any. Especially when this tree is cut down late in the spring for the sake of its bark, it is well known that when exposed to the weather its sapwood soon decays, but when felled with other trees in the winter the sapwood is more lasting. Coming to the question of sawing, there is probably more art in properly cutting up an Oak than is the case with any other tree, although certain principles which apply to the Oak would be equally true of many other trees. To many it may appear that little importance rests upon the way in which a tree is cut with respect to the grain so long as the boards are clean and free from shakes and knots. To those, however, who have had experience in cutting up, it is well known that for many purposes for which Oak is used that everything depends on the way in which the tree is sawn. A purpose for which the English Oak has been much used, more so perhaps in past years than now, is that of making staves for casks to be used by the coopers. This is a typical instance of the importance of keeping to a recognised method of cutting, and one in which lies the whole gist of the art, so we explain it somewhat fully. We do not propose, however, here to give the reasons why such a difference exists, as this would involve an inquiry into the structure of the wood, which is beyond our present aim, but rather to point out the difference observed when the wood comes to be tested and used. The concentric circles which represent the periodical layers of new wood, and the medullary rays or silver grain which in position bear some analogy to the spokes of a wheel, are well known to botanists and physiologists, but the relation that each of these should bear to the saw-cut may



not be so thoroughly understood. For coopers' staves, then, which we have taken as an example, and the same is true of flooring boards, park fencing, and the like, it is of the greatest importance that the saw-cut is approximately parallel with the silver grain, and therefore approaching right angles with the concentric circles. If a tree was cut into boards by means of parallel saw-cuts throughout its entire bulk, the broad boards, *i.e.*, those taken out of the centre of the tree when in turn they had been divided in halves, would answer to the above-named requirements, but as the outside of the tree was approached and the boards became narrower, if these boards were split down in the same manner as the centre ones, a very different class of material would be the result, as with these last the silver grain would be severed, and the concentric circles, instead of being approximately at right angles, would, as nearly as may be, be parallel. The great difference between the two kinds of board would on comparison become clear, and to such as have not practically tested the truth of these remarks, we would commend the advisability of doing so. That the difference is not one of mere appearance or theory, is proved by the fact that the outside boards to which we have referred are much more readily split and warped by exposure than those cut in the proper direction, and if they were used for casks it would be found that the liquor would percolate the wood and render them useless. We do not suppose that the readers of this paper will set about the building of casks, but what is true of drinkable liquor is true of moisture in any form; therefore, for resisting wet, the importance of having the surface of the wood in lines parallel to the medullary rays will at once be seen. Timber cut up in this way can be more effectually seasoned than if cut without regard to the grain, as the very act of exposure which in one case would most likely spoil the wood, so far as the purpose for which it was intended was concerned, would in the other case be an important factor towards the completion of the seasoning operation.

When sawn in the way we have described, wind, rain, and sun will be of the greatest benefit. As soon as possible after the wood leaves the saw—we still refer to the Oak—the boards or other pieces should be set up on end by being leaned against some support, and so arranged that every possible inch of surface may be exposed. If anyone has any doubt of this, let them observe the amount of coloured matter carried away from freshly-sawn Oak after a sharp shower. The space of time the wood should remain in this position must be determined by circumstances, such as whether much rain has fallen upon it, and whether atmospheric conditions have been generally favourable to this preliminary stage. Space, too, sometimes forbids its remaining long so widely spread. The next step is a continuation of the outdoor process, but one which does not demand so much space; it is, however, one which will take up a longer proportion of the whole time of seasoning, as for every week of the former perhaps a month will be required in this stage. In this, as in the first instance, the nearly upright position of the wood should be preserved. The support against which it is stacked is not of great import, but for convenience there is nothing better than a stout horizontal sapling or beam laid along on stout upright posts at such height as may be necessary. The posts, if the weight of the stack is likely to be considerable, can be supported by struts inclined from each side towards them. As to the way in which the wood is arranged against these supports, the principal difference between the first and second stage is, that in the former the boards are laid with their broadest surface to take the weather and inclined towards the beam from each side of it alternately, whilst in the second they are inclined in the same way, but on their edges. In this way if we had a beam available 10 feet in length, in the first case, ten boards, each an inch in thickness and a foot wide, only could be placed against it, five on each side, and these once during the time, if not more, should be turned to expose the under surface. By the second plan, however, when they are placed on edge room will be found for 120 boards, sixty on each side, and an inch air-space will remain, except at the point where the boards meet above the beam. To obviate this small drawback, transverse strips are

sometimes nailed across and a board placed between each, but in practice this is really unnecessary. The length of time they should remain in this position must be to some extent determined by the season of the year during which they have been exposed, but whether summer or winter the precaution should be taken that when they are removed from here to their final resting-place in the shed until they are used the operation should be performed when they are perfectly free from moisture in any form. With respect to storing in the shed for use, it matters comparatively little whether the seasoned wood is placed upright or horizontally, the important thing being to keep it perfectly dry.

THE ELM does not demand the amount of attention in sawing and seasoning that is necessary in the Oak, but is a wood which in some respects requires different treatment. When the nature of the material which has to be cut from the tree admits of it, it may be well to observe the same rule in cutting as was done with the Oak, but it is not so essential, a more necessary thing being to carefully observe the direction of the heart shake, which is certain to be more or less present. It sometimes happens that the apparent direction of this shake, which is calculated from its position at each end of the log, is misleading, but this is not often the case; and as a general rule, the position it occupies at the end of the tree it will retain throughout, the safest plan on cutting being to have a saw-cut directly on the line of the principal opening of the shake. In the matter of the seasoning, Elm may be exposed like the Oak, but for a short time only, and in the latter part of the process we prefer stacking it horizontally, with strips of wood between, under a roof, to keep off the rain, but with sides so far open that the air may have full opportunity of passing through.

THE ASH, from the straightness of its grain and its consequent liability to split, is a wood which requires a considerable amount of care in cutting, and, when cut, in the way it is seasoned. It very often happens that this tendency to split manifests itself before the wood leaves the saw-bench or the saw-pit, as the case may be. When this occurs, the rending may to some extent be prevented, either by nailing strips of wood by means of strong nails (which can be drawn out when the wood is used) across the line of rupture, or by driving short lengths of hoop iron, bent into the form of an S, edgewise into the end of the plank across the incipient rent. If a rupture of the grain does not take place, so much the better; but whether it does or not, sawn Ash should be carefully stacked under cover, where only a moderate current of air has access, immediately it leaves the saw. With respect to these last-named woods, nothing has been said as to the time at which they should be cut after felling, but

THE BEECH is a wood which is very apt to get "tainted," or, in other words, to rapidly deteriorate if not sawn out within a reasonable time after it is felled. In the matters of cutting and seasoning, much the same rules would apply as those we mentioned for the Ash, with the exception that of the two woods, moisture in any form is more inimical to the Beech.

THE SYCAMORE, and some other woods of a like class where the value greatly depends upon the retention of the colour, require careful treatment, as the quickness with which stain sufficient to spoil them for the best uses is absorbed would scarcely be credited except it was seen. One great point in the preservation of the colour is, if possible, to see that no wet in any form comes upon it after it is sawn. Directly it leaves the saw it should be conveyed in dry weather to a shed where it has to be stacked, its treatment in other respects being the same as for the Ash.

THE POPLAR, too, deserves a word of mention, as it is a wood in general character unlike most other of our common woods. So far as the tendency it has to split when on the saw-pit or saw-bench is concerned, it somewhat resembles the Ash, and for the prevention of this trouble may be treated in the same way. The nature of its wood, however, is very different, and is extremely absorbent. It is a wood, therefore, which should be kept entirely out of the rain or damp in any form, or otherwise the process of seasoning it

will occupy an indefinite time. The only other kind of woods of which we shall now speak are those popularly known as

THE FIRS, although some of these are botanically Pines, and the Larch which heads the list is, properly speaking, neither one nor the other. So long as it is understood, however, that under this heading we refer to the Conifers grown in this country for timber, no misapprehension need arise. The most marked difference is between the Larch and Scotch and the Spruce Fir. The two former are of a harder nature and more adapted for outdoor work, and consequently may be seasoned to some extent by exposure to the weather. With the Spruce, however, the case is different, as it is a wood more absorbent in its nature, and consequently requires other treatment and management.

There are many other points in the sawing and seasoning of timber which we have been unable to touch upon, and it may be thought we have dwelt on some unduly. If this is so, the importance of the subject must be our excuse, as from personal experience we know that good timber is very often seriously cut to disadvantage, and otherwise maltreated by the lack of the knowledge of the most elementary points of management, the recitation of which may seem superfluous to those who are fully acquainted with every branch of the work. D. J. Y.

## FALLING OF THE CONES OF PINES.

YOUR criticisms (p. 384) on the subject matter of "Tree Gossip" go far to prove the book to be unreliable and useless. Mr. Heath's belief, that the cones of Pines are for the special protection of the inclosed seed when falling from the trees "which ordinarily grow in high and exposed regions," may well be called gossip. The cone scale being placenta and protective shield in one, it is much more likely that it serves as a protector during the growth of the seed. But it is of little use generalising in the way adopted by Mr. Heath. The peculiarities of species of plants, be they trees or not, when thoroughly known, are much more interesting and satisfactory than even the author of "Tree Gossip" may admit.

Some fifteen years ago I ascended the Napa Mountains, in California, and on the ridge discovered *Pinus tuberculata* forming a narrow belt around an extinct crater. The trees were nearly all about twenty-five years old; but dotted here and there in the belt or circular grove were about a dozen taller, scraggier, evidently older, parental-looking individuals. Of juvenile plants, or others of an intermediate age, I saw none. The boles of the younger trees from, say, 2 feet above the surface of the ground—which was rocky and dry—to their apices, were girdled with cones of all ages up to at least twenty years. The latter were hoary in a covering of resin and Lichen. The old as well as the young were tightly closed, and as I was anxious to procure seed of the species, I secured a quantity of cones of all ages, and carried them home, and it was only after subjecting them to fire-heat that they could be opened and their seeds extracted. The seeds from the oldest cones were subsequently proved to be as good as that from the comparatively young ones. Even the oldest cones had their full complement of good seed, so that the fierce summer sun had not in all those years been sufficiently powerful to burst open the woody incasement of the cones. Through natural death and decay of the parent tree the cones would in time give up their seed, and so perhaps perpetuate the species. But the intermittent death of individuals in this most natural and old-fashioned way would not fully account for the grove of plants, presumably of one age, then growing on the Napa Mountains. The seeds from which they



sprung must have been scattered almost simultaneously, and bush fire was probably the agent by which the cones of an older grove of trees—then represented by the dozen or so scraggy trees already referred to—were compelled to give up their seed. The data herein recorded is, I think, to support this view; at any rate nothing short of an application of strong artificial heat compelled the cones I took home to liberate their seed.

Talk of the accident of birth! There are few accidents of birth known to students of natural history to match or compare with this the existence, precarious to a degree, of a species of Pine depending seemingly on the very occasional accident of bush fire. It is almost more than one can believe, yet it is suggestive of endless speculation, into which I shall not at present enter. I would only remark that a few old bushes of *Cupressus M'Nabiana* growing on the skirt of the same Pine grove also bore a large crop of cones, many of which were very old, with their scales closed and full of seed. GEO. SYME.

#### TREE NOTES FROM PENRHYN CASTLE.

THE largest and oldest Yew tree in the park occupies a rather prominent position within a few yards of the castle on the south-eastern side. The girth at a yard up is 14 feet, and the widest spread of branches 60 feet. It is a very picturesque tree, not only from its well-balanced and well-branched head, but large size of stem and limb, the point where the latter spring out being much enlarged above the ordinary dimensions of the butt. A rustic seat has been erected around the stem, which still further adds to its venerable and by no means neglected appearance. Another of almost equal dimensions, and I might also add of about the same age, stands close to the north-eastern end of Llandegai Church. It is 8 feet 8 inches in girth at 3 feet up, and 10 feet 5 inches at 5 feet, with a diameter of spread of branches of 51 feet. Beneath this tree has been placed of late (about thirty years ago) a stone coffin, supposed to be that of Saint Tegai ap Ithel Hael, who, it is said, laid the first foundation of the church at the close of the fifth century. This tree is in rather a declining state, owing to two limbs having at some time been broken over, the parts at which the fractures took place being completely rotted away by the ingress of damp.

The entrance to the church is through an avenue of Yew trees, nine being planted on each side and at a distance of 6 yards apart. The largest, which may be taken as a near sample of the others, has a girth of 5 feet 7 inches at 3 feet up. Although no record that I am aware of, of the planting of this avenue exists, and repeated enquiries having failed in eliciting any satisfactory information, still, after careful examination and comparison, I feel inclined to place their age at not more than 140 years. It must, however, be remembered that the large specimen noted above as growing at the north-east end is of far greater age than those forming the avenue, while such as are planted around the churchyard have not seen half-a-century come and go.

Within a short distance of the first-mentioned Yew (that growing near the castle) is a good specimen of that noblest hardy exotic tree we have, *Liriodendron Tulipifera*, or Tulip tree. The habit, not unlike that of a fastigate Plane, and abundance of large, four-lobed truncate leaves, renders this tree very conspicuous and of the easiest recognition. Almost opposite the latter is a good tree of the Purple Beech (*Fagus sylvatica purpurea*), the deep purple foliage of which offers a fine contrast to the verdant green of the surrounding trees and shrubs. It is 30 feet in height, and girths at 3 feet and 5 feet 3 feet 11 inches and 3 feet 9 inches respectively. A number of unusually large specimens of the common Holly (*Ilex Aquifolium*) may be seen on the sloping ground between the latter tree and the Ogwen River, several of which are upwards of 40 feet in height, and with stems girthing 5 feet 6 inches at a yard up. Further along a fair-

sized tree of the Eastern Spruce (*Picea orientalis*) attracts attention from its remarkably compact habit and small, slender, deep green foliage. The height is 55 feet, and the girth at 3 feet 4 feet 8 inches, and at 5 feet 4 feet 4 inches. Not far from this is a noble specimen of the Spanish Chestnut (*Castanea vesca*), measuring 13 feet 2 inches in circumference of stem at 3 feet up, and 12 feet 2 inches at 5 feet. The deep sandy loam resting on a dry open subsoil, of which many parts of the park are composed, coupled with the mild, damp atmosphere, is very congenial to the growth of this tree. On wet, retentive ground the tree rarely attains to a large size, and often dies out altogether. Another Spanish Chestnut growing on the opposite side of the river from the last measures 10 feet 5 inches in circumference of stem at 3 feet up, and 10 feet 3 inches at 5 feet. Both the above trees are in a very vigorous condition, which the wide spread of branches, unusual for trees of their size, and abundance of healthy foliage clearly shows.

SILVER FIRS (*Abies pectinata*) are also abundant, many being from 80 feet to 90 feet in height, with girths ranging from 8 feet 6 inches to 10 feet 4 inches at a yard up. On one of these trees alongside the drive is a curious graft which may be noted in passing. It consists of a twig of *Abies Pinsapo* engrafted on a branch of the Silver Fir. The graft, strange to say, is deciduous, the leaves or pins annually dying off in autumn and being again renewed in spring. To avoid mistake, I have duly noted this curious fact for more than half-a-dozen years, having never before seen or heard of a similar occurrence. Whilst speaking of peculiar growths, I might also note another, which occurs on a large Gean tree in the park. From one of the almost horizontal branches about a dozen feet from the trunk, and not less than 20 feet from the ground, springs in a perfectly upright direction a large shoot, which has now every appearance of a well-formed, well-branched tree. The growth is very striking, as the would-be rival is 15 feet in height and 4 feet through, and growing, as before said, in a perfectly upright direction; whereas all the other parts of the parent tree are remarkably horizontal. Another curious growth occurs near this, in which the branch of a large Portugal Laurel has taken root at 6 feet from the main stem and formed a tree of almost equal height with the parent. The two are thus joined together at 1½ feet from the ground, and 6 feet from each other, by a stout branch of almost equal diameter throughout.

OF THUJA GIGANTEA, there are some portly trees, which although only recently planted, comparatively speaking, have attained large dimensions, several being now upwards of 50 feet in height. This is a fast-growing tree, and one that has frequently, in conjunction with the Douglas Fir and Corsican Pine, been brought under notice as a substitute for the Larch. When, however, we consider the quality of timber as produced in this country and general suitability for our climate of these three trees, the weight of evidence is certainly in favour of the Corsican Pine as a tree that is in every way suited for the climate of Britain. Admit we must that the latter tree is difficult to transplant with safety, but this may, and indeed has been, greatly obviated by careful nursery management. Willow and Poplar trees are very sparsely represented, although several goodly specimens show that both soil and climate are well suited for their perfect development. Of the Aspen Poplar (*Populus tremula*), the largest is near the entrance gate at Tal-y-bont, which girths 10 feet at a yard up. Near the park wall at Capel-Ogwen is a fine Willow tree over 40 feet in height, and girthing at 3 feet 8 feet 4 inches.

Another remarkable tree of the Golden Willow which occupied a prominent position on the lawn in front of Tan-y-bryn House, the residence of Mr. A. Wyatt, was unfortunately blown over during the early part of the past season. At 3 feet, 5 feet, and 15 feet, this tree girthed 9 feet 10 inches, 9 feet 8 inches, and 7 feet 5 inches respectively. It was about 70 feet in height, with a large umbrageous head, and I am not aware that a finer specimen of this particular Willow is on record. A very fine tree of the Cut-leaved Alder (*Alnus glutinosa laciniata*) grows within a short distance of where the latter was blown down. It is 50 feet in height, girths at 3 feet and 5 feet

7 feet 2 inches and 7 feet 4 inches respectively, and has a spread of branches covering 72 feet in diameter. When in full leaf this is both a distinct and beautiful tree, and one that is in every way adapted for lawn or park planting. In front of the house at Tan-y-bryn grows in rich luxuriance a fair-sized tree of the Walnut, while dotted over the lawn and alongside the drive are numerous large specimens of the Beech, with trunks girthing from 8 feet to 9 feet at a yard up, and containing a large quantity of clean, sound timber. On the roadside, between the University College of North Wales and our home nursery, is a fine specimen of that imposing and highly ornamental tree, the variegated Sycamore (*Acer pseudo-Platanus variegatum*), the leaves of which are irregularly marked with yellow. Growing in such close proximity to the road prevents this tree being seen to advantage, at least more so than had it been placed at the distance of 200 yards and on slightly elevating ground. Not far from the above-mentioned Poplar at Tal-y-bont stands, or rather kneels, the Camel Oak, so-called from its fancied resemblance to the animal whosename it bears. It is certainly a peculiar tree, the stem, which is 7½ feet in girth, being procumbent, except the "hump," for 12 feet, after which it rises perfectly perpendicular, and forms a large umbrageous head, covering a diameter of 68 feet. At one time it has no doubt been a hedgerow tree, and when young bent or pegged down to fill a gap in the fence.

SCOTCH FIRS (*Pinus sylvestris*) are everywhere abundant, but by far the finest specimens are those growing at Ogwen Bank, adjoining the Penrhyn slate quarry, many of which are from 60 feet to over 70 feet in height, and girthing from 7 feet to 8 feet at a yard up. The true Highland variety (if variety we can call it) of this Pine is unfortunately rather rare, giving place in most cases to inferior varieties of degenerate kinds, the timber of which is comparatively useless and the tree unfit for planting unless in the most favourable situations. The stately form and general appearance of the above fine old trees, apart from the quality of timber, would, however, suggest, even to an unexperienced eye, that they belonged to the true type. In and around the home nursery are a few trees also worthy of note, including a fair-sized specimen of the *Fitzroya patagonica*, a tree but little known in this country, but one which, from its spreading, slender, incurved branches, is at all times attractive. The Japan Yew (*Podocarpus Koraiana*) is also a very distinct, hardy, and ornamental, small-growing tree that is well worthy of a place even in restricted collections. Amongst the Bamboos, perhaps, none are more effective or better suited for the climate of this country than Metake's variety (*Bambusa Metake*), a very fine specimen of which grows in the northern end of the nursery. It is about 12 feet in height—an unusual size for this plant, the canes being remarkably strong and vigorous. This graceful plant is one well worthy of extended cultivation, and is perhaps never so effective as when planted in sheltered positions on the turf, from which the leafy wands can spring unrestrained.

A. D. WEBSTER.

#### NOTES FROM WEST OF IRELAND.

NOTWITHSTANDING the cold blasts of early spring, and heavy rains followed by scorching heats and long droughts, the past summer, on the whole, has been very favourable for the growth of forest trees and development of their seeds.

THE LARCH, which takes the first rank as a timber tree for rapidity of growth and early returns in this as well as in other parts of these islands, has made most remarkable growths, and is also furnished with rich and abundant foliage entirely free from that life-sucking disease which is so prevalent in the plantations in Scotland. The bullfinches in early spring destroyed many of the buds from want of insects and other food. This gave the trees a bare appearance until the appearance of the young shoots.

THE SCOTS PINE, SPRUCE, and other ever-



green trees have done remarkably well, having produced good growths, abundant cones, and healthy foliage. The Spruce suffered a little during the very dry weather, but recovered when refreshed by rain, proving that the Larch is better adapted to withstand the scorching heats, the wet and cold blasts of winter much better upon the bare limestone rock than the heavier clothed species.

THE AUSTRIAN AND SCOTCH PINES thrive remarkably among the class of rocks where the soil is plentiful between the crevices, but among the barer rocky places the Larch is more suitable. The dark green of the Austrian contrasts favourably among the lighter bluish colour of the Scots Pine, particularly on sloping grounds or on a mountain-side.

THE LABURNUM, LILAC, and other flowering shrubs were rich in blossom, the branches, spikes, and trusses hanging in rich profusion, which has left a bountiful harvest of seeds, particularly the Hawthorn and Holly. Among hard woods the thorn is all that could be desired. The Beech, which is ever at home upon the limestone, and attains large dimensions in this country. The Lime thrives luxuriantly, and is much praised here as an ornamental tree.

ORNAMENTAL CONIFERS.—Although there are no extensive forests of these, yet from the behaviour of the Douglass Fir, *Pinus insignis*, and other rapid-growing Pines, this country promises well for afforesting work in the future—our winters being remarkably free of those severe frosts which do so much damage to bark and foliage among the forests in Scotland. I know that *Pinus insignis* is not considered a hardy tree generally, but it is so here, and grows rapidly.

The dry summer has also been most favourable for the development of insect life which prey upon bark, leaf, and roots of our forest crops. Conspicuous among these is the marble gall (*Cynips Kollar*), remarkably abundant—in fact, in many places resembling the fruit on Apples trees, so numerous are they. *Aphidix gemmæ* is conspicuous also from being on the point of the shoots; most abundant in hedgerows, lawn trees, and along the outskirts of plantations. Among large galls the spangles (*Neuroterus lenticularis*) are also moderately abundant. The early autumn tint of the leaf is evident proof of their whereabouts; they imbibe and suck the colouring matter from the leaf. Some maintain these are of trifling importance, but where they develop numerous they evidently do much damage, particularly the marble gall, which diverts the growth of the leading shoot, causing young Oaks to become straggling and stag-headed. Conspicuous by their absence is the Oak-leaf roller (*Tortrix viridana*), which I have not observed in this quarter. R. COUPAR.

Ashford, Co. Galway.

Remedies against rabbits.—“C. W. G.” (p. 282) seems to be unaware of one of the best anti-rabbit compositions we have yet tried. In half a pailful of water we put from the dog kennel the dejections of the animals, and mix a sufficient quantity as to make the composition adhering properly when applied with a brush to the base of the trees. Young *Magnolia grandiflora* planted last season in a conspicuous part of the garden, and lately badly attacked, have been at once preserved with the mixture above mentioned. We protect some of our large flower beds, which are as far as 100 yards or more in the lawn, by surrounding them with galvanised wire-work, hardly visible in the distance. Gas-tar we have also used, but it is unsightly in open spaces and presents some inconveniences. Rabbits are certainly

mischievous, but we do not want to get rid of them all at once by the use of faggots, as it has been explained; the *coup de grâce* is given from time to time, but not in the way indicated by “C. W. G.,” which is rather too stringent.—J. SALLIER, *St. Germain en Laye*.

#### MANAGEMENT OF QUICK HEDGES.

FOR a cattle-proof fence in parks or anywhere on an estate there is nothing equal to Quick, and in such situations it is worth while to bestow a little extra labour on the preparation and planting, so as to obtain a fence that will be a protection in every sense of the word. With a thorough preparation of the ground, and good Quick, well planted at the proper season, and well cared for afterwards, in a few years a fence will be in existence more formidable to either biped or quadruped, than any ordinary wall. Let us first consider the nature of the plant of which we are treating.

First, it must have a dry bed in which to grow; it is perfectly useless to plant it where there is anything approaching stagnant water in the soil; consequently, if the land is not dry enough, it must be made so, either by an open ditch or covered drain. Next, it is a plant that will bear any reasonable quantity of manure. If the soil is shallow and wet, I should recommend a ditch to be formed on the outside of the hedge. It should be made 3 feet wide, sloped out to nothing, and 1 foot deep at the side next the hedge; the soil taken out goes to raise the bed on which the hedge is planted, elevating it in a way that precludes its suffering from stagnant water. The ground should be trenched 18 inches deep and 4 feet wide, with 6 inches of rotten manure worked into it; this work should be done in autumn, if possible, before the land gets saturated with rain; it will thus be in a much better state for planting than if deferred until late in the winter. Planting should never be delayed, as is often done, until the buds have begun to swell; the sooner after Christmas it is completed the better.

In selecting Quick, mere size should never be the first consideration; on the contrary, choose robust stocky plants that have been twice transplanted, and the last time not too long before the final planting. Large old Quicks that have stood for years without being moved are all very well to tempt the inexperienced planter, but he afterwards finds out that they are some time before they make much progress, smaller plants, in proper condition for planting, far out-strip them. For such situations as those under consideration I should recommend a double row of Quick, 1 foot apart in the row, and a similar distance betwixt the rows. In planting, angle the plants thus: \* \* \* \* \* The practice of heading down to about 6 inches from the collar at the time of planting is still carried out by some, but it is a bad practice; plants so treated make wretched growth the first year, and correspondingly little root progress to enable them to make more than half the growth they should do even the second year.

Heading the plants down to within 6 inches of the ground is a most essential operation, but they should never be so treated until they have had a year's growth after planting, and then it should be done in the winter, before the buds begin to push, using a good sharp pruning knife for the purpose, always cutting upwards, so as to leave the stools smooth and clean. This cutting back is to cause each plant to break a number of shoots, instead of running away with one leader, leaving the edge thin at the bottom. To the non-initiated it often seems a pity to

cut them back in this way and appears a waste of time; but the omission is fatal to the hedge ever requiring the first essential—a thick close bottom. When headed down as described, this double-row fence will break back so thickly as to be almost fowl-proof, and by the autumn of the second year after planting will be at least half a season's growth ahead of the fence that was beheaded at the time of planting. In the autumn of the second season after planting, any time after the leaves have fallen, the growth should be cut back to within a foot of where they were headed back to the previous winter, always using the switch-hook in preference to the shears. If all goes on well, the fence will each season make rapid progress, branching out and getting strong.

Every autumn go over it with the hook, cutting back within a foot of the preceding year's cutting, always preserving the hedge widest at the bottom, gradually tapering up to a point at the top. No other form of cutting will keep a fence full and thick at the bottom, which this does by counteracting the natural tendency of the plants to run too much to a head. Local circumstances will regulate the height. A 6-foot fence for such situations as those under consideration is a good height; but there is no objection to one even higher than this. But it must be borne in mind that the higher the fence is allowed to grow, the wider it must be at the bottom; otherwise it will there get weak and thin. A hedge 7 feet high must not be under 4 feet 3 inches wide at the base. When full size has been attained, it must, at every pruning, be cut right back as near as possible to where the hook went at the preceding cutting; otherwise it will soon get too large, which would require its being cut back into the old wood, giving it for some time an unsightly appearance. I have, as yet, said nothing about the usual paling to protect the young growing fence from cattle. When it is situated where it will be liable to injury from this cause, the paling must be put up before the Quicks are planted.

One of the principal things to be kept in view is to get the young hedge on so that it will be a sufficient fence before the paling is worn out and requires renewal. Neither have I alluded to the all-important matter of keeping the young Quicks perfectly free from weeds, especially during the first two years; but where this is not attended to, it is useless to expect them to thrive. If, after the second year, the hedge does not make satisfactory progress, being at all weak, in the spring, before growth commences, give it a good top-dressing of farm-yard manure; this, unless there is something wrong in the soil through its being too wet, or other local cause, will push it on. F.

Oak palings.—In cleaving old timber for palings the whole of the sap-wood which is decayed must be taken off, whereas in new timber the whole of the stuff may be worked up. The tools used are of the same pattern as those used by lath-renders, but of a larger size. The timber ought to be clean butts, from 12 inches to 14 inches through, to make good pales. The butt is split into eight or twelve pieces, according to the size; each piece has about 1½ inches taken off from the pith, and the pales are then cleft out of it. The black outside edges are then chopped off, and the pales are shaved with a common handshave, so as to make them of neater appearance.—F.

Hornbeam charcoal is highly esteemed in France and Switzerland, where it is preferred to most others, not only for forges and for cooking by, but for making gunpowder, the workmen at the great gunpowder manufactory at Berne rarely using any other.



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"This is an Art

Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## FRUIT GARDEN.

## THE GOOSEBERRY.

BUSH FRUITS do not, as a rule, receive the attention which they deserve. It not unfrequently happens that we see whole quarters of Gooseberries and Currants, or long rows occupying the margins of walks, from year to year quite devoid of the slightest attention beyond an annual pruning and slender top-dressing, and yet the produce which bush trees yield is quite as valuable in its way as the finest crops of Grapes and Peaches. Old trees, it is true, often produce plenty of fruit, but the quality is greatly inferior to that obtained from young ones, and for this reason a regular rotation of healthy trees should be planted on well-trenched ground to take the place of a corresponding breadth of old ones, which can then be destroyed, upon the principle long since observed in the management of Strawberries. Where these humble but delicious fruits have been neglected, now is the time to set about planting, not by the sides of the walks, but on broad, open, deeply trenched quarters, where the fruit can have full exposure to sun and light, and nets, well elevated, can be cast over them in woodland or bird-infested districts. Stout bushes on clean single stems, a foot or more in height, may be planted in rows 9 feet apart and 6 feet from tree to tree in the rows, distances that will admit of getting amongst them as long as they remain profitable. A free, but not overgrown, habit of growth being all that is required, any well-drained garden soil will suit them provided a spadeful or two of fresh compost is placed about the roots at the time of planting. Many people intermingle an indefinite number of varieties irrespective of their habit of growth or time of ripening, but nothing is gained by the system, neither is it necessary to plant so many sorts when a few of the best of each colour, kept well together, will give a good supply of fruit as long as Gooseberries are in season. No fruit grower would like to be without a good stock of the leading varieties, which might include the following for flavour :—

WHITE.—Bright Venus, Crystal, Early White, Mayor of Oldham, Snowdrop, White Champagne, Whitesmith, Patience.

GREEN.—Green Gascoigne, Green Overall, Green Walnut, Heart of Oak, Keepsake, Lofty, Lord Eldon, Pitmaston Greengage.

YELLOW.—Early Sulphur, Broom Girl, Rockwood, Yellow Champagne.

RED.—Companion, Ironmonger, Keen's Seedling, Red Champagne, Red Warrington, Rough Red, Turkey Red, Wilmot's Early Red.

## VARIETIES FOR EXHIBITION.

WHITE.—Antagonist, Careless, Freedom, Hero of the Nile, King of Trumps, Snowdrift.

GREEN.—General, Green London, Shiner, Stockwell, Telegraph, Thumper.

YELLOW.—Catherina, Criterion, Drill, Leveller, Mount Pleasant, Peru.

RED.—Clayton, Conquering Hero, Dan's Mistake, Duke of Sutherland, London, Wonderful.

Exhibitors or growers for private use can easily extend these lists, as there are more than 200 varieties at their disposal to select from,

but the preceding include a few of the best for the kitchen, the dessert, the jam-pot, and the exhibition table. If it be thought desirable to extend the Gooseberry season, a few of the late varieties should be planted and trained against north walls, where they can be protected from birds and wasps after, but not before, the fruit is ripe. If permanently protected, as I once saw a magnificent wall covered with trained trees and a broad border in front studded with bushes, insect-eating birds are shut out from their natural food through the spring and early summer, caterpillars innumerable devour every leaf, and what would otherwise become a valuable crop proves a complete failure. Had the wall and border in question, which were enclosed with galvanised aviary wire, been thrown open to the access of birds as soon as the crop was gathered, and remained so until the succeeding crop approached ripeness, the trees would not have been leafless in August, as the gardener's friends would have been there doing battle with his enemies. But why allow caterpillars to destroy a valuable crop of fruit when a solution of quicklime tinged with soot, dashed over the trees with an old syringe as soon as they are pruned, will protect the dormant buds from birds in the spring and destroy the larvæ of leaf-eating insects into the bargain. By way of making precaution certain, the loose soil should be scraped from beneath the trees as soon as they are pruned, and fresh mulching, consisting of rotten manure, soot, and lime, should take its place immediately after they are syringed.

SELECTION of trees for wall culture is a point which requires consideration. Early varieties ripened against a north wall would come in simultaneously with late ones on the open quarters. Varieties having a drooping or straggling habit of growth would not take kindly to vertical training. These two sections, then, should be avoided, and free vertical growers, of which there are plenty, should be selected. Of reds, I would plant Red Champagne, Rifleman, and Telegraph; Pitmaston Green Gage, Yellow Champagne, and Bright Venus, a good late-hanging white. Although the Red Warrington is a pendulous grower, it being such a good late variety for the dessert or preserving, and so thoroughly hardy, I would grow it extensively on low walls or as an ordinary bush on north borders. If I were confined to one variety, I should not object to a whole wall of Red Champagne.

PROPAGATION AND TRAINING.—Bush trees of the finest quality can now be obtained from the nurseries at a much cheaper rate than private growers can produce them, but every tree supplied by the trade is not adapted for special training, and as future success greatly depends upon a good start, I would either obtain one-year-rooted cuttings or propagate my own. Cuttings can be put in at any time from the fall of the leaf until the end of January, but the best plants are obtained from sound well-ripened wood inserted in the open ground in October. Having selected firm pieces of wood a foot or so in length, if with a heel so much the better, remove all the buds from the base upwards to within 6 inches of the point, insert them in rows 18 inches apart on any light, warm border and allow all the buds to grow freely the following year. Lift at the end of the first year, trim off all suckers that may have started from buds that were overlooked, shorten the roots and plant at once against the wall the trees are intended to occupy. The distance from tree to tree must, of course, be regulated by the height of the wall, the mode of training, and the varieties; high walls might be

quickly covered with single or double cordons, while lower ones should have from four to six shoots trained up from each stem. This, however, will be a matter for after consideration, as the second year will be devoted to the vertical training of the most promising shoots thrown out by each tree. When thoroughly established the shoots may range from 6 inches to 9 inches apart, and as trees are quickly and cheaply manufactured, it is good policy to put in duplicates and weed out the worst to make room for the extension of the best.

BORDERS for wall Gooseberries need not be more than 2 feet wide to start with, but they should be thoroughly drained, as it not unfrequently happens that the drip from the coping falls on the north side, and it is not always convenient to run light spouting along the eaves, although this is really what ought to be done, both for the protection of the roots and the preservation of the fruit. Having well bottomed the border and grouted the foundations of the wall with limewash, introduce from 6 inches to 9 inches of drainage, fill in with the best rough friable soil at command, using plenty of burnt earth as a corrective; allow it to settle and plant quite 9 inches above the level of the wall path. Where walls cannot be devoted to Gooseberry culture, a selection from the different sections, notably those varieties which produce large berries, can be neatly and profitably grown against lath or wire trellises strained across open quarters, or parallel with the margins of the garden walks. The ground under all modes of culture should be well drained and prepared, and surface-mulching should be liberally applied when the trees come into bearing.

PRUNING.—To circumvent bud-devouring birds, pruning is generally deferred until the spring; but where the soot and lime-wash is syringed over the trees immediately after the operation is performed, this putting off until all hands are fully occupied is not necessary. An old hand at pruning, after removing all gross shoots and suckers, works his way well into the centre of the tree, which he opens freely, leaving plenty of straight shoots sufficiently wide apart to admit of the introduction of the hand and arm. He then gradually thins his way outwards, still leaving the best placed young growths, as they produce the finest fruit. All crossing and superfluous shoots are cut out to within an inch or so of the old stems, half-ripened points are tipped off, and the work is finished. Some use scissors or Gooseberry pruning hooks, but instruments of this kind do not make such clean cuts and good work as a well-handled knife. Spreading varieties should be grown on rather tall stems to keep the fruit on drooping shoots clear of the ground.

W. COLEMAN.

*Eastnor Castle, Ledbury.*

Alpine Strawberry.—I am much surprised that the culture of this Strawberry should be so generally neglected. I have grown a fair breadth of it for the last twenty years on a cold clay, on which the British Queen will not perfect a fruit, and Dr. Hogg does not survive to a second season, though other varieties, such as President and Sir Joseph Paxton, succeed. With me the alpine, excepting this season, when it failed through drought, has always produced excellent crops of highly flavoured fruit, lasting from the beginning of July to the end of September. When it appears on the table in the height of the Strawberry season, together with its larger rivals, it is often, when eaten with cream, preferred to them; in the opinion of many it makes the finer combination. The English fruit is, I think, superior to that which so many have found acceptable on the Conti-



ment. It ought to be grown wherever room can be found for it. It is not particular as to situation; it will thrive in most cold corners, even in partial shade. It is best raised from seed, which, if sown in heat early, will produce plants which will fruit in the autumn. I have had a large experience in the cultivation of Strawberries, have tried most of the best known varieties, and have arrived at the conclusion that each has its own particular liking as to soil, &c.; therefore anyone who wishes to succeed in cultivating them should at first grow only a few plants of as many of the best recognised varieties as he can, and when experience has taught him which varieties best suit his soil, plant them only. I recognise the well-earned reputation of Keen's Seedling and British Queen, but if I limited myself to my own experience, I should describe them as absolutely worthless.—EDMUND TONKS.

### EARLY PEARS.

THE following remarks will be confined to such kinds as come in for use from July until the end of November and to sorts which have gained a good reputation as regular bearers. There are not many July Pears. I only know of two. These are St. Swithin's and Doyenné d'Été; both are very small, but excellent in flavour and wonderfully prolific. They come in at a time when other fruits are plentiful, but where Pears are valued, both early and late, these should be grown as bushes. The Jargonelle stands first amongst August Pears. In some parts it succeeds as a standard, but oftener as a wall tree, and this is the position which it ought to have. It is large, melting, and has a delicious musky aroma. It is, as a rule, very prolific, but possesses no "keeping" qualities. It is a grand Pear in every respect, and all who exhibit fruit in August and September should grow it as well as those who enjoy a good Pear at dessert at that season. Williams' Bon Chrétien is a fine August and September Pear; it is large, fine-grained, white in the flesh, and has a highly perfumed flavour; it is very prolific, and bears uncommonly well as a pyramid on the Quince stock. Autumn Bergamot is small, but a wonderful bearer and very juicy, and rich in flavour in the latter part of September and October. Beurré d'Amanlis is a magnificent October Pear. I do not know of any to surpass it in quality. It succeeds either as a standard or against a wall in an east or west aspect. It is of large size, buttery and sugary in flavour, a very certain bearer, and should be generally planted. Brockworth Park is a handsome September Pear. It does admirably as a bush, and hardly ever fails to produce a good crop. Its skin is smooth, pale yellow on the shady side, crimson opposite the sun, and has a white, melting, juicy flesh. It is a great favourite in the west of England and in Wales, owing to its free-bearing habit and extra good qualities. Fertility is true to name, bearing as it does enormously on either the Pear or Quince stock, but its quality is only second rate. Flemish Beauty hardly ever ripens until October; it is a handsome Pear, first-rate in quality, and in order to secure full flavour, it should be gathered before it is quite ripe. This variety comes finest on the Quince. Seckle is one of our best October Pears. It is enormously productive, rather small, but very melting and buttery, and rich and fine in flavour. It makes a capital orchard tree. Swan's Egg is prolific, but not first-rate, and it is not by any means one of our best October or November Pears. Beurré Clairgeau is a capital November Pear. It is a prolific bearer; fruit large, pale yellow, tinged with orange on the sunny side, and dotted with russet. Its flavour is, perhaps, not quite perfect, but it is a valuable Pear either against a wall or as a bush, and one which should be generally

cultivated. Baronne de Melo is a fine November fruit. It is large, melting, sugary, and aromatic, and an excellent bearer. Beurré Bosc is a superb November fruit, but it requires a warm situation to bring it to perfection. Beurré Diel, a well-known autumn sort, succeeds well as a rule everywhere. Marie Louise and Louise Bonne de Jersey are two prolific Pears, but I prefer Brockworth Park to either of them. Beurré Gris is very prolific; indeed, it never fails to bear heavily, but the fruit begins to rot at the core almost before it is ripe, and when ripe it will not keep even for a week. Its flavour is peculiar, but not first-rate. Bishop's Thumb is a good bearer. It is at its best in November, and although different in flavour from most kinds it is generally well liked. Some make a distinction between stewing and dessert Pears, but, throughout the autumn at least, we do not do so. Our cook prefers stewing Pears unripe, and therefore any sort most plentiful is used for the purpose.

CAMBRIAN.

### WINTER DRESSING FRUIT TREES.

THERE can be little doubt that vast numbers of fruit trees are ruined by insect pests without the owners having the faintest idea that anything is the matter with them beyond the fact that they are unfruitful and sickly-looking. It is easy enough to see American blight and similar pests, but it is only by close examination that the various sorts of scale that affix themselves so tightly to the bark as to appear like a part of the tree itself can be discovered, yet they soon make their presence known by the languishing look which is given to the foliage, and until eradicated it is useless applying stimulants to the roots or employing other remedial measures, as nothing short of removing the scale will bring the tree back to its former healthful condition. As the leaves are now falling, it will be well as soon as they are down to make a careful examination of all trees both on walls and in the open, for all are liable to be attacked by these insidious pests, and attack them at once, for when dormant the buds are not so easily injured by strong applications as when, after the shortest day, they get active. After trying various remedies more or less successfully, I am persuaded that paraffin oil is not only one of the best, but cheapest that can be applied. The way in which we use it is to mix it with soot and clay, dissolved in water until it is of the consistence of paint, and to three quarts of this mixture add one quart of paraffin oil; I find that the great difficulty of mixing oil and clean water, as is done in syringing, is nearly overcome by using it in mixture with a paint-like substance, and the dangerous nature of the oil is in that way also nearly overcome. In fact, with careful usage, I have never seen any injury sustained by the buds, or even the softest wood. In applying it we take a small-handled hair-brush, and work it round all the limbs and branches affected; and for small wood, such as that of Peaches, we use a common paint-brush. Being light work, a boy can do it as well as a man, and if put on in dry weather, so as to get well set before rain comes, it takes a great deal of drenching to get it off. When it does wear off the clean shining bark will tell how effectually it has done its work. For any kind of tree that cannot be dressed with a brush, I find paraffin oil mixed with hot water and applied quite warm, by means of a syringe or garden engine, to be a capital remedy. Climbers and creepers of various sorts on buildings where the overhanging roof keeps off the rain are very liable to get infested with scale,

and for cleaning these nothing is better than paraffin oil; but if the foliage is on them, the quantity of oil must be reduced to one pint to the gallon, as the leaves cannot safely be treated to such strong remedies as the bark.

Hants.

J. G.

**Damsons and Bullaces.**—I agree with all that Mr. Groom says (p. 335) respecting the value of these fruits. In this county, Cheshire, as also in the adjoining counties of Denbigh, Flint, and Shropshire, the Damson is largely grown. The crop, however, is partial this year; indeed, it does not average more than half a crop at the outside; consequently prices are high. Dealers are offering 25s. per hamper of 126 lbs.; those, therefore, who are fortunate enough to have good crops are realising such prices as should induce both large and small holders to plant Damson trees instead of growing corn. Perhaps Mr. Groom, or some one interested in pomology, will kindly explain why it is that Damsons and Bullaces rarely thrive in the same locality. Here and in the adjoining counties the Damson is quite at home, whilst the Bullace tree when planted seldom attains any size, and the fruit is small, scabby, and miserable—quite useless, in fact, for any purpose. On the other hand, the Bullace thrives abundantly in the eastern counties, whilst the Cheshire and Shropshire Damson, as a rule, do not thrive there, the trees producing poor crops of very inferior malformed fruit.—JOHN J. JONES, *Southend, Chester.*

**Peasgood's Nonsuch.**—We have to thank Mr. Coleman, of Eastnor Castle, Ledbury, for two handsome specimens of Peasgood's Nonsuch Apple grown on cold limestone. Each weighed 14 ozs. Mr. Coleman says he has had them larger, but the drought this season has been against them. This Apple, which was raised by Mr. Peasgood, of Stamford, some fifteen years ago, is excellent either for dessert or as a culinary fruit, and well deserves attention. It has a yellow skin overspread with red on the sunny side, and in shape and size reminds one of a Blenheim Pippin.

### GARDEN DESTROYERS.

**Eucharis mite.**—We have a large collection of Eucharis which we are afraid has been attacked by the Eucharis mite, as all the plants which were at one time furnished with grand foliage have nothing left on them but a few unhealthy leaves. About two or three months ago they showed signs of declining health, so the bulbs were all shaken out and potted in fresh loam. They have, however, made no progress since. On examining some of the roots, we found that they were decaying, an insect having eaten a hole up the centre of each root into the base of the bulb. On placing some of the roots under a microscope we found three different insects, or perhaps they were three forms of one insect in different stages of development. Some were like small caterpillars, others resembled minute woodlice, while the third looked like a spider or land crab, all being of a whitish colour. Now, if the bulbs are really infested with the mite, is there any way of eradicating it? If there is, we should be very glad if you would publish it in THE GARDEN. We send you a bulb for inspection.—W. J. M., *Dublin.*

\* \* Your Eucharis bulbs are undoubtedly attacked by one of the bulb mites (*Rhizoglyphus echinopus*). What the other insects are I cannot say without seeing them; there were none on the bulb you forwarded. They, however, must be quite distinct creatures from the mites, and were probably not in any way the cause of injury to your bulbs. The mites are the offenders. I believe there is not any means known for destroying them short of washing the bulbs as clean as possible, removing the decayed portions, and then brushing them (with a stiffish brush) with soft soap and tobacco water, or some other insecticide which would not injure the bulbs. The earth which has been in contact with the bulbs and the water in which they have been washed should not be left about; the former should be burnt or



buried, and the latter thrown down some drain. I suggested (in THE GARDEN of June 6) dipping infested bulbs into water of a temperature of 115° Fahr. for a few minutes; this will kill the mites, and I do not think will injure the bulbs. If you have several which are attacked, experiment on some which are not so far gone as to be past recovery, re-pot them in earth which is free from mites, and let us know the result in due course.—G. S. S.

## ORCHIDS.

### ORCHIDS AT BURFORD LODGE.

IN the grand collection of Orchids here one is sure to find something in flower even at the worst season of the year. At present some fifty different sorts are in flower, and amongst them *Aerides Lawrencei*, with thirteen spikes carrying at least 250 blossoms of great size and brilliancy. In growth this *Aerides* somewhat resembles a strong *A. odoratum*, but its flowers, which are ivory-white tipped with amethyst, are fully twice the size of that well-known species. *A. Sanderianum*, also a very beautiful kind, was just beginning to open its blossoms. Of *A. Huttoni* there exists here a very fine dark form with long and well-furnished spikes of peculiarly coloured flowers. The glorious *Vanda Sanderiana* is also represented by several healthy specimens, some with flowers already open, and numbering ten on a single spike; also *V. cærulea*, the flowers of which are remarkable not only for good substance, but also for their fine blue tint. Associated with these was likewise a handsome specimen of the pretty *Cœlogyne Massangeana*, with spikes of pale yellow flowers delightfully pendulous; also the curious and always attractive *Oncidium Krameri* and *Phalænopsis Lowi*; the latter seems quite in its element, growing on a bare block, and producing on wiry, scarcely visible stems delicately tinted blossoms in quantity. There are, too, very fine examples of *Cattleya exoniensis* and a quantity of *Lælia marginata*, better known as *L. Dayana*, amongst which are some wonderfully fine varieties as regards not only size and shape, but also colour.

THE CYPRIPEDIUMS, which are well represented in this collection, comprise some very fine specimens of all the best sorts; amongst them was a handsome plant of *Spicerianum* exhibiting, besides robust health, a dozen magnificent flowers; also a very fine *C. vexillarium*, a beautiful hybrid raised between *C. barbatum* and *C. Fairrianum*, and nearly intermediate between the two parents; its habit is very dwarf, the flowers large and striking, and the markings distinct and beautiful. It is more robust than *Fairrianum*, although an equally slow grower. One also feels bound to admire the exceedingly pretty *C. purpuratum*, especially when covered with its showy blossoms; it is one of the most distinct amongst dwarf kinds, and one which, although introduced a good many years ago, is not grown too plentifully. Among other hybrid *Cypripediums* in flower, the most striking are *C. Crossianum*, *C. microchilum*, a distinct variety, the produce of a cross between *C. niveum* and *C. Druryi*, and a grand specimen of *C. Sedeni* bearing over thirty flower-spikes and an innumerable quantity of blossoms and buds in all stages of development.

DENDROBIUMS in bloom at this time of year are not at all plentiful. With much satisfaction, therefore, did I remark the rare *D. McCarthyi* in great beauty; *D. Goldieanum*, a very interesting form of *D. superbiens*; *D. Huttoni* and *D. rhodostoma*, the latter a hybrid of recent production bearing five spikes of pretty brightly-coloured flowers, were also all finely in bloom.

Amongst the cool section was a series of plants consisting of *Trichosma suavis*, whose white flowers are doubly charming on account of their chaste colour and powerful, yet delicate, perfume, which penetrates every part of the house. *Pilumna fragrans*, concerning which the same remarks apply, and *Oncidium ornithorhynchum*, the delicate little flowers of which are produced by thousands. Other showy kinds in the cool house, but not sweet-scented, were *Odontoglossum grande* and a few choice forms of *O. Alexandræ*, *O. bictonense*, and its rare form, *O. bictonense album*, and a very dark and handsome form of *Oncidium cucullatum*.

THE MASDEVALLIAS all grow here with a vigour to which we are unaccustomed in the neighbourhood of London. Besides *M. Veitchiana*, *ignea*, *Davisi*, *Reichenbachiana*, and several others, there was the remarkable *M. racemosa Crossi*, a variety recently imported. Here it may be seen with two spikes of orange-scarlet flowers, three on one spike and two on the other; nor must a magnificent variety of *Masdevallia fenestrata* be passed unnoticed. It is readily distinguished from all others by its elliptic leaves, which are borne on slender wiry stalks, and whose undersides are of a peculiar purplish tint; the flowers of this variety, which are much larger than usual, are also brighter in colour than those of most kinds and produced in greater abundance. Among plants seldom met with in flower was the rare *Odontoglossum Warszewiczii*, which in general appearance resembles *O. vexillarium*, but whose white flowers are quite distinct and nearer those of *O. Roezli*; there was also the equally scarce *Odontoglossum Kramerii*, whose pale bluish coloured flowers are quite different from those of any other; the curious and pretty *Oncidium nanum*, with short drooping spikes of small but very bright yellow and brown flowers, and the equally rare *Arundina bambusæfolia*, a terrestrial Orchid with very pretty purplish mauve flowers produced in succession on upright flower-spikes, and above all the *Pachystoma Thomsonianum*, a striking Orchid from the west coast of Africa, whose white sepals and petals contrast admirably with its long, narrow, purple labellum.

**Cypripedium spectabile.**—When I had more time to attend to hardy plants than now I used to grow this Orchid in deep pans of rather heavy soil, and although it only had ordinary attention in a cold frame, it flowered regularly every year. When one knows what an interesting plant it is, and how simple are its requirements, one cannot help wondering how it is that such a beautiful, yet easily-managed, plant does not meet with more favour than it does. Seeing that, as I have said, it is quite hardy, no one need hesitate to give it a trial.—J. C. C.

**Orchids at York.**—When walking through Messrs. Backhouse's Orchid houses the other day I noticed that there was promise of a grand display of bloom very shortly on the large batch of plants of *Lælia autumnalis atropurpurea* now growing in the Mexican house. Fully 300 spikes were showing, many of them nearly as thick as an ordinary lead-pencil at the base and furnished with eight prominent buds. They are in pots in tough fibry peat, well drained, and are found to do better in this way than when fastened on to blocks of Thorn or Pearwood, as was tried a year or two back. In the same house were some large masses of *Lælia anceps alba*, showing several spikes of bloom, the opening of which is looked forward to with much interest. In an adjoining compartment of the same house were some very pretty varieties of *Lælia Dayana* in bloom. They were on small blocks of Thornwood, in a little Sphagnum and peat fibre, and occupied a corner of the house behind the door somewhat away from cold currents of air, though the general temperature was by no means close or hot. In another portion of

this house a nice batch of *Cattleya Gaskelliana* was in bloom; amongst them were some very pretty forms, and blooming as they do at this dull season of the year for *Cattleyas*, they are much sought after. Amongst cool Orchids, there was a good display of *Odontoglossum Alexandræ* in a variety of forms, and also of *Masdevallias*, *M. Davisi* with its citron-yellow flowers being very distinct, and evidently of a free-flowering habit. In the large *Cattleya* house there was, of course, not much bloom, but what was to be seen looked on that account all the more conspicuous. Amongst the latter were some forms of *Cattleya Eldorado* and a very fine plant of *Lælia elegans Schilleriana* bearing several spikes. This plant is almost a continuous flowerer here, the present being its third crop this year.—H. J. C.

**Aganisia cærulea.**—In reference to this Orchid (p. 290) I may state that it has flowered with us for five successive years. We find it to do very well on a bare block or raft hanging in the Cypripedium house. This house we keep very warm; it would probably correspond with what is generally termed the East Indian house. The *Aganisia* likes abundance of water; in fact, it is necessary to its existence, being the only means by which yellow thrips and red spider are kept off it. We find it to bloom freely; the spike which springs from the base of the scarcely matured bulb generally produces a couple of blooms (I have never seen more), which last about six weeks. It is said there are two varieties of it; ours have proved to be all of the bluish purple kind. Mr. Corning imported them from Brazil under the name of blue Orchid, and three years ago we sent a drawing and dried flowers of it to Professor Reichenbach, who kindly furnished us with the name.—F. GOLDRING.

**Tree-roots in garden soil.**—In removing trees from gardens it is necessary to carefully remove all roots along with them, otherwise they will probably prove a source of annoyance for a long time, by encouraging fungoid growths of very offensive smelling kinds. All fruit growers are aware of the mischief wrought in Vine and other fruit-tree borders by burying decaying wood in them, and thereby generating a fungus that attacks the roots of the living Vines and trees, and soon brings them into a sickly condition. During the present season the owner of a villa close to me frequently complained that he could scarcely live in his house, owing to the disagreeable odour arising from his garden, and on examination it was found that a fungus was the cause; a tree in a half-dead state had filled the soil with this pest, a puff-ball-looking fungus, which when fully grown and above ground gave off an offensive odour. As plants of most kinds can be removed now with safety, anyone troubled with a similar pest will do well to look to it at once; dig the soil up deeply, and take out every particle of decaying wood and fungus; then give a good dressing of lime, and leave the ground as rough as possible for the winter. Shrubs and trees that die from any cause are too frequently cut off close to the soil and the roots left to decay, but it is far safer to carefully dig them up.—J. G., Hants.

## QUESTIONS.

5408.—**Leasing orchard ground.**—I am about to let a few acres of good sound loamy soil for a fruit garden (market) and orchard. I see considerable difficulty as to drawing up the covenant, and would be glad if any of the readers of THE GARDEN can recommend me a book that will give the needful information. If there is no book on the subject, can any hints be given in reference to it, as, for instance, should I or the tenant find and plant the trees and bushes, and whose will the trees be at the end of the lease? Shall I be liable to pay for the increased value of the trees and bushes in case my tenant plants them, or, in case of eviction, for non-payment of rent?—E. A.

5409.—**Sending seeds to Canada.**—Can any reader kindly give me any assistance with regard to the following? I have been asked to send some tree seeds out to Canada, about 100 miles from Winnipeg, to plant before a house for shelter in winter. They must, therefore, be of the hardiest nature, such as the Norway and Hemlock Spruce, the Scotch Fir, and Mountain Ash. I should like to know where to procure the seeds if they can be purchased. I may add the ground is laid down with Hungarian Grass and very plain, the winters very severe. Any information with respect to culture will also be welcome.—J. H. O'MALLEY.



## KITCHEN GARDEN.

## VEGETABLE FORCING.

THE beginning of November is a suitable time to commence forcing vegetables, and those who have plenty of roots and seeds, hothouses or pits, and fermenting material at hand need have little difficulty in producing a constant supply of the finest forced produce. There are others, however, whose resources in these respects may be limited, but who would, nevertheless, be pleased to have some forced vegetables, and by making the most of the means available these may also succeed. Their dependence in that case must rest on hotbed material, but to force on a large scale and in the best manner forcing houses must be employed as well. November may be too early for some to begin to force, but provision should be made for doing so now, and large quantities of fallen leaves should be collected for that purpose. For all kinds of root-forcing these are invaluable, and with a quantity of them and frames no one need be afraid of failing to produce Rhubarb, Seakale, Asparagus, &c., in winter. A pit after the style of one suitable for growing Cucumbers is a most suitable place for winter forcing. It is from such a place that we always cut our first

ASPARAGUS, and we find the work to be easy and the produce good. For years back we have cut forced Asparagus by the second week in November, and it gives so much satisfaction that we never grudge having to raise plants from seed annually to take the place of roots lifted for forcing. The stems are cut over close to the ground, the roots lifted without breaking, and then they are put in as close together as they can be packed in the Cucumber bed. They stand only about 18 inches from the glass, and a flue is underneath them; the tops under such circumstances come up very robustly. A few leaves are spread over the bottom of the bed; on these the roots rest, and they are covered over with old potting-shed soil. The bottom heat averages about 80°, the top 65°, and we generally cut Asparagus thus forced twelve days after the roots are put in. It is astonishing how quickly well-developed thoroughly-matured roots will push up heads in November, and the quantity produced is very remunerative. This is the best of all ways of securing early Asparagus. Another good way, but slower, is to make up a good hotbed, place a frame on it, put the roots in on the surface, cover them over, as in the case of the pit ones, with soil, and put the lights on. In autumn Asparagus may be cut in three or four weeks from such a frame as this, and in spring, when the roots force more freely, it may be cut in less time. Bottom heat is more required than top heat, and it is the former which should be unfailing. A few roots placed in heat every fortnight will furnish two dishes or more weekly. When in frames the roots require no water, but when in a pit with hot pipes or a flue under them they must have it often, especially when in full growth. It is an advantage in all cases to have the roots near the glass, as if far from it the shoots soon become spindly and flavourless.

RHUBARB gives general satisfaction in a forced state, but it cannot be obtained so quickly as Asparagus. Roots put in now would not yield any stalks worth cutting for a month or so, and it is not easy to have it good and plentiful until Christmas at least. There are three ways in which it can be easily forced. The roots can be lifted and put in the hotbed like those of Asparagus. They can also be put into a Mushroom house or pit where there is heat and darkness, or they can be forced in the

open ground. The two former ways are the quickest, but the last is the one by which the finest Rhubarb is produced. There are pots specially made for placing over the crowns, but empty casks or old boxes do almost as well; one or other of them should be turned upside down over the crowns, so as to admit of stalk growth, and then the whole should be embedded in fermenting material. It is a hotbed affair altogether, but instead of the roots being above the heat they are below it, and thus situated they succeed uncommonly well. It is necessary to keep the stems in the dark, and wherever Rhubarb is forced, this rule must be observed.

SEAKALE may also be forced in each of the ways by which Rhubarb is produced, and many consider the flavour of Seakale thus forced better than that from roots lifted and forced elsewhere. It takes a long time, however, to thus force Seakale in November and December, and we generally lift a quantity of roots in these months, put them in batches in large pots, and plunge them in fermenting material in a dark place—the Mushroom house, as a rule, but if put in a frame we would cover them over. In this way the produce is not long in making its appearance, and when the roots are done with they are reserved until spring, when they are cut up into lengths, and put out to make new plantations. We would follow this plan up to January; then the open-air system would be adopted.

KIDNEY BEANS are delicious in mid-winter, but none but those who have good glasshouses can manage to get them. They will not succeed in a cool house, nor yet in a damp one. In a house where the temperature ranges from 65° to 70° or 75°, a good crop, by sowing at once, could be had by Christmas. The dwarf-growing sorts are the best for forcing; Osborn's is the type. The Canadian Wonder and others of that character are useless at this season, being too tall in growth and not prolific enough. There are various ways by which kidney Beans may be treated at this season, but the following is one of the best. Fill any number of 3-inch pots half full of light rich soil; on the surface of this put from eight to ten Beans, and over them put 1½ inches of soil; then place the pots in any house or pit in which the temperature is about 65° or 70°, and in a few days the young plants will appear. Water very sparingly at first, and when the plants are about 6 inches high repot them into their fruiting pots. A 6-inch pot is large enough for one potful of the young plants, or three small potfuls may be put into an 8-inch pot. In potting, use rough, rather rich soil, place the plants in a temperature of 70° and as near the glass and light as possible, watering sparingly until plenty of roots have been formed, then let them have it in abundance. During the time when they are in bloom keep the atmosphere on the dry side and none of the fruits will decay. Those who possess a good house for the forcing of Strawberry plants in spring will find the cultivation of kidney Beans a profitable crop in that structure until it is wanted for the Strawberries. Asparagus, Rhubarb, Seakale, and kidney Beans are four of the most important and satisfactory crops anyone could force, and Mushrooms may be added as a fifth of equal importance. There is no time when

MUSHROOMS are more appreciated than in winter. In summer, when vegetables of all kinds are plentiful, they can easily be dispensed with, but in winter they fill up an important place, and all who can should grow them at that season. Securing material in which to do this may trouble some. Horse droppings are,

however, not the only material in which they grow. A neighbouring farmer made up two Mushroom beds some time ago; one was composed of manure from the stables, the other of manure from the cow-sheds. They are both now bearing, and the one is as good as the other. Both these beds were made up in a cool outhouse, and this is as good a place as any in which to grow winter Mushrooms. Of late years we have grown quantities in our potting shed and also against the back wall of another shed, and they grow quite as well in such places as in the best heated Mushroom house. This in itself is a great saving, and ought to make winter Mushroom-growing common. We generally use horse droppings, but use a liberal quantity of soil and half-decayed leaves with them to increase the quantity of material. These materials are only moderately dried; the spawn is then put in, and the soil put on before the heat has declined very much. I know of a good many who have been induced to grow Mushrooms in this way after seeing them here, and they have generally been surprised to find their culture so easy.

J. MUIR.

**Large fungi.**—I found the other day three such enormous round white fungi growing in a plantation here, that I weighed them, with the following results, viz. :—

lb.	oz.	ft.	in.
6	13½	girth 3	2½
3	11	„ 2	6½
1	15½	„ 2	1

Are not these weights and sizes rather out of the common?—G. FELLOWS, *Beeston Fields*.

\* \* These fungi doubtless belong to the large edible puff-ball (*Lycoperdon giganteum*). The size and weight of the largest example is remarkable, but larger and heavier specimens have been recorded.—W. G. S.

**Potatoes at the Crystal Palace.**—Mr. Muir's assumption that the Crystal Palace Potato Show is not worthy the name of international because only English and Scotch grown Potatoes were seen on the show tables proves nothing. If growers elsewhere do not send Potatoes for exhibition, that is no fault of the promoters. The appellation international is based on the fact that the competitions are open to all the world; hence the show is emphatically international. That the number of competitors was this year somewhat limited was due to the drought. Still, a display of some 2000 dishes of tubers of the finest quality was rather above a county show. Mr. Muir is wrong in asserting that certificates are given to Potatoes simply because of their good appearance. It is unfair to say so, because if he had read carefully, as he should have done, the reports of the International Potato Committee's proceedings, he would have seen that no certificate is granted to any Potato that does not, after careful trial as grown at Chiswick, obtain the full number of marks for cropping, and again, after careful cooking, for table quality. Thus, this year four certificates only were granted, though some forty or fifty kinds were tested. No body of cultivators could exercise more care in this direction since these trials have been established than does the International Potato Committee. As to good Potatoes never being displaced, does not Mr. Muir admit that in the case of every garden product there has been a change, and that even the best Potato of the day may find its superior by-and-by? Regents, Victorias, Flukes, and Lapstones were all good in their day, and when there was little or no disease, almost first class, and yet they are fast being displaced by other more robust kinds, having equally fine quality and less liable to disease. As to Sanday's Seedling, I can assure Mr. Pearson that I have the true variety, and find it, as I have said, in no respect different from the Lapstone. In some places, probably so at Nottingham, it is as good as Lapstone ever is, but I judge of its merits not with Lapstones, but rather against other and more modern kinds. It was noticeable that, though exhibited so



well by Mr. Pearson at the Crystal Palace in 1883, it has made no special appearance since, and I did not observe it amongst any of the 2000 dishes shown the other day. It is unfortunate that this kind was not sent to Chiswick for trial against all the best known sorts.—A. D.

#### WORK DONE IN WEEK ENDING OCT. 20.

OCTOBER 14.

THE weather of late has been just a little too boisterous and wet for us to finish in comfort the gathering of Apples and Pears, but to-day being extra fine, Apple gathering has been completed, Court Pendu Plat, Deux Ans, Beaufin, Yorkshire Greening, and Lemon Pippin being the last to be gathered. The only Pears yet to house, and which do not seem quite ready, are Ne Plus Meuris, Glou Morceau, and Winter Nelis on standards. Gathered Walnuts. Peaches from the open walls are still most excellent; the varieties now in use are Princess of Wales and Desse Tardive. There is such a thicket of foliage on the Peach trees, which, hanging down so flat, must intercept, to some extent, the sunshine from having that ripening effect on the wood that just now is so desirable, that we shall take the first opportunity of resorting to the old, though abused, plan of going over the trees with a long hair-broom, and by a gentle heave upwards bring down the most matured foliage, and thus admit light and air to the wood, which we like to see a rich dark brown in colour. The foliage of Apricots is falling naturally, but we have been over the trees to pick out all decayed foliage that lodged on and between the branches; thus we got neatness, and the trees some little benefit by full exposure of the shoots to light. Put cuttings of Calceolarias in cold pits, in which they are to winter. We never use pots or boxes; years ago we did this, and the plants died off most mysteriously, but now we are never bothered in that way. Moral—don't "coddle" the plants by pot culture and warmth. They will successfully resist 12° of frost; hence there is no necessity to put them in heat. The frost, that has done so much damage in many places, has been more merciful to us, for the flower garden is almost as gay as it has been all the summer, not a Dahlia, Marguerite, Fuchsia, or Pelargonium being the least damaged; still, we keep on lifting a few of the tenderest plants, and as this is done hardy kinds are put in; thus the work of restoration goes on gradually and almost unperceptibly. We are now preparing Heather and flakes of Sedum glaucum and Lydium to take the place of such ground-work plants as Alternantheras and variegated Mesembryanthemums.

OCTOBER 15.

Again it rains—a regular downpour. Fruit rooms are our first consideration. The arrangement of fruit on shelves is not a small matter in this year of abundance, and they have to be placed a couple and three layers thick; consequently, one has to insist on the work being extra carefully performed, such as picking out every specked and bruised fruit that would be likely to rot soon to the injury of others. Looked over Potato stores, and covered up the tubers with dry straw; also packed Beetroot and Intermediate Carrots closely together in dry sand—a mode of preservation by which the roots turn out as fresh as if newly dug out of the ground. Chrysanthemums are now all indoors, and in this damp weather, having visions of mildew, preventive measures are taken to escape it by giving all the air possible without rain actually falling on the plants, and turning on the slightest bit of heat to keep the atmosphere buoyant. Potting up bedding plants, also potted Spireas, Hyacinths, Tulips, and Narcissi. Looked over all Grapes to remove decayed berries; every bit of unnecessary foliage and lateral growth is now cleared off; consequently there is nothing to countenance or engender damp, except external moisture, and when this is excessive the fires are kept up and the ventilators more or less open. Cleared out another lot of Melons, and put Tomatoes in their place. The plants have been grown on in pots in the open air and the fruit is just set, and the rooting through the bottom of the pot into the old Melon bed will materially assist the swelling of the fruit.

OCTOBER 16.

The weather has, indeed, been a contrast to yesterday. Sweeping up—no end of this work now—and rolling walks and lawn tennis ground. Began the final earthing up of Celery and cleared off Asparagus plots. They will now be weeded, and have a dressing of fresh soil and manure as soon as that work can conveniently be done. Renewed heating material in fruiting Pine stove; we use Oak leaves principally, just a little fresh stable litter being mixed with the leaves to cause them to heat more quickly. Half-decayed leaves we use for plunging the pots in, and like them better than tan, there being no danger of injury from overheating, but with tan there is. Moreover, the heat from Oak leaves lasts longer. All our Pine beds will now have fresh fermenting material added, and this will serve the plants till it is time to rearrange and pot on some of the plants from the middle to the end of January. Potting up more bedding plants and a few Pinks for forcing. That grand and strongly-scented variety, Mrs. Sinkins, and the common white force splendidly.

OCTOBER 17.

Weather and work much the same as yesterday. Sweeping and rolling is a matter of course on Saturdays, and any further remark on that head is unnecessary. Finished renewal of heating material in two divisions of Pine stove, and replunged the plants. Examined all Grapes, to cut out bad berries. The atmosphere of all vineries in which ripe fruit is hanging is kept perfectly dry, sweeping up with hair-broom being all the cleaning up the houses now get or require. Plant houses have been thoroughly overhauled, dead flowers, foliage, and fronds picked off, and shelves, doors, and floors washed, and some little time has been occupied in getting together Pears (only ninety varieties) for the meeting at Chiswick on the 21st.

OCTOBER 19.

It still continues fine, and we have made good progress with garden work. Celery earthing being finished and Asparagus plots weeded ready for the dressing that will presently be applied, we want to begin fruit-tree and shrub planting, but till we get down more of the leaves and have less sweeping up, so that we can go on with such work without hindrance, we shall not attempt any, except Peach tree planting and root-pruning in the houses, which we are now doing, as this kind of work will not wait, unless we are content to sacrifice a season's fruit, and not many of us are anxious to do that. The soil we use for planting and renovating Peach trees is a sandy loam, rather light; but as we are able to get it with the Grass and fibre entire, this makes amends for the lightness, and the heavy pounding it gets as the border is being made also helps to supply the lack of adhesiveness. Chalk and a few bones constitute the whole of the ingredients that are mixed with the loam. Planted Echeverias and Kleinias in frames, and began to get Strawberry plants into cold pits for the winter.

OCTOBER 20.

After the now daily sweep up of walks, soil-digging and chopping and mixing it for fruit-tree planting was our principal item of labour. Also earthed up Kales and some Broccoli, weeded herb beds, and pricked out a quantity of Parsley at the foot of a south wall, where, if needs be, in bad weather it can readily be protected. Herbaceous borders are still very gay with Michaelmas Daisies, Japanese Anemones, biennial Sunflowers, Pentstemons, Rudbeckias, &c., and well deserve the trim up we have given them to-day. Weeds, dead leaves, and faded flowers do not harmonise nicely with beautiful flowers, notwithstanding the notions of æsthetics to the contrary. Potting up of tender bedding plants has been the principal indoor work.

HANTS.

#### HARDY FRUITS.

The latest Apples and Pears having been gathered in, lose no time in carrying out all alterations that have been decided upon during the season of growth. Trees that have got into a gross habit may now be root-pruned or lifted and replanted in accordance with former directions. Others that show a tendency

to weakly or unhealthy growth will also be greatly benefited by the removal and replacement of cold inert soil, and possibly by the addition of more drainage. When trees produce pale yellow foliage, and the fruit is small and spotted with fungoid patches, it is a sure sign that the roots have got into bad subsoil or the original planting compost is worn out. The leave-alone system, no matter how good succeeding seasons may be for fruit crops generally, will not improve matters. Spades and steel forks must be brought into action, when good compost and drainage and well-directed labour will stay the evil and give the trees a new lease of healthy profitable life. Last autumn we worked round a row of old Hawthornden Apple trees, originally well planted over good drainage, from which we always gathered plenty of fruit; but 50 per cent. of the Apples were spotted and unfit for use. A trench, 2 feet in width, was taken out a foot deeper than the drainage, every root that had descended into the clay was raised or cut off; the bottom of the trench was then concreted and filled up to the proper level with clean drainage. A layer of fresh-cut turf, Grass side downwards, completed the foundation, and the roots, after being carefully pruned with a sharp knife, were relaid in new loam and burnt earth. A dry season told at first, but the foliage is now green and healthy; flower-buds are abundant, and the few Apples the trees have borne are as clean and bright as models of wax. I ought to say the new compost was put into the trench in a dry state and thoroughly flooded home to the edge of the old balls, which were picked out as the roots were relaid. When the water had passed away, the remainder of the compost was put in and made firm, and a good mulch of rotten manure completed the operation. It is very easy for the writer of the calendar to say do so and so, but one detailed practical example is of more value to the young beginner than pages of theory.

#### ORCHARD HOUSES.

Many people use these structures for Chrysanthemums and a host of half-hardy plants that require slight protection through the autumn months. Others furnish them with late Cauliflowers, salading, and the fag end of the Tomato crop instead of allowing them to remain idle during the time the trees are out-of-doors, and quite right they are in doing so. But there is one thing they should not, although I am afraid many do, overlook, and that is thorough repairs and painting, for if not overhauled now the chance in this particular kind of structure is generally lost for the season. Many orchard houses are built upon what is termed "the cheap," and although a little neglect at the outset may not make much apparent difference, it soon tells upon cheap timber put together before it is properly seasoned; the bedding putty gets loose, water finds its way into the rebates, and decay immediately follows. A dry October is a very good month for repairing and painting, but unless the woodwork is thoroughly free from moisture when the paint is laid on, the work may as well be left undone, as the water will very soon perish and throw it off again, when the second state will be worse than the first. Many horticulturists have given up the application of facing putty; some have discontinued painting; and, judging from a house lately pointed out to me which had stood for several years without paint, there exists but little doubt that half painting is more destructive than no painting at all. Market growers who are constantly putting up houses upon every known principle have, no doubt, tested creosoted timber without paint by the side of non-creosoted timber with paint, and have proved to their own satisfaction which of the two systems is the cheapest in the long run; but these experiments would not benefit the owners of old houses, as painting once begun must be followed up, and those who reduce their repairs to a regular system will find themselves gainers in the end. So much for the management of the structures; I now return to the legitimate occupants, including stone fruits of all kinds, Pears and Strawberries. The stonefruits, Peaches and Nectarines, especially being most valuable and interesting, are by many growers placed at the head of the list, and on this account claim our first attention. If carefully pruned and potted as soon as the fruit was gathered,



they will now be standing in some open, but sheltered, spot out-of-doors, where, regularly attended with water and exposed to autumnal rains, they will be clean, well rooted, and ready for storing away for the next three months. Rain will not hurt them, as the roots must have plenty of water, but frost will expand the balls and burst the pots. The principal point at the present time to be attended to will be their protection from this insidious enemy either by plunging in a dry border, or placing the pots on a sound worm-proof station, where they can be well packed with Oak leaves, litter, or Bracken.

*Cherries, Plums and Pears* require similar treatment; but owing to the precocious nature of their buds they are always open, particularly in mild seasons, to attacks from birds at the present time, so numerous both in town and country. In some gardens the sparrow is the culprit; with us the bullfinch is most destructive, and although he never attacks until the buds begin to swell, we always protect with nets as soon as the trees are arranged for the winter.

*Strawberries* now standing about on dwarf walls or high and dry stations favourable to the ripening of their crowns and roots must also receive attention. Opinions as to the best mode of wintering these plants vary; some assert that they should be kept under glass; others think they force best when kept out-of-doors until the time arrives for starting. All agree that they should never feel the want of water from the time they are potted until the fruit is ripe, and as they are perfectly hardy and start best after a season of complete rest, a good situation in the open air where the pots can be protected from frost is all that is needed. Where cold pits and frames are at command it is a good plan to plunge the pots in spent tan, leaves, or ashes, more for the protection of the pots than the plants; but the lights should be thrown off every day unless the weather is very wet, or frost is unusually severe. The worst place is a dry house in which the roots require attention, with water during the time the plants are at rest. Tender varieties, like British Queen, Doctor Hogg, and Sir Charles Napier, are sometimes affected by frost in low, damp situations like our own, and for this reason shallow, well-ventilated pits suit our plants better than the most favourable position we can find out-of-doors.

#### FRUIT TREES FOR POTTING.

If newly selected trees have been received from the nursery, advantage should be taken of mild, open weather for getting them potted and plunged in the situation they are intended to occupy until they are wanted in the orchard house. Many growers go to the nursery for their first stock of trees established in pots ready for forcing, and add a few to the number each succeeding year as they require fresh varieties or duplicates. Some choose trees that have been cut back and formed in the nursery quarters; others give preference to maidens which have not been touched by the knife, and doubtless they are right, as they require very little pruning, and form the best of all pyramids under summer pinching. The process may appear slow, but such is not the case, as we now have fifty Pitmaston Duchess Pears that were potted and plunged last February. They have not been watered half a dozen times, although the summer was unprecedentedly dry; but a good layer of rotten manure was spread over the plunging bed, every side shoot was pinched, and they are now close, compact pyramids 3 feet high, and plentifully furnished with blossom-buds. These trees will remain out-of-doors all the winter, or until the buds begin to swell; they will then be taken into a cold house to set their fruit, and when all danger from spring frosts is past, they will be replunged on a warm south border, where under good management they will swell off fruit of the first size and quality. After the strong roots had been shortened back to admit of their fitting into 9-inch pots, each tree was firmly potted in compost consisting of pure calcareous loam and old lime-rubble, well watered, staked where necessary, and rather deeply plunged in a dry, warm border.

*Plums and Cherries* respond to similar treatment, and when it is borne in mind that the trees cost only a few pence each, it will be readily admitted that this

is a cheap and expeditious mode of manufacturing fruit-bearing trees for pot culture. The advantage does not, however, end here, as trees of this description have no cut-back shoots to gum and canker, and every side growth is turned to profit by constant pinching.

#### PEACHES, NECTARINES, AND APRICOTS

will do well in the soil that has been recommended for Pears and Plums, but their after treatment must be a little more generous, at least in ordinary situations. In very warm gardens in the south, maiden trees might be grown into well-ripened fruitful pyramids in the open-air; but spring frosts, blight, and aphids very often cripple the first growths, and the second, if kind and free, do not have time to ripen. Winter frost does not, however, hurt them, particularly when they are well plunged and partially buried in dry Fern or litter in a snug corner; but when the time comes round for housing fruiting trees, newly-potted maidens should be taken in also. If well grown, many of them will be from 2 feet to 4 feet in height, and plentifully furnished with side-shoots. These should be allowed to remain intact through the winter, but immediately after the trees are taken in they must be shortened back from the first bud near the apex to the second near the base. Short, sturdy maidens may be left full length; others that have made vigorous growth should be shortened back to a well ripened bud on the main stem. If bush trees are wanted, any maidens that have not made a clean straight lead must be cut back to within 12 inches of the union. Pot trees, like pot Strawberries, should never be allowed to become dry at the root; hence the advantage of plunging where the roots, always growing, can take care of themselves. If any of the large trees that have been planted out in lofty orchard houses show a tendency to grossness, they may still be lifted, root-pruned, and replanted in pure loam free from animal manure. When annual or biennial lifting is followed up these trees soon form substantial balls well filled with fibrous roots. All the strongest should be shortened back to the edge of the ball and the soil firmly rammed to prevent the too rapid escape of water. When nearly filled to the surface, flood with water in sufficient quantity to penetrate the old balls as well as the newly disturbed soil.

Eastnor Castle, Ledbury.

W. COLEMAN.

#### NOTES ON RECENT NUMBERS.

*Hedychium* (p. 396).—The old favourite *Gardnerianum* is pretty well known in most gardens which "sport" a greenhouse, for it possesses the three "f's" which one might reckon the perfection to be expected in a plant—fine foliage, fine flowers, and fine fragrance. In the majority of nurserymen's catalogues *coronarium* is described as yellow, and though some credit it with its proper attribute of whiteness, the plants they furnish under that name generally bear more than a superficial likeness to its commoner brother both in the shape of the truss and the colour of the flower. I tried to get it from many places, but could not till a friend kindly sent it me. It would almost be worth taking some trouble to ensure the free setting of the seeds in *Gardnerianum*, which are, indeed, handsome when freely developed. It is well that those who have seen the remarks made on one or two occasions lately in the pages of THE GARDEN on the beauty of *H. coronarium*, and who are desirous of securing it, should be on their guard and carry out the recommendation given in many places to domestic housekeepers, "When you ask for . . . see that you get it."

The common *Barberry* (p. 405) is praised for the position it fills in a garden it also deserves praise for the position it fills in a house—as jam on a breakfast table, which is often appreciated for the reason that it retains a certain sharpness, to a less extent than Currants, which is by no means disagreeable. I do not know whether it is a special sort or merely the result of the bushes being old, but some of them never have any seeds in the fruit, and it is with these that the jam should be made. If cultivated in gardens like the Currant or modern Blackberry, we might gain some finer forms which would probably be eagerly sought after.

Sussex.

C. R. S. D.

#### NOTES OF THE WEEK.

*Impatiens glandulifera*.—I have had a plant of this Balsam this season in my garden 7 feet in height and about 4 feet wide at the base. Is not this large?—P. BEALE, Cork.

*Phacelia campanularia*.—This most lovely and valuable annual is again in bloom with me—after all Dahlias, &c., are hopelessly gone—from self-sown plants. I am in hopes that it may stand the winter.—J. K., Finner.

The *Chrysanthemum* show in the Inner Temple was opened to the public on Tuesday last, and the collection, as usual, is a very varied and extensive one, numbering about 900 plants, amongst which are over thirty new varieties.

*Milla biflora*.—I have picked to-day (October 17) the last flowers on our bed of this half-hardy bulb. The bed in question contains four dozen bulbs, and we have not been without flowers since the middle of July; some of the bulbs have sent up two and three flower-spikes, with two flowers on each.—TAUNTON.

*Kniphofia Leichtlini*.—A flower-spike of this new species from Abyssinia has been sent to us by Mr. Gumbleton from Belgrove, Queenstown. It is a dwarf grower, and bears a dense spike of flowers some 4 inches in length. The flowers are of a warm yellow, while the protruding stamens are redder. It is a good addition to late autumn plants, as it is quite hardy at Kew and elsewhere.

*Autumn bulbs*.—I send a few flowers of *Colchicum* and *Crocus*. *Crocus speciosus* with its beautifully striped flowers is just now one of our prettiest autumn flowers when seen in bright sunshine. *Colchicum speciosum* is equally good, and certainly far finer than the common kinds, pretty as they are. I sent two forms of the white variety of *C. autumnale*, one which flowers later than the other. Both are beautiful.—C. M. OWEN, Knockmullen, Gorey.

*Rhus radicans* (grown for some time in Scotland as *Ampelopsis japonica* before it was known there to be a *Rhus*) has beautiful colouring; this autumn it equals that of last year, though the colouring of the trees about here this season is not (as yet at all events) at all equal to the colouring last autumn. This curious *Rhus* with its Ivy-like climbing roots is worth being more largely grown than it seems to be as yet. The leaves do not last long in full beauty.—C. M. OWEN.

*Gloxinia maculata*.—This old-fashioned *Gloxinia* is beautiful at this season, and different from ordinary varieties. It forms a stout-growing stove plant a yard or so in height; its stem is clothed with large, heart-shaped leaves, and terminated by a raceme of flowers about the same size as those of an ordinary *Gloxinia*, but of a delicate mauve colour. It is of the easiest possible culture, well repaying liberal treatment, and under favourable conditions will flower during the autumn and winter months.—H. P.

*Cyananthus lobatus*.—I send some flower-sprays of this plant, which always seems to me to be one of the prettiest of bog plants. When in flower here the plant grows to quite 2 feet across, but it diminishes to a very small size in winter and disappears so completely, that if not carefully marked it is very likely to be thrown away. The little bed of moist peat (kept very damp in summer) in which this plant grows is partially shaded.—C. M. OWEN.

\* \* \* Excellent specimens of this pretty Himalayan plant, proving that a bog or moist peat border is the place to grow it, not on a dry rockery where it is usually found in gardens.—ED.

*Polygonum vacciniifolium*.—This Himalayan *Polygonum* is one of the prettiest outdoor plants of a herbaceous character that we have in flower at the present time. It is very different from the large growing kinds, such as *P. cuspidatum*, *sachalinense*, &c. It is a slender trailing plant with small firm-textured leaves, not unlike those of a *Vaccinium*. It soon forms a dense tuft, which is now studded with spikes of bright pink blossoms. It is a good plant for rockwork, for once established little after-care is needed. It is not likely to overgrow its neighbours, and yet it can fairly hold its own amongst them. A pretty effect is produced when this *Polygonum* is so situated that the branches droop gracefully, as they will do, over a ledge of rock.—ALPHA.



**Autumn tints** in herbaceous borders are not so much studied as they ought to be. *Polygonum affine*, so beautiful when the season has been particularly dry and hot, seems now to be at its best. We have it planted, not as one generally sees it in small patches, but literally by the yard on the face of a hill, and the bright colouring from a distance gives the impression that the hill is in a blaze. Another good plant, and one equally easy to cultivate, is *Cornus canadensis*, the leaves of which are at present vivid scarlet, giving a grand bit of colour in the rock garden. It grows well in peat or loam, and should always be placed in a prominent and exposed position. *Rubus saxatilis*, a good companion for both the above, is also a picture just now, scrambling, as it does, over roots and rough stony places, the prominent parts making the effect even more striking. Dry sunny banks are the best places for this plant, and as it roots as it grows it does not take long to cover the ground.—K.

**An October gathering.**—Your plate of *Crinum Moorei* (two years ago) errs on the safe side and well understates the size of the flower, as you will see from the flowers I send you. [Large and delicate in colour.—Ed.] I sent you some Munstead Poppies (*Papaver nudicaule*) in May last. You will see that they are not yet quite over, though the frost cut Dahlias, &c., to the ground three weeks ago. *Diplacus glutinosus coccineus* is well worth growing as a contrast to the ordinary form of this Californian shrub. I find no difficulty with *Sternbergia lutea*; perhaps my stiff soil suits it. *Zephyranthes candida* is quite hardy out-of-doors with me. I have had it out for years. *Androsace lanuginosa* is a perfect gem, the best Rock plant in autumn without question. Pansies are very fine now (from summer cuttings). I send you specimens of *Arctotis aureola*, a most useful plant. It has been out all the summer and is still in bloom. The Crown Daisy is one of the most valuable annuals for cutting. I send you flowers of it.—A. KINGSMILL, *Eastcott, Pinner*.

**Salvia Grahami.**—This is one of the few hardy species that have brilliantly-coloured flowers. *S. involucrata* or *Betheli* is hardy against a wall, or perhaps in the open border, in the south of England, but it is never so reliable as *Grahami*, which may be taken as typical of the hardness of such species as *S. patens*, *paniculata*, &c. All of them, however, do well in the open border in summer, and there is no reason why they should not be more extensively used in this way than they are, the colours of the flowers and habits of the various species being as varied as is needful for such a purpose. *S. Grahami*, however, deserves special notice, supplying, as it does, a much-needed colour for conservatory decoration at the present time. Old plants of it flowering all through the summer, if cut back three weeks or a month ago, will again be pushing flowers, and will continue gay until Christmas. Cuttings put in at the same time and potted in will now be showing flower and fine dwarf sturdy plants suitable for front rows. Almost every shoot will produce a spike of large, well-formed, intense scarlet flowers. It makes a good companion to *Betheli* or *patens*, besides having the advantage of standing in the open without protection.—K.

**Nanodes Medusæ.**—This most singular, not to say weird-looking, Orchid, dull in colour though it be, has its admirers, and it is one of the most popular of "botanical" Orchids; but its culture is not understood in every collection, for often it is seen in a poor condition. A hint as to its successful cultivation we have just got from Mr. Bonny, who has in his nursery at Downs Park-road, Hackney, an exceptionally fine specimen in bloom. It is a large plant, and bears no fewer than fifteen new growths, strong and healthy, and there are a couple of flowers on the old growths, which are larger and finer than usual, and may turn out to be a distinct form, or it may be owing to the vigorous growth. This Orchid is grown quite cool with *Odontoglossums*, and it likes plenty of moisture about the roots and a free circulation of air about it. It is grown in suspended wood baskets; hence no stagnant moisture hangs about the roots. The large plant was imported a year or so since, and others, though not so fine, are equally remarkable for vigour. A couple of specimens have each seven or eight new growths. This hint of the cool treatment of *Nanodes*

may be useful to those who have hitherto grown it in heat.

**Rhododendrons and Lapagerias.**—We have sent you some flowers of greenhouse *Rhododendrons* which are coming into bloom now, and which will continue more or less in flower through the winter. We have some plants with half a hundred really grand trusses on them. We have grown large plants of these *Rhododendrons* out-of-doors protected by means of a little floral shading. We also send flowers of two seedling *Lapagerias*, one narrower in the leaf than the other. It is a most profuse bloomer, producing clusters of flowers in small pots. The other is a seedling from the white *Lapageria*; it is free growing, and has good foliage and open pale rosy flowers, marbled with white.—FISHER, SON & SIBRAY, *Handsworth*.

\* \* A delicate and brilliantly coloured set of greenhouse *Rhododendrons* came with the above. *Taylori* has pretty salmon-pink flowers; *Princess Royal* is well known and always good; *Prince Leopold* is a cheery orange-red—we speak of them as they appeared in the fog of last Saturday; *Duchess of Connaught* and *Duchess of Edinburgh* are both fine bright reds; the beautiful *jasminiflorum*, well grown, was also amongst the number. The *Lapagerias* are fairly described by Messrs. Fisher & Co., whose greenhouse *Rhododendrons* must be well worth seeing at this season.—ED.

**Watsonia rosea.**—This is a very handsome Irid from the Cape. It has broad sword-shaped leaves nearly 3 feet long, erect, and of leathery texture, and a stout flower-scape 4 feet high, the upper 18 inches clothed with two rows of branches about 5 inches long, each bearing half-a-dozen flowers 2 inches long, the tube narrow at the base and curved, spreading above and divided into six segments 1 inch long by a quarter of an inch in width, the top of the flower measuring 2 inches across; the colour is deep rose tinged with purple. A plant of this species is now in flower in the Cape house at Kew. It was grown in a border out-of-doors during the summer, and was taken up and potted to save the flower-spike which did not develop till the summer was over. This plant bears a spike with fifteen branches and nearly a hundred flowers. A collection of the species of *Watsonia* would prove of great interest, owing to the wide difference there is between the different groups of which the genus is composed. If someone would take in hand this and other large Cape genera and cultivate them with care and perseverance, as, for instance, Prof. Foster has done with the *Irises*, we should no doubt become better acquainted with the riches of the Cape bulbous plants, which at present are not turned to as good account as they merit.

**Early Chrysanthemums.**—We have received a selection of early *Chrysanthemums* from Mr. W. E. Boyce, of Holloway, which includes some new varieties. Among these we particularly noticed the following: *Mandarin*, a flower of the Japanese type, cream colour, shaded and marked with purplish rose. *Pomponium*, a pretty globular flower of a pleasing shade of bronzy orange. This variety was awarded a first-class certificate at a recent meeting of the National *Chrysanthemum* Society. *Petit Mignon*, a pompon variety of a silvery rose colour with the edges of the petals white. *La Bien Aimée*, a dwarf freekind with small very compact blooms of a carmine-rose colour tipped with white. Surprise, a good deal like the preceding, but with the tips of the petals prettily fringed. All of the above are from the collection of that well-known raiser, M. Délaux. With these also came blooms of *Frizou*, a beautiful canary-yellow flower; *Late Flora*, deeper tinted than the preceding; and *La Petite Marie*, a pretty little dwarf pompon that is now so much employed for blooming in small pots. The beautiful white-flowered *Madame Desgrange*, which still holds its own as one of the finest of all, was represented as well as the pure yellow sport therefrom (*G. Wermig*), which fully bears out the encomiums passed on it last season when exhibited for the first time, and awarded a first-class certificate by the Royal Horticultural Society.

**Nerine sarniensis.**—This plant under cultivation has developed several distinct varieties as regards colour, and probably it would be found as prolific in

the production of new sorts as the *Hyacinth* if more attention were paid to selection and to propagating it by means of its seeds. At present we believe we depend almost exclusively upon the Guernsey growers for a supply of the bulbs of this plant, and as these growers propagate it only from bulb offsets, the raising of new forms from seeds receives little or no attention. We have already, however, several distinct varieties of the *Guernsey Lily*, viz., the scarlet-flowered *venusta* and the cherry-crimson *Planti*, so lovely just now. Does anyone know how *N. Fothergilli* originated? It appears to be nothing more than a strong free-flowering form of *N. sarniensis*. It is worth noting that a three-penny bulb of the *Guernsey Lily* will, if planted in a 4-inch pot of soil and placed in a little sunlight send up a tail spike with an umbel of deep rose flowers, which keep fresh in a room for four or five weeks. Does anyone possess plants of *N. pudica*, a beautiful species with pure white flowers, except for a streak of red down the middle of each petal, each flower 1½ inches long, the petals half an inch wide with a spread of nearly 2 inches? The flowers are borne in umbels about eight flowers in each. This species deserves to be widely known.

**Edinburgh fruit conference.**—At a meeting of the council of the Royal Caledonian Horticultural Society, held on the 14th of August last, it was resolved to hold a special exhibition and conference on Apples and Pears, in connection with the society's winter show, in the Waverley Market on the 25th and 26th November. While collections of Apples and Pears are solicited from all parts, for comparison and instruction, the chief object of the conference is to utilise the favourable opportunity presented by the fine crop this year, for the purpose of gaining information about Apples and Pears grown in Scotland, comparing their merits and correcting their nomenclature. All fruit growers, especially in Scotland, are therefore invited to send as complete collections as possible of the Apples and Pears grown in their district; and as the object is solely educational, there will be no competition and no prizes. It is not, therefore, necessary that the fruit should be grown by the sender. No limit will be put upon the number of kinds which any contributor may desire to send, but the number of each variety should be from two to four, according to circumstances. The council are anxious to procure as complete representations as possible of the Apples and Pears grown in each district, and each variety should be distinctly labelled, with the name or names under which it is grown in the locality. It is also most desirable that each collection be accompanied by all the information possible about the climate, altitude, exposure, soil, stocks, method of cultivation, and other particulars, which will be of much value to the committee in drawing up their report. For this purpose, forms will be supplied on application to the secretary. The specimens, being strictly for examination and instruction, must necessarily be at the disposal of the council where required. Intending exhibitors must give notice to the secretary or assistant-secretary, in writing, not later than Monday, the 16th November, stating the number of varieties to be exhibited and the amount of space that will be required. Collections of fruit may be consigned to Mr. William Young, assistant-secretary, 18, Waverley Market, Edinburgh, and delivered there on or before Friday, the 20th November. The council will pay the carriage of fruit and take all possible care of it, and will also see that it is properly staged for the inspection of the committee; but they will not be held responsible for any error, damage, or loss of any fruit consigned to them. Exhibitors staging their own fruit can do so on Tuesday, the 24th November; and all must be staged and the hall cleared for the committee by ten o'clock on the morning of Wednesday, the 25th November. Each exhibitor will receive free tickets of admission to the exhibition for himself and such number of assistants as the council may deem necessary.

**Fungi on trees.**—I send a fungus which grows on some trees on this estate, and I will be much obliged if you can give me its name and any particulars about it. It is locally known as "Jew's-ear," and is in request as a cure for erysipelas and "wild-fire." It is simmered in lard for some time



over a fire, then strained through muslin, and applied as a salve to the affected parts.—W. B. HAVELOCK, *Duncombe Park, Helmsley, York.*

\* \* The plant you send is not a fungus, but a Lichen named *Sticta pulmonacea*. It is used as a popular remedy for pulmonary affections, as its specific name indicates. In some places it is called Lung-wort.—W. G. S.

## FLOWER GARDEN.

### OPUNTIA RAFFINESQUIANA.

THIS quaint-looking hardy Cactus has bloomed this summer with unusual freedom, the hot season last year having ripened the growths better than has been the case for some years past. Being so distinct from all other hardy flowers, this Cactus is worthy of a place in every garden, and it would probably be more generally grown were it not that doubts exist as to its being really hardy. According to the experience of some, it is liable to be killed off by those exceptionally severe frosts which we now and then experience. I am, however, prepared to assert that even in the coldest parts of the British Isles it will thrive from year to year if accorded suitable conditions. A plant that came from a land where the thermometer runs down to 40° below zero is not likely to be affected by cold alone in this country, and if we can guard it against stagnant moisture, we shall assure its safety. An error frequently made is that of setting out comparatively immature growths, which being soft and very succulent at the base, are almost sure to rot off if hard frosts follow quickly on heavy rains. When once the base of the fleshy stem becomes brown and woody, and in time this portion of the plant gets quite hard, the danger of decay is much diminished, for it is only just where the stem touches the soil that it rots. Therefore, in the case of such young plants, the better way is to keep them in a sunny greenhouse for a year or two until they have become tough at the base. At the same time it is an easy enough matter to afford a little protection for a time; a sheet of glass laid over the plants, so that there is a free current of air underneath, will efficiently ward off excess of moisture, which is all that is needed. The foot of a sunny wall is of all places the best, because it is dryer and the growth becomes better ripened, and perfect maturation of the tissues naturally enables the plants to resist climatic changes. Wherever such a site exists it should be utilised, but failing this rockwork or a raised mound in the full sun is the proper place. There should, however, be a fair depth of soil for the roots to strike into, or the growth will not be sufficiently strong to allow of the production of good blooms. No matter how sunny the situation, planting on the level ground is sure, sooner or later, to entail the destruction of this Cactus, and if I had choice of position I would prefer a breezy hillside where the ground sloped sharply to the sun. I have seen plants thus situated a yard or more across, and which were every summer covered with their large yellow flowers. These had passed through more than ten winters unprotected in a very severe climate.

J. CORNHILL.

### THE HENBANES.

HENBANES are now-a-days rarely found in collections of plants, though in the good old days of Miller they were considered important acquisitions, chiefly on account of their commercial value. *Hyoscyamus niger*, of which the annexed is an illustration, was until lately the one cultivated in medical gardens some few years ago. However, a variety has been discovered which

is of biennial duration, and consequently more valuable than the annual plant, which it has entirely superseded. *H. niger* is not, however, without its value as a border plant, its quaint, curiously-reticulated flowers and bold foliage being conspicuous among other annuals. The flowers are dull yellow, beautifully netted with purplish brown. They are bell-shaped and spreading at the mouth. The leaves, which have deeply and irregularly-cut margins, are woolly and yellowish green in colour. *H. albus*, a kind similar in habit, has whitish flowers, and is less ornamental than *H. niger*. The seeds of both species may be sown in the open border in spring, along with other annuals, and the plants generally flower in August. *H. reticulatus*, also called *Physochlaina reticulata*, is a perennial, and extremely useful early in spring, as it flowers at a time when few other things are to be had. It grows from a foot to 18 inches high, and throws up numerous strong stems, at the ends of which the flowers are collected in bunches. They are large, reddish coloured, and beautifully netted with dark purple veins. The leaves are egg-shaped and of a pretty shade of green. This species may be had in



The Henbane (*Hyoscyamus niger*).

perfection in ordinary borders, in which it proves perfectly hardy without protection. It can be increased by division of the root. K.

### DAFFODILS, AND WHO RAISED THEM.

IN THE GARDEN (p. 363) occurs this sentence, "It has always seemed likely to me that many of the Longford Bridge varieties were not raised by Mr. Leeds at all, but were either old garden forms collected by him as material to work with, or were Herbert's productions." Mr. Leeds cannot now answer for himself, and all that his sons appear to know of their father's work in hybridising is the recollection of his frequently using "a little brush amongst his flowers." This, however, shows that he at least made efforts at hybridising. As I purchased all Mr. Leeds' Narcissi and classed them as they at present stand, I offer the following internal evidence that nearly all were seedlings. Taking as my authority Haworth's "Monograph," published 1831, six years in advance of Herbert's "Amaryllidaceæ," published 1837, and twelve years before Herbert's essay on crossing Narcissi was published, I found only three of Haworth's plants, viz., *N. poeticus angustifolius*, *N. Ajax cambricus*, *N. Ajax propinquus*, all the others, representing nearly 150 varieties, differing from each other more or less, and not agreeing with any described in Haworth's "Monograph" or Herbert's "Amaryllidaceæ;" thus far, therefore, the roots Mr. Leeds sold to me were seedlings, but whether

his own or Dean Herbert's I will leave others to determine, and I think Mr. Brockbank might manage to trace out whether Mr. Leeds was a personal friend of Dean Herbert's. That both "were lovers of faire flowers" is beyond doubt, but whether the worthy dean "picked the brains" of the practical Leeds, or Leeds "picked the brains" of the learned dean, appears to me of small importance, seeing how much we are enjoying the fruits of both men's labour. That Dean Herbert unfolded to the moderns the great principles of hybridisation is undoubted, and that he raised seedling Narcissi we have not only his own statement, but I have before me a coloured plate of six of them, and, in accordance with our present nomenclature, they range as under:—

Dean Herbert's name. Daffodil Conference name.

1. *N. Diomedes* var. *Crichton* ..... *N. tridymus* Mr. Crichton.  
I have not yet met with this seedling of Herbert's.
2. *N. Ajax* var. *pallidus* ..... *N. Ajax albacans*.  
I am assuming the dean's flower to be that of a weak bulb and a young blossom. If an old blossom, then to me it is a stranger.
3. *N. Spofforthiæ* ..... *N. Burbidgei* Little Dirk.  
One of the smallest Daffodils, and one of the gems amongst the late Mr. William Backhouse's seedlings.
4. *N. Spofforthiæ* .....  
5. *N. Queltia incomparabilis* .....  
6. *N. Queltia sub-concolor* ..... *N. incomparabilis* Mary Anderson.

From the coloured plate these appear the same, and are either small vars. of *incomparabilis* or vars. of *Barri*. (See Burbidge, plate 22.)

I trust the foregoing will remove any doubt that exists as to the *bonâ-fide* seedling Daffodils in cultivation which came from Mr. Leeds' garden at Longford Bridge, and till proof is forthcoming that Dean Herbert gave Narcissus roots or seeds to Mr. Leeds, the latter gentleman must, I think, be credited with the honour of raising the new Daffodils with which his name is associated. PETER BARR.

### FUCHSIAS OUT-OF-DOORS.

IT is surprising that Fuchsias have not been used more for beds and borders than they have been. On the seacoast they withstand wind better than most plants; during the last two months we have had a constant succession of rough gales and heavy downpours of rain, accompanied by cold frosty nights, and the latter have greatly impaired the floral display. Fuchsias have, however, as yet set storm and frost at defiance, and now blooming as if we have had nothing but genial weather, and are in great request as cut flowers for vase decoration. As regards varieties, the old Riccartoni is extensively grown, and near the coast, where the old wood does not get cut down for years in succession, it forms hedges covered with bloom for months together. Many of the small-flowered varieties, too, are equally effective, the white-collared varieties, such as *Mdme. Cornelissen*, being really beautiful. As wall plants Fuchsias may be grown in great variety, and the advantage of using plants of this kind in this way is that they last good for many years. One of the best modes of growing outdoor Fuchsias, so as to show off their graceful habit to perfection, is to cut hollow blocks of wood about 2 feet long, set them on end in any pleasant recess near the lawn, and, after filling them with soil, put in the plants. Thus treated, they soon not only fill the soil with roots, but will root down into the ground beneath, and become a mass of vigorous shoots each over a yard in length. These, when covered with bloom, make charming specimen plants. In localities where the old wood annually gets killed to the ground no fear need be entertained of the root suffering if a covering of coal ashes is placed over them and the crown of the plants.



Several varieties, it would appear, are grown under the name of *F. gracilis*, all of which have very pretty flowers and slender wood, which produces blossoms in profusion, hundreds of which may be counted on a single branchlet. Another popular old variety is *corallina*, a strong grower, and well suited for wall culture, covering as it does a large expanse of wall in a short time, and flowers abundantly. These are grown largely in gardens on the Hampshire coast, and especially in the Isle of Wight; heavy-flowered double kinds like *Phenomenal* are only fit for glasshouses.

Gosport.

JAMES GROOM.

## SEEDLING DAFFODILS.

MR. BROCKBANK takes my innocently-meant observation about the Longford Bridge Daffodils to heart in a very funny way. That Leeds and others were incited to their work of raising Daffodils from seed and taught how to set about it by Dean Herbert's elaborate paper, published in 1843, is most probable; it would be strange if they had not read and profited by such public and explicit instructions. The patient application and the profit were theirs, the genius and the discovery were certainly Herbert's, and I repeat that he has never yet received his due in this matter. I did not even hint at any dishonesty on Leeds' part. There is no reason to doubt that the bulk of his plants were seedlings of his own production, but when he began his work he must have collected as his tools the most desirable garden forms of *Narcissi* which he could find, and it was most natural that he should correspond with Herbert, with whose work he was familiar. Herbert, too, was just the man to impart his knowledge and his materials freely to a fellow-worker, and it is reasonable to suppose that his seedlings went ultimately to some one interested in them. If when Leeds disposed of his Daffodils he divided and sold them as a collection and included in it all such plants as well as his own seedlings, he did nothing dishonest. Can Mr. Brockbank tell us that he labelled and vouched for every separate variety as being of his own raising? According to Mr. Barr, he left nothing like a detailed history of them. We are, therefore, left a good deal to our own surmises, and do him no injury by such a probable supposition as that he got together and cultivated other interesting plants together with his own.

I once thought I had traced one of Leeds' flowers to a Dutch source, namely, the *Ajax* which Mr. Barr showed at South Kensington last year as major superbus. I am tolerably sure that that flower was identical with one of the large spurious *coronatus* varieties which have lately come to light from obscure nurseries in Holland. But this piece of evidence falls to the ground if Mr. Brockbank has something different as the true Longford Bridge variety. Mr. Barr's plant seems now to have retired into the "ewigkeit," as Hans Breitmann would say. When Mr. Brockbank sends his original and only major superbus to South Kensington next spring, I shall journey thither to gaze upon it as eagerly as an enthusiastic ornithologist would repair to Regent's Park to see a live Dodo.—G. H. ENGLEHEART, *Apple-shaw, Andover*.

—It appears to me that Mr. Engleheart's remarks (p. 363) on naming and raising seedling Daffodils may prove misleading; I therefore furnish a brief history of the new Daffodils in commerce, and trust it will correct statements that are apt to convey the impression that in the near future we shall be flooded with new Daffodils. So far from this being the case, let me assure all interested in the subject that the work done by hybridisers in this generation, so far as the public are concerned, will only be enjoyed by the next generation. I have in proof of this just to remind those interested in these lovely spring flowers that the beautiful varieties so much admired represent the labours of hybridisers long since gone from our midst. Dean Herbert in 1843 elucidated the theory of hybridising Daffodils; how many followers he may have had we know not, but only two appear to have been successful, and their productions prove

long years of labour and waiting. In 1874 Mr. Leeds' seedling *Narcissi* came into my possession, and in 1877 the first instalment of Mr. William Backhouse's seedlings were placed in my hands, and a year or two later I got the remainder along with some unbloomed seedlings, a small portion of which have not yet flowered. Now, supposing that from one bulb stock has to be raised; from the sowing of the seed to the flowering occupies from four to seven years; the thirty odd years, that is from 1843, is a matter easily accounted for, and we may reasonably assume to be the time these two collections were in forming and in the hands of the raisers; and then a few years in my hands classing, arranging, and cleaning, so that from the sowing of the seed to the period when the public became partakers of the enjoyment of these new Daffodils, has been nearly forty years. Whether Mr. Engleheart and the many who are sowing seeds will in the same period accomplish as much, the future will show; moreover, whether Mr. Engleheart, with the superior tools in his hands, will give a better result than Mr. Edward Leeds and Mr. William Backhouse have bequeathed to us future judges will have to decide; meanwhile, let us enjoy what we have, and wait with patience for the promised surprises. Mr. Engleheart adds: "It is about time that a little discrimination was shown in naming and distributing Daffodil seedlings." The only seedlings that have yet been named and distributed are the two collections which I have mentioned, and they are the only ones that exist, so far as we have any knowledge. I hope, in 1886 to complete my work on these two collections, and then will come the question what to retain and what to eliminate, and let me assure Daffodil growers that I will be as ready to support a competent tribunal who shall decide what to discard and what to retain, as I was to accept the revision of my nomenclature by the Daffodil Conference of 1884, and perhaps, when they have done their work, I may put the question to them, "Cannot you see your way to expunge more?" As to the section *Humei*, it has claims, being a distinct hybrid; so I will leave amateur growers to judge. Personally, I would not discard this section—"variety lends a charm." As regards *incomparabilis*, were the variety less numerous it would be better, and this evil will in a very few years be corrected, but amongst those that will be passed to the far distant future, *incomparabilis sulphureus Beauty* will lead the way; it is a noble flower from any standpoint. The section *Burbridgei* is by no means the "miserable feeble poeticus" pictured by Mr. Engleheart, but a section that will hold its own and always stand high amongst purple-ringed *Poet's Narcissus*. *Blondin* and *Thomas Moore* require "no bush" from me.—PETER BARR.

## PHLOXES AND OTHER AUTUMN FLOWERS.

AMONGST hardy flowers which bear with apparent indifference the heavy rains and hard frost, which often occur in September, herbaceous Phloxes take a very foremost position. Quite up to November, and in some years far into that month, their glowing tints enliven our gardens, the brilliancy of the high coloured kinds being in no way dimmed by cold pelting showers which assail them at that time of year. The only highly coloured flowers that can compete with the Phlox for making a show so late in the year is *Lobelia fulgens*, and one of the most effective floral displays I ever saw in late autumn was a long row of a brilliant Phlox in front of evergreen shrubs, with another row of *Lobelia* in front of them, finishing up with clumps of white and red *Japan Anemones* planted alternately. Whoever wishes to prolong the beauty of the flower garden to the latest possible period should not forget these three hardy flowers, as they alone are capable of doing what is required. I think that cuttings struck in spring and planted out in May give the best autumn bloom. They only begin to flower when old established stools are at their best, and, consequently, escape some of the most arid weather, and I always

fancy that the blooms which expand take additional refinement or brilliancy from the cool nights and refreshing showers of early autumn. By the way, I have never seen the Phlox recommended for shady positions, but in a neighbour's garden is now blooming a fine plant which stands on the north side of, and close to, the dwelling, and which thus has only got through the summer the sun early in the morning and after four p.m. Nothing can look better than this plant; in fact, it appears quite a refreshing contrast to the generality of Phloxes that I have this year seen growing where they got the full sun during the greater portion of the day; the flowering time being thus extended, a good succession of blooms could be secured by putting some of the plants where they would get plenty of light and but little sun. One of the finest of autumn flowers is *Clematis Flammula*, just now in full beauty; not only effective, but deliciously fragrant; and of its large-flowered relatives I would particularly mention *Lady Bowie* and *lanuginosa nivea* in connection with late autumn flowers. The first-named does not come into bloom till a fortnight or more after the summer blooming kinds generally, and being in the full flush of its beauty when summer passes into autumn, the latter, with its masses of large white blooms almost as pure as the snow itself, forming as fair a picture of floral beauty as the eye could wish to rest upon. From no list, however short of autumn blooming plants, should the early flowering *Chrysanthemums* be excluded; they are the finest additions to the out-door garden that have been made for many years, and foremost amongst them stands *Madame Desgrange*, pre-eminent for size and purity of blooms, and which supplies a void where white flowers are needed at that time of the year. *Rudbeckia Newmanni* and *Pyrethrum uliginosum* are showy, the latter being especially serviceable for cutting; and amongst flowers of minor growth may be mentioned hardy *Cyclamens* and autumn *Crocuses*, also that fine yellow-flowered little bulb, *Sternbergia lutea*, but which, unfortunately, seems to be rather capricious, although I am told that a narrow-leaved variety flowers with the desired regularity. *Echinops ruthenicus* and *strictus* are two good blue Thistle-like flowers which bear a lot of rough weather with equanimity, and the common *Marigold* and the *Corn Marigold* bloom freely when scarcely a flower is left in the out-door garden.

J. CORNHILL.

**Early v. late-potted bulbs.**—In looking through instructions given in reference to garden work, one frequently finds such as the following: "Hyacinths, Tulips, &c., intended for early flowering may now be potted, but the general stock may be deferred for a time." Now, I should like someone who has made comparisons of early and late potting to give us the benefit of their experience, for I can see no good reason for keeping these bulbs out of the soil a day longer than is absolutely necessary. In lifting various kinds of bulbs left in the soil all summer, I find that at least six weeks ago they made a quantity of new roots. It is, therefore, no stretch of imagination to suppose that Dutch bulbs potted at that time will now have their pots full of roots; in fact, I find that our Roman *Hyacinths* and other early-flowering bulbs potted directly they came to hand have their pots quite full of roots, although they have made no visible top growth. They must, nevertheless, have been gaining strength ready for a start when needed, and, whether wanted early or late, one has only to put them into heat to have them when needed. If, moreover, their flowering can be hastened by early potting without much artificial heat, surely that is a gain in more ways than one. We hear of



plenty of failures with bulbs in spring, and my idea is that many of them arise from the bulbs losing their vitality through being kept too long exposed to the atmosphere.—J. GROOM, *Gosport*.

### EARLY SINGLE TULIPS.

THESE constitute a race of Tulips altogether distinct from the later flowering florists' varieties. Botanists tell us that the early-flowering types are obtained from *T. suaveolens*, and the florists' Tulips from *T. gesneriana*. It is many years since the originals were introduced into this country, and we have no reliable records as to who attempted to improve them in the first instance, or where the attempts were made, but in all probability the Dutch and Flemish florists began and carried on the work. Now any improvements made in the case of the florists' Tulips are carried on in England, but the Dutch and Belgian florists, the former especially, have a monopoly of improvement in the early-flowering section. The early single garden Tulips may be divided into two sections, the one the Van Thol, or earliest flowering types, dwarf, early and very useful for forcing, and some dozen or so varieties may be included under this heading; the other, the main body of early varieties—of these the common, the rose, white, scarlet, and yellow. Those who grow these largely for market purposes get the bulbs from Holland as early in the month of August as possible. The bulbs are then placed thickly in shallow boxes, and, placed on a brisk bottom-heat, close and moist, they soon commenced to grow and make root, and when near upon the time of showing their buds, four or so bulbs of an equal state of development are placed in good soil in a 4½-inch pot, kept warm for a few days, and gradually hardened off until the flowers expand, and then they are marketed early in the winter. The best of all the Van Thol section is undoubtedly the scarlet, a fine bright large-flowered variety in comparison with others, and well adapted for pot and bedding culture. I have before me a catalogue of early single Tulips, which, omitting the varieties of the Van Thol, includes about 168 sorts. The very cream of them can be comprehended in about four dozen varieties. Let us take first those best adapted for early forcing, and they will include Bruid van Haarlem, white flaked with crimson; Chrysolora, clear yellow, extra fine; Grand Duc de Russie or Fabiola, rosy purple and white; Globe de Rigaut, purplish lilac and white; Joost Van Vondel, rosy crimson, with white pencillings; Keizer's Kroon or Grand Duc, crimson-scarlet, margined with clear yellow, one of the very finest; Le Matelas, white, flushed with clear rose; La Precieuse or Cottage Maid, rosy pink and white; the scarlet, white, and yellow Pottebakkers, all three very fine varieties, the last-named being sometimes striped with red, and is selected and called the red-striped Pottebakker; Proserpine, rich dark rose, extra fine; President Lincoln or Queen of Violets, pale violet, large and fine; Roi Pepin, pure white, flaked with crimson, extra fine; Rose Gris de Lin, delicate rose and white, a charming variety; Rose Luisante, fine deep rose, very fine; Thomas Moore, orange, a distinct and useful variety; Van der Neer, purplish violet, large and fine; Vermilion Brilliant, extra fine rich vermilion, one of the very best; Wouwerman, deep pur-

plish violet, large and fine; and Yellow Prince, bright yellow, a good useful variety.

MARKET TULIPS are potted almost as soon as received, using a good rich free soil and placing three or four bulbs in a pot. The pots are then stood on an ash-bed in the open ground, and covered to the depth of 6 inches or so with a mixture of decaying leaves and spent hops. Here they make root, and then commence an upward growth; and when sufficiently advanced are taken within doors and pushed on into bloom in a brisk heat, care being taken that the plants are not unduly drawn. Rival growers can bring on their Tulips into flower in much the same way. A good com-



*Nelumbium speciosum*, showing habit of growth.

post can be made up of mellow turfy loam, well-decomposed manure, some leaf-mould, and silver sand well mixed together; in potting the bulbs may be nearly buried. Some of the best exhibition varieties, and also those well adapted for conservatory decoration, will be found in the following: Bruid Van Haarlem, cerise; Grisdelin, mauve-rose and white; Chrysolora; Couleur Cardinal, rich shaded crimson, extra fine; Grand Duc de Russie, Globe de Rigaut, Joost Van Vondel, Keizer Kroon, Le Matelas, La Belle Alliance, white and yellow Pottebakker, Proserpine, Roi Pepin, Rose Gris de Lin, Rose Luisante, Van der Neer, Vermilion Brilliant, and Wouwerman. Four bulbs placed in a 6-inch pot make a very fine display when well grown; and when the flowers are fully matured a piece of silk tied round each will prolong their beauty for several days, as when allowed to fully expand the duration of the flowers is shortened somewhat.

EARLY TULIPS are very useful for beds, and make a pretty display in spring, when a good selection of varieties is made. It is the practice of Messrs. Veitch and Sons to place out beds at their Chelsea nurseries, and by doing this they are enabled to get a good idea of the sorts that bloom together. I have looked over

these trials on several occasions, and have found the following to make excellent bedders: Bacchus, rich dark crimson; Comte de Mirabeau, white; Couronne Pourpre (purple crown), very purple; Duchesse de Parme, orange-red margined with yellow; Paul Morcelse, cerise-crimson, distinct and good; Paul de Totter, reddish violet, very effective; Proserpine, President Lincoln, Rosa Mundi, white and rich rose; Royal Standard, white and rosy crimson; Thomas Moore, and Yellow Prince. Bedding Tulips should be planted in November. The beds should be deeply dug, and some manure and leaf-mould, or a good dressing of siftings from the potting bench, dug in. The soil should be allowed a few days to settle, and then planting may be proceeded with. In the case of small beds, but one variety should be planted; but in the matter of larger beds, a centre of one variety can be encircled with that of another of slighter dwarf growth, care being taken that the two colours contrast well. There are many gardens wherein the flower-beds are permitted to lie bare all the season that could be made to look charming in spring by the judicious use of Tulips, and that without necessitating anything like a large outlay of money. But beds of Tulips should be carpeted with some spring blooming plants, so that the beds may have a furnished appearance until the bulbs show themselves through the soil and flower. There are some things—good hardy perennials that flower early—that can be employed for the purpose, and the labour involved is not so great as some have supposed. There are *Aubrietia græca*, *Hendersoni*, and *violacea*; double Daisies in variety, and especially the variegated-leaved variety known as *acubæfolia*; *Arabis albida*, *Myosotis dissitiflora*, early-flowering Pansies and *Violas*, *Anemone apennina*, *Primroses* and *Polyanthuses*, various *Sedums* and *Saxifrages*, &c. This is, to some extent, like going back to a system that was much more generally followed fifteen and twenty years ago, but respecting which a revival is necessary. There is much to be said in favour of it, and, doubtless, much can be said against it; but the advantages to be derived from this kind of spring gardening are beyond all question.

R. DEAN.

**Purple Cactus Dahlia.**—Mr. Teesdale, of Wyke House, Chichester, well known as a Dahlia grower and raiser, has sent us a flower of a new seedling which he has raised from the white Cactus Dahlia Constance. The new sort resembles Constance in every respect but colour, which is of a pleasing lilac-purple. Being so late in the season when Dahlias in many places have been cut off by frosts, the flower doubtless does not fairly represent the beauty of the variety, but as it is no one can fail to think highly of it.

**Heather in bloom.**—Not only do the varieties of Heather differ widely from each other in general appearance, but also in the time at which they bloom, some being much earlier in and out of flower than others. Two of the best for late blooming are Searlei and Alporti, the colour of the first being pure white and that of the second purplish red. Both are vigorous, somewhat upright-habited varieties, that quickly attain the size of neat little bushes. These different varieties of Ling are both pretty and interesting, some of the dense mossy kinds being always bright and cheerful, and just now the golden-leaved variety is very attractive. Considering the small amount of attention required by most of the hardy Heaths, the wonder is that they are not oftener seen than they are, as by a judicious selection it is possible to have bloom nearly throughout the year. The earlier months of the year are enlivened by the rosy red blossoms of *E. carnea*, or the flowers of its white variety. Then come the larger kinds, *australis* and



mediterranea, while during summer and early autumn there is quite a wealth of blossom on these *Heaths*, *E. tetralix*, *ciliaris*, *cinerea*, *vagans*, and numerous varieties being then in bloom, while *E. multiflora* will continue to expand its blossoms till autumn is well advanced. The Saint Dabeoc's Heath (*Daboecia polifolia*) is such a persistent bloomer, that a bed of it is an object of beauty throughout the summer and well on into the autumn.—H. P.

### THE WHITE NELUMBium.

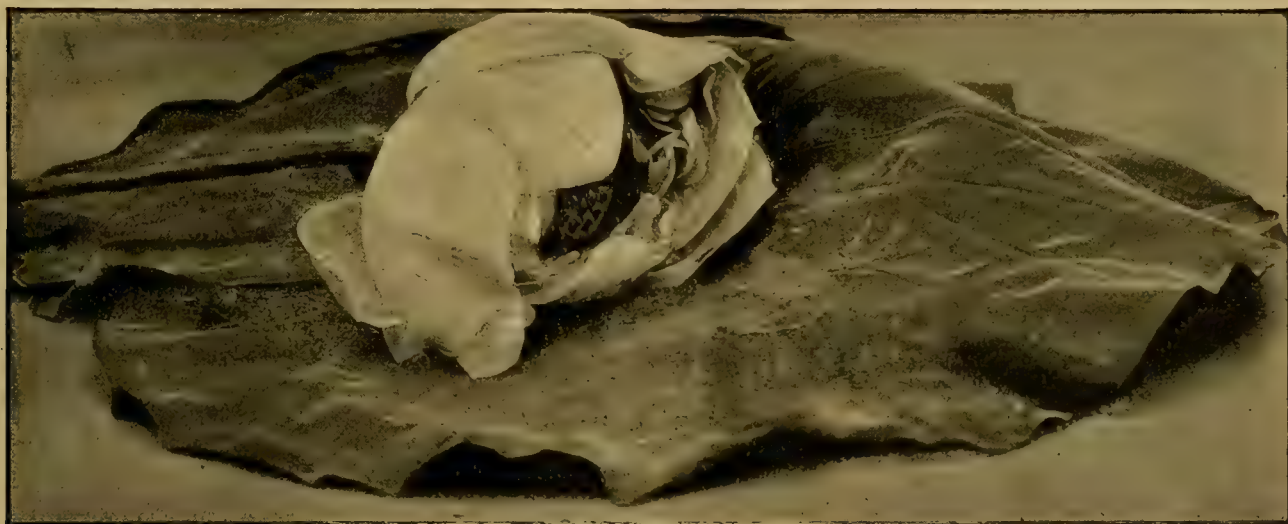
A YEAR has scarcely elapsed since we drew attention to the existence in China and Japan of some distinct and beautiful varieties of the Sacred Bean (*N. speciosum*), of the presence of which we had learned from Fortune and others who had visited these countries, and to whose statements confirmatory testimony was added in the shape of a collection of Japanese-coloured drawings of the varieties of this *Nelumbium* in the gardens of Japan, which we had through our hands last year. In these drawings were represented the well-known rose-coloured variety, together with forms varying from pure white and cream-coloured to deep

wide, and inside these are several rows of small, irregular petals, which gradually lessen in size till they are no larger than the stamens. The form of the flower is well shown on page 429, whilst the colour is creamy white, with a tinge of green on the outside of the large petals, the whole presenting a most delicate picture, and reminding one of the yellow-flowered American species, but, of course, much larger than any of the latter as seen in the gardens of this country. Whatever its origin, this beautiful variety deserves to take a place by the side of the rose-coloured *Nelumbium* now well known, and which is one of the principal attractions among the Water Lilies at Kew. It is interesting to watch the development of the flowers of *Nelumbiums*; at first, when in bud, they are like the bud of a *Maréchal Niel* Rose, then, expanding, they form a beautiful conical cup or bowl, and afterwards, as the flowers age, the petals reflex and hang downwards, so as to display the nest of yellow stamens, in the middle of which is seen the singularly formed seed-vessel. After the petals fall away the seed-vessel continues to grow till it attains a width of from 3 inches to 4 inches at the top and .4 inches in length,

carefully packed, and it would, therefore, be worth while trying to get from thence some of the more distinct varieties for cultivation in our stoves here. As with the *Chrysanthemum* and the *Moutan Pæony*, we are told that the Chinese possess a blue-flowered *Nelumbium*, but the report appears to depend on statements made by the Chinese themselves, no English traveller having ever seen a *Lotus* of this colour. There is, however, in the rose, white, and cream-coloured forms which we already possess a great deal that is beautiful and interesting, and to those who have the means for their cultivation we recommend the *Nelumbiums* as the most stately and attractive of all water plants.

### SPRING-FLOWERING CROCUSES.

I AM disposed to dissent from the generally expressed recommendation in regard to these charming spring-flowering bulbous plants, that when potted the bulbs should be placed thickly in the pots, in order to produce a striking effect. At the spring exhibitions held at South Kensington we are sometimes enabled to see the results of thick planting, and it must be admitted



Flower and leaf of the White *Nelumbium* (*N. speciosum album*). From a photograph taken of specimens sent by Mrs. Wemyss, Wemyss Castle, Dysart, Sept. 19 (reduced).

red—almost crimson, in fact. Equal variation was also apparent in the size and form of the flowers, some of them being composed of a single whorl of large incurved petals, others of two rows, and others again of three or more rows of smaller petals, which were either spreading or arranged in cup-like fashion. The width of the petals varied from about an inch to 3 inches. Along with these pictures came information of the arrival in this country of tubers of these distinct varieties, but we have not heard that they have any of them yet flowered, unless the plant whose flowers are represented in the accompanying figures is one of them. For the opportunity of figuring this distinct *Nelumbium* we have to thank Mrs. Wemyss, who sent us a superb flower, leaf, and seed vessel. The flower was of ivory whiteness, and one of the noblest and most beautiful flowers we have ever seen.

We should be glad to know the history of this plant, as it seems likely to prove the link which connects the North American yellow-flowered species, *N. luteum*, with the widely distributed *N. speciosum*, which is, however, not known to be wild in any part of America. The variety under notice has an outer row of

the seeds being contained in the sockets or cups, which are arranged all over the top like a honeycomb. It is not usual for these plants to ripen seeds in this country. It is an interesting fact that the sacred *Lotus*, which figures so frequently in the paintings and sculpture of the Egyptians, is not now known in the waters of Egypt, though found throughout India, China, Japan, Australia, &c. In China the thick, fleshy rhizomes of *N. speciosum* are much used as an article of food. Fortune, in his book, "Wanderings in China," states that it is "cultivated extensively for the sake of its roots, which are esteemed an excellent vegetable by all classes of the community. The roots attain their largest size at the period when the leaves die off, and are dug up and brought to market during the winter months in the north of China. The stalls of the greengrocers are always loaded with them at that season of the year. An excellent description of arrowroot is made from them, which is considered equal in quality to that which we import from the West Indies. The seeds are also held in high estimation; they are commonly roasted before being eaten." By means of their tubers these plants may be transported long distances, even from China if

to be generally of an unsatisfactory character. What happens? A pot of soil as full of bulbs as they can be placed; the result, a confused mass of foliage and flowers, all huddled together, the charming floral individuality of the blossoms lost in an aggregated mass wanting in effect and symmetry. I have seen a good many collections of *Crocuses* grown in pots, but I have scarcely ever seen one that I could say was of a satisfactory character. And it frequently happens that in order to be shown by a certain date, they are forced into bloom in heat, and they assume, in consequence, a drawn and lanky appearance. The conveyance of the flowers, too, to the show does not help the effect. A piece of fine bast has sometimes to be tied round the plants, which brings the fragile flowers closely together, and causes them to rub against and injure each other, and the instruction that should be afforded by a really good collection is almost, or quite, lost.

I should like to see a good representative collection of the varieties of *Crocus vernus* (of which there are now many reputed to be distinct) grown in pots and exhibited for comparison. Such a trial is much needed. One of the most reliable of the foreign catalogues



petals, each  $4\frac{1}{2}$  inches long by  $3\frac{1}{2}$  inches (that of Messrs. E. H. Krelage & Son, of Haarlem) contains fifty varieties of blue Crocus, one of violet, twenty-three of white, and twenty-four of striped, in addition to the large yellow, the common Cloth of Gold, *C. versicolor* (Cloth of Silver) and its four varieties. There are many who would like to see these all in flower—and the majority of them would bloom at the same time—so that a comparison might be instituted, and differences, where they exist, noted.

The bulbs of the varieties of *Crocus vernus* vary in size; those of some of the striped forms and the giant yellow are large; and, as a rule, those of the white and blue varieties are the smallest. Supposing that planters would be content to place four large bulbs in a 5-inch pot or six smaller ones, too much space would not be afforded, for there is a good deal of expansiveness in the foliage of a Crocus, and as it produces two, three, or more flowers at a time, ample space would be afforded for their development. The pots should be pretty well drained and the soil be light and rich; one made up of a good free sandy loam, rotten manure, and leaf-mould, with the addition of some sand, would be found to answer well. In order to have a satisfactory trial, three pots of each should be provided in case of failures. Twenty or more varieties could be tried at a time and their characteristics noted.

When they have gone out of flower they need not be lost. They would make admirable subjects for planting out as permanent fringes to beds, and nothing is prettier in spring than a line of Crocuses of varied colours in full bloom. In planting out for permanent effect, a trench at least a foot in depth should be dug; the soil at the bottom should be loosened, and a layer 3 inches deep of decomposed manure, leaf-mould, and fine soil placed on it. The pots of Crocuses that have done flowering can be planted in this, turning the balls of roots out of the pots, removing the drainage, and then planting as deeply as possible, placing about the balls of earth plenty of siftings from the potting bench, and then returning as much of the soil as is necessary, pressing all down firmly. The foliage should as far as possible be kept above the soil so that it may mature. The following season there will be a fine head of flower, and the varieties can be named and made useful for comparison with newer forms. The best effect is produced from Crocuses planted in this way by mixing the colours, which could be done by planting a pot of blue, then one of striped, then a blue again, followed by yellow and white. Patches of blue and yellow come in well among the striped and white varieties.

It may be stated here that some cultivators, who grow Crocuses in the open air in this way, are in the habit of removing the foliage before it is matured, and thus to some extent weakening the bulbs. It is a pity to do this, for the foliage, if left on the plants, soon decays, and ceases to be an eyesore. I have proved by experience that a certain amount of deterioration follows a hasty removal of the foliage.

Now as to sorts. Should anyone be desirous of advice as to the selection of a choice collection of *Crocus vernus*, I would name the following: Blue and purple-flowered: Baron Brunnow, extra fine dark purple; David Rizzio, blue-purple; King of the Blues, rich dark blue; Lilaceus superbus, bright lilac-purple; Othello, purple; Purpureus grandiflorus, extra fine; and Sir John Franklin, blue-purple. Add to these L'Unique, a charming violet or reddish-blue variety, and Ne Plus Ultra, blue with a

distinct edge of white, an old, but most pleasing variety. Of whites: Albion, Caroline Chisholm, Grand Conquerant, Mont Blanc, and Queen Victoria. Of striped: Albion or Pride of Albion, Comtesse de Morny, King of the Striped, Princess Alexandra, Sir Walter Scott, and Van Speyk—some darkly, and the others delicately, pencilled with shades of blue and purple. Of yellows, take the Giant Yellow, Louis d'Or (*C. sulphureus*), and Cloth of Gold (*C. reticulatus* or *C. susianus*); then Cloth of Silver (*C. versicolor*) is so distinct, that it should be added also and its varieties, albicans, Albertine and its variety pallidus, and Laurette. Finally, I would include the pretty little Scotch Crocus (*C. biflorus*), because it is so early in flower.

The plan of planting Grass plats and Grass lawns with Crocus bulbs is not so much followed as it was. It was found that the bulbs declined to flower, and the reason was obvious—they really could not. The act of rolling the Grass plat made it hard and close in spring, just when the bulbs should be thrusting themselves through the surface, and they could not accomplish the task; then directly the flowers had faded the foliage was cut away with the scythe or mowing machine, and it was no wonder the bulbs deteriorated. If they can be naturalised by the sides of woodland walks and in semi-wild places, they are particularly effective, but if the spots are subject to cultivation, such as sweeping, raking, &c., they soon suffer, and in such places birds are apt to prove very destructive to the blossoms.

To thoroughly enjoy Crocuses, there is nothing like good and careful culture in pots, or as permanent edgings to beds and borders, as above recommended. In digging or forking over the beds, the bulbs must not be disturbed. The gardener must be content with stirring the surface and keeping it clear of weeds; and I would strongly recommend that in making permanent plantations of Crocuses, some bulbs of the charming autumn-flowering *C. speciosus* should be placed among them, so that their flowers may be enjoyed in September and October. It is a lovely form, it is a vigorous grower, and it can lay claim not only to great beauty, but to marked distinctness of character.

R. DEAN.

#### BEDDING, OR NOT BEDDING.

NOT infrequently, and notably in a late case, some correspondent, remarking on suggestions made for the better arrangement of flowers, uses this form of words or their equivalent: "After all, this is only bedding under another name." Does not any such remark show that its writer just misses the point of the whole question? All gardening is bedding in the sense that it is putting plants in beds and borders; the means and materials are the same, namely, earth, plants, and trowels, the whole difference being in the knowledge, taste, and intention of the operator. Given twenty Forget-me-nots and twenty Primroses, if the one be planted in a little round bed in a hard ring round the other, this is what is condemned as "bedding," being, perhaps, the most uninteresting way in which they could be used. But if the twenty Forget-me-nots are grouped in and out among larger plants in a border, part, perhaps, massed and part straggling away, as if the seed had fallen there and the plants had sprung up in natural groups, so as best to cover the bare space, and if the twenty Primroses are placed with the same intention, but varied in detail, then this is essentially not "bedding," and a whole world of difference lies between the two ways of going to work. A good picture and a bad picture are made of precisely the same materials, namely, a canvas, paints, and a man to lay them on; whether the picture is to be a worthless daub or a priceless masterpiece depends on the quality of work the man

can get out of his brain and heart and hand. Precisely so is it also in gardening. Perhaps the simplest way is to say that bedding is placing plants to form lifeless patterns, and better gardening or non-bedding is placing them to make living pictures. G. J.

#### PLANTS FOR WALLS OUT-OF-DOORS.

AT this time of year a plant which blooms freely, in spite of cold nights and dull rainy days, is especially valuable. We therefore call attention to the Fuchsias and several other plants, which may now be seen in beautiful condition on some of the walls at Kew. The Fuchsias are planted in a border at the foot of the Orchid house wall, and, notwithstanding that they have been in bloom all the summer, they continue yet to flower freely and produce a good effect. The wall is due south, so that, of course, whatever sunlight there happens to be during the day reaches the plants. The Fuchsias noted are *F. coccinea*, a thin-stemmed, graceful grower, with medium-sized leaves, and narrow-tubed flowers 1 inch long, the corolla lobes long and pointed, not reflexed, the colour being deep scarlet; *F. Riccartoni*, which forms a stout shrub, freely branched, the leaves small, the flowers 1 inch long, the sepals spreading, scarlet, the petal-cup purple; *F. Venus de Medici*, another stout grower with large Laurel-like leaves, the young branches dark red, and flowers 2 inches in length, the sepals spreading, cream and pink coloured, and the cup purple-red; *F. virgata*, which has thin twiggy graceful branches, small leaves, the flowers 1 inch long, and much like those of *F. coccinea*; *F. gracilis*, similar to both these, but a stouter grower with arching branches; *F. microphylla*, a dwarf species, dense in habit, with small Thyme-like leaves, and tiny tubular flowers, in length only half an inch, the lobes of the tube very short, as also the petals, which do not form a cup, but reflex nicely. Altogether, this species is very unlike a Fuchsia. *F. Mme. Cornelissen*, a strong woody plant with large leaves on stout branches, which are red when young, and flowers  $1\frac{1}{2}$  inches long, the tube thick, with spreading lobes an inch long and blood-red in colour, the petal-cup formed of cream-coloured petals with red veins. This plant is very beautiful just now; the large handsome flowers cluster on the ends of the stout branches and form sprays quite a foot long. *F. corallina* is distinguished by its weeping branches, which are clothed with large brown-green leaves, and flowers 2 inches in length, the tube an inch long, with segments half closed, and the cup deep purple. This is a first-rate wall plant, as when trained up and then allowed to grow its own way the branches hang down so as to form a cascade of foliage and long graceful flowers. *F. globosa* is a curious species with thick short foliage and swollen flowers, the shape reminding one of a figure when clad in the wide-spreading crinolines of George III.'s time. A mere description goes only a short way towards making a plant known, but perhaps the above will be sufficient to call attention to the beauty of Fuchsias when grown against walls out of doors, and their immense value as late-flowering plants.

Against the same wall there are plants of *Abutilon vexillarium* and its golden-leaved form *variegatum*, and these are now in perfect condition, the dark green healthy foliage of the type and the beautiful yellow and green marbled leaves of the variegated form being exceptional out-of-doors at this season. When, however, it is known that these plants are covered with their pretty urn-shaped flowers, which are crimson and canary-yellow, and

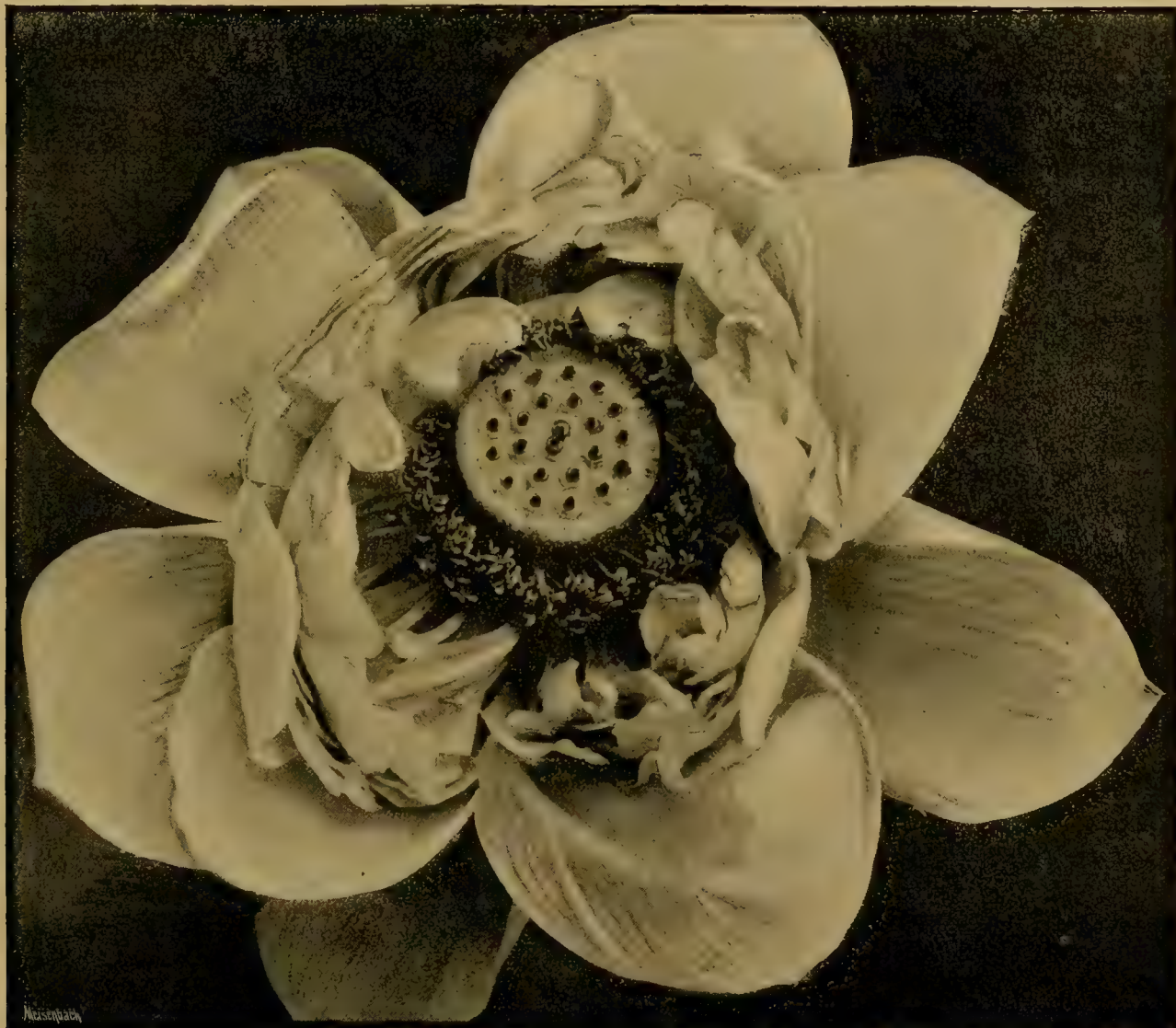


also the fact of their having stood out-of-doors for the last two years, and bloomed up to Christmas last year, it will be seen that for warm sunny walls out-of-doors these Abutilons may be grown in place of many of the poor things which one often sees occupying wall-space. *Sollya heterophylla* is also flowering nicely, and looks perfectly healthy. We may note that under the same wall *Sternbergia lutea*, *Amaryllis Belladonna*, *Nerine sarniensis*, and *Schizostylis coccinea* are now in flower, the two last being especially fine. Against another wall, also out-of-doors, may be seen in full

#### TUBEROUS BEGONIAS.

It would be difficult to point to any plants wherein so much improvement has been effected in a comparatively short time as in this race of Begonias, which, in habit of growth, profuse and continuous disposition to flower, combined with variety in colour, have few equals. A few years back it was supposed that little further improvement could be made in the varieties then existent. But this has proved to be incorrect, as shown by the more compact growth, better form in the flowers, and intensity in colour of recently raised varieties, as com-

Camellia. Amongst the former are to be found the largest flowered varieties, but the latter section are likely to meet with the approval of those who do not consider size to be a leading principle. These Begonias, like many other plants taken in hand by hybridisers, are beginning to show a divergence of colour in the flowers, such as the parentage from which they have originated, would not have led one to expect. This is apparent in the white-centred flowers that are making their appearance, and to which Mr. Laing, of Forest-hill, is now directing his attention. A seedling named A.



The White *Nelumbium speciosum*, showing inside of flower (two-thirds natural size).

flower and in perfect health the common Passion Flower (*P. cærulea*) and the graceful free-flowering little plant, *Rhodochiton volubile*, which is usually grown in greenhouses, but which is apparently quite at home out of doors against a sunny wall. W.

*Zephyranthes candida*.—Allow me to inform "J. C. C." (p. 370) that this increases rather freely, but that it seldom blooms well, except after a hot summer. It flowered here last year, and is now in bloom in an exposed bed, but on a bit of rockwork it is more happy, bravely facing the biting winds which we get at this time of year. Its delicacy seems a special attraction for snails, as they generally cut the unexpanded buds right across unless well protected.—C. E. Woods, Dublin.

pared with older sorts. There will, no doubt, always be a difference of opinion as to the merits of double *v.* single-flowered Begonias, as in the case of other plants. Lovers of simple elegance will give the preference to single forms, whilst those who like double flowers will look on the advance that has lately been made in this direction as a gain. Beyond this there is a marked difference in the character of the flowers of double Begonias. In some, the masses of petals that form the centre are confused like those of a Hollyhock; in others they are regular, as in the most approved varieties of

Forbes, with red petals and a distinct white eye, happened to appear, and it has become the parent of several other high-coloured varieties in which a well defined white centre is a prominent feature. It will be easily understood how this addition of colour as a background to the mass of golden anthers sets off the flowers. Amongst the later seedlings several have come with the edges of the petals toothed; this Mr. Laing is trying to develop still further. Those who can appreciate the elegance of an irregular outline in the petals of flowers rather than even formality can scarcely



fail to prefer these. Another distinct break in colour amongst the new seedlings is that several are much darker than hitherto; in one or two the crimson shade is so deep as to be almost black. These are most effective in contrast with the lighter coloured sorts. In yellows and whites there is a decided advance in purity of colour. Hitherto the difficulty has been to get rid of the bronzy shade on the back of the petals of yellow kinds, and the pink tint on the back of the whites—tints which detract much from the appearance of the flowers. Several of the new seedlings are as pure in colour as it is possible for them to be. The profuse flowering disposition is being still further developed in the latest seedlings, some of which come with five flowers on a stem in place of three, the ordinary number. Conspicuous amongst these is *The Queen*, a beautiful white sort, not yet distributed. The tendency that high cultivation often has to cause sterility in plants with hermaphrodite flowers is seen in these *Begonias*, which are monœcious—not alone in the appearance of varieties with double flowers, but also in others that produce all or nearly all male flowers. Some of the new sorts are an advance on any that have preceded them, but tuberous *Begonias* are different from many plants in the comparatively slow rate at which they can be increased by means of cuttings; consequently, more time elapses between a meritorious variety being raised and sufficient stock of it secured to admit of its distribution than in the case of many things.

**OUTDOOR CULTURE.**—From their first appearance it was evident that tuberous *Begonias* would be adapted for open-air cultivation; in many places they have all along been more or less so used, but now they are everywhere rapidly coming into favour. The glare associated with zonal *Pelargoniums* seems in them to be absent, and they have a refined appearance when planted out which no plants that I can call to mind possess. To dripping seasons they have shown their indifference by maintaining a sheet of bloom when other things have run to leaf, and through the last two exceptionally dry summers they have shown a like ability to keep on flowering. I saw Messrs. Laing's collection in beds at the end of September a few days after drenching rains had rendered the best of the *Pelargoniums* virtually flowerless, and they presented a mass of bloom, with just enough green foliage to relieve the colour, and set it off to advantage. Great as has been the improvement in habit of growth among these *Begonias* for indoor culture, it has been still more so in the case of kinds for planting out; when so used one of the first essentials is that they should keep close to the ground, with no disposition in the shoots to extend much, for if at all long and weak, wind becomes troublesome. The fault of many of the older varieties was that the shoots that first made their appearance in spring kept on extending through the season with little or no disposition in the plants to push up more growth from the bottom. Now, there is a natural tendency in seedlings to keep on furnishing a succession of shoots from the crown of the tubers all through the summer.

**THE RANGE OF COLOUR** amongst them is another point in their favour, running as it does from white to primrose, sulphur-yellow, and yellow suffused with bronze, to all shades of red, from pale pink and scarlet to crimson, almost approaching black. One thing remarkable about seedling plants where fertilisation has been systematically carried out is the comparatively little departure in colour from that of the parents.

This was strikingly exemplified at Forest Hill. Not the least of the good properties which these *Begonias* possess for outdoor culture is their adaptability for being grown in beds alone in separate colours, with the colours mixed, or in association with either flowering or fine-leaved plants of other sorts. Those who do not like the formality more or less conspicuous where they are used in any of the ways just named can introduce them amongst herbaceous plants. In no way can they be employed with better effect than in mixed borders, where, if planted singly or in masses, they keep up a display when spring and early summer bloomers are over. There is little doubt that they will ultimately play a prominent part in this way. Amongst rock plants they look equally well. One advantage attending their cultivation is that they are so easily managed, that no one need be deterred from taking them in hand. There need be no glass erection at command further than a cold frame, or, failing this, a light window in the room of a dwelling will do as far as the space it affords will admit, to stand the plants in after they have begun to grow in spring until the time comes for planting them out. When the tops die down in autumn the tubers should be taken up, dried, and stored like Potatoes, putting them out of the reach of frost until they show signs of growth in spring. Then they should be put in pots an inch or two larger than will hold them, filled with ordinary potting soil, in which, with attention in the way of watering, they will go on until turned out in the beds about the first week in June. As a matter of course, those who have a greenhouse can have them more forward at planting-out time than where there is none, but, as already said, the absence of a glasshouse need not deprive anyone of the pleasure of enjoying these beautiful plants.

T. BAINES.

#### STORING SOIL.

GOOD soil must be had for pot plants and fruits. Ordinary soil, such as that which may be obtained from most kitchen gardens, is of little or no use for potting, and those who wish to cultivate plants or fruits, such as Grapes, Pines, and Peaches, to any great degree of perfection must have good soil for the purpose. The best of all soils is that obtained from the surface of a good old pasture field, and the next best is the nearest approach to this which can be had. Residents in and near towns often think that gardeners in the country have no difficulty in securing as much good soil as they can use at all times, but in many instances this is not the case; the gardener has, indeed, often to hunt for soil in out-of-the-way places, and be content with samples not always good—a great mistake, as garden crops pay well for good soil; and if employers viewed this matter in a right light and took into consideration the excellent crops which good soil is made to produce in gardens, the very best on the whole estate would always be at the service of the gardener. Where there is no access to fields, the roadsides and railway banks often furnish some good material. Near towns, where fresh land is being utilised for building, the surface should always be secured for garden purposes. The more fibrous the soil the better, as it is more lasting and generally more nourishing than fine material. Some recommend that a supply be stored when the surface of the ground is frozen, as then grubs are supposed to be deep in the ground, but there are many worms which do not penetrate to any great depth, and, irrespective of these, good soil should be secured whenever it can be

obtained, no matter what time of the year it may be. Those who can get regular supplies annually will find the present time a good one to store up soil. The fibres are fresh and plentiful now, and, if stacked up, it will be in prime condition for potting and other purposes in spring. The heaps may be made from 4 feet to 6 feet in width, about the same in height, and any length. The turves should all be turned upside down in order that the Grass may decay quickly. As each layer is put down, a sprinkling of soot put over the whole surface will be found to be very beneficial; a little manure may also be used in the same way. Where sheds are plentiful, a quantity of turves may be stored in one of these; this will keep them dry and ready for use at any time. We generally store a few loads in the potting shed, make a large stack outside, and renew the inside heap from this as it is used up. CAMBRIAN.

### GARDEN FLORA.

#### PLATE 515.

#### MYOSOTIS DISSITIFLORA GRANDIFLORA.\*

WHETHER this very fine form of one of our loveliest of hardy garden flowers differs from the fine form of *dissitiflora*, known as *Perfection*, matters little, for both are fine and beautiful. That *dissitiflora* is one of the earliest, and hence most favoured, of all our *Forget-me-nots*, is well understood, and though it will not thrive equally well in all places, yet where it does well, it produces a mass of celestial blue flowers about which clusters unusual interest. What is called the creeping *Forget-me-not* (*Omphalodes verna*) gives us, perhaps, the richest and the loveliest shade of blue found in spring flowers; but the *Omphalodes*, whilst so very hardy and withal so prolific of growth, is yet not profuse of bloom, and at its best a big patch can never be said to present a striking effect. The three most popular of garden *Forget-me-nots* without doubt are *Myosotis dissitiflora*, *sylvatica*, and *semperflorens*, and the three in combination will give us blooms in rich abundance over a period of six months. The early-blooming *dissitiflora* is, perhaps, most favoured because it is the earliest, and as we always value very early spring-blooming plants most, and especially those which give us in abundance flowers of such a pleasing hue as this plant does, no wonder it is popular. On the other hand, it is much less widely grown than is the later, but hardier, *sylvatica*, for the simple reason that the latter is not only hardier and blooms the more profusely, but seeds most freely also, inasmuch that plants may be had in large quantities every year, where the stock is treated as annual, with the most trifling labour. The very hardy and free-growing *M. semperflorens*, which bears no inconsiderable resemblance to the well-known semi-aquatic *palustris*, if sown in the autumn will bloom profusely through the summer, and a further sowing in the early spring will continue the blooming season into the autumn. All these forms are most valuable for the production of blooms for cutting, and in many instances are largely grown for market purposes. *Myosotis dissitiflora* usually thrives best treated as an annual, but it labours under the disadvantage that whilst it blooms so early the flowers are yet so tender, that a white frost or two will destroy the whole of the expanded bloom, and several days must elapse ere it recovers. In such case the prospects of a seed crop fades into nothing; hence whilst it is easy

\* Drawn at Munstead, Godalming, in June.



MYOSOTIS DISSITIFLORA GRANDIFLORA









to advise the treatment of the plant as an annual when seed is abundant it is equally needful to recommend its increase in autumn by dibbling in side shoots as half-rooted cuttings during the month of October, and these rapidly form strong plants. It is true that whilst all seedling plants stand the winter well, some propagated plants may die, but much depends upon the weather. Still, it is so easy to increase this Forget-me-not by the method mentioned, that there is no reason why, even if seed be obtainable, there should not be an abundance of plants in every garden.

THE EARLIEST BLOOM, of course, is obtained in sunny, warm positions, and *dissitiflora* has often been found flowering in rich profusion as early as February. On the other hand, in such warm positions, because exposed to the effects of early sunshine whilst the frost is still on the plants, the bloom often suffers more after frost in such spots than when in a west aspect. However, in these, as in so many other matters, it is hardly worth while trying to meet trouble half way, as, after all, the spring may prove full of mercy and kindness to this beautiful flower. By preference, the plants like a light, well-drained soil, but even in a stiff one they will often develop into big clumps that, uninjured by wet or frost, produce wondrous masses of bloom. The fine form of *grandiflora* given in the annexed plate, as well as *Perfection* and some others, seem to have had their origin in plant sports. The *dissitiflora* has proved peculiarly sportive, as it has given off several forms, whilst *sylvatica* seems to have given but two, viz., *sylvatica alba* and elegantissima, a variety which has creamy white leafage and makes a capital winter-bedding plant. This form has been falsely attributed to *dissitiflora*, but its habit on reversion to a green form, rather a common occurrence, shows that it is of the *sylvatica* section of the Forget-me-nots. In addition to the *dissitiflora* sports named above, we have the pleasing pure white form known as *alba*, which seems curiously enough to have originated in some two or three places at once, and the very pretty, though not too constant, striped or flaked form known as *Werleigh Surprise*. The latter, with *Perfection* and the special subject of the annexed, viz., *grandiflora*, are larger flowering and more robust growing kinds, flowering less profusely because their habit induces stunted growths and foliage. Again, it is found that they seed even more sparsely than do the original form, whilst they may be propagated from shoots with equal facility. Curiously enough, these larger flowered kinds display in the earliest flowers much more redness than is usual, and some are so beautifully red that, a desire to possess a true red Forget-me-not is intensified. Sometimes we see in *Perfection* the flowers so interlarded with red and blue, that they resemble the once favourite dress colour—that of shot-silk. Again, some flowers are prettily striped, but when the spikes or racemes advance or expand, the flowers then assume a beautiful deep rich hue almost resembling that of the *Omphalodes* flowers. All the *dissitiflora* section bloom beautifully under glass, but, again, are very subject to damp or mould; hence if potted up early often result in loss. As a rule it is wiser to permit the plants to show the bloom-buds and then lift and pot them, giving just a little warmth to promote quick rooting. The production of bloom-buds may be facilitated by planting some in the autumn under a south wall. The white variety seems almost harder than does its blue congener, and the pure hue of its flowers is intensified under glass, so that clumps of both in pots prove most useful for house decoration.

Prior to the introduction of *dissitiflora* the later, but hardier, *sylvatica* was more widely grown for spring blooming, and those who remember the masses of this variety seen at Cliveden in May will admit that, in association with *Silene pendula*, it produced charming effects. But a plant which displays its best charms between the spring and summer proves to be a rather inconvenient bedder; hence it is too late for spring work and too early for summer arrangements. On the other hand, the low-growing and creeping *semperflorens*, which seems to delight in a moist situation, blooms with fair profuseness all the summer, and forms a capital base or carpet plant for some other strong-growing things, especially *Stocks*, *Gladioli*, or dwarf *Dahlias*. The pretty species, which are less known, such as *rupicola*, *azorica*, *alpestris*, &c., and are best suited for rockwork, come under a diverse heading than do these we have referred to, and may well be left to the attention of the botanist, or those who specially favour uncommon plants. Certainly the commoner forms, if so common, rank amongst the most tractable as well as the most beautiful.

#### GARDEN AND ORCHARD MANURES.

BY PROF. G. C. CALDWELL.

How to manure the garden or the orchard for the most profitable results is one of the most difficult questions that the horticulturist has to meet. Is there a sufficient supply of such kinds of food as will, in the general run of garden and fruit culture, give the surest results? Is not the gardener's call always for more stable manure, and is the call of the fruit grower any less loud? One naturally asks, why is this so, when there are, elsewhere at least, immense if not inexhaustible quantities of the nitrogen, phosphoric acid, and potash, that are reckoned as so important plant nutrients, all to be had for the purchasing, and under so great competition that they ought to be had for as low rates as they can be sold for, paying fair profits. They can be had also in every form of combination and every degree of assimilability, and in any desired mixture; and, further, to save the cultivator the trouble of studying out for himself the kind of combination that his crop needs, mixtures are offered to him, ready made up, for each crop. Abundant as these commercial supplies are, they do not seem fully to answer the purpose, for I doubt if the demand for animal manures is any less urgent now than it was before artificial manures became the important articles of trade that they now are. Yet, in some instances, superphosphates, bone meal, nitrate of soda, and the like have, in some few cases, been made to take the place entirely of stable manure with profit. What are the obstacles in the way of the more extensive use of artificial manures in the garden and orchard? In answering this question we naturally ask, first, what does stable manure contain that is not supplied in artificial manure? The valuation of the latter in the trade is based on the quantities of nitrogen, phosphoric acid, and potash that it contains, some fertilisers containing only one of these nutrients, others two, and others all three of them. There is no question that in respect to these nutrients we can meet the wants of any crop better by supplying artificial manures than we can by stable manure, if there is any difference between the two as to efficiency. But, besides these, the crop must find in the soil supplied from some source, lime, magnesia, sulphuric acid in the form of sulphates, of which plaster is one, a very little iron, possibly chlorides, of which common salt is one, and, perhaps, silica. Every super-

phosphate contains an abundance of lime and of sulphuric acid. The muriate of potash, brought from Germany, is a chloride and contains chlorine. Of iron every soil has an abundance, many thousand times more than any crop needs, and the same is true of silica; of magnesia there is enough to be had in the German kainite. But as to all these nutrients last mentioned—sulphate, chloride, silica, iron, and magnesia—there is no proof that the average soil is not abundantly rich in them for the production of good crops. Hence it is that we are justified in charging all the cost of an artificial manure to, and in expecting to get our money back from, its nitrogen, phosphoric acid, and potash; the rest of the ingredients must be thrown in gratis, as of no value generally, although there may be cases where one or another of them may be of some service. All of these matters the stable manure also contains in abundance. So far no one can claim anything for the stable manure that is not supplied by artificial manure. The only respect in which the two are distinctly unlike is this: the stable manure is composed largely of dead vegetable and animal matters in process of decay; the product of this decay is the humus or vegetable mould of the soil. About one-fifth of ordinary stable manure is made up of this vegetable and animal matter, while not over six to eight-thousandths is potash, five or six-thousandths nitrogen, and three-thousandths phosphoric acid. Of nitrate of soda, so much mentioned as a very useful fertiliser for its nitrogen, one-sixth is nitrogen. Of a good superphosphate, as this fertiliser averages in this country, about one-eighth is phosphoric acid, and if one desires it and is willing to pay for it, he can have a superphosphate with one-third its weight of phosphoric acid. Of a German muriate of potash from a third to a half may be potash. But in all these materials there is no vegetable matter, and little or no animal matter. Here, then, is a clear distinction between the two kinds of manure, the stable and the artificial; the stable manure has its few thousandths of nitrogen, of phosphoric acid, and of potash, and its one-fifth of decaying vegetable and animal matter; the artificial manure only its few thousandths or even less of animal matter, and its proportions of nitrogen, phosphoric acid, and potash counted by eighths to thirds. About three-fourths of stable manure is only water, however; expel this, and get a manure as dry as artificial manures ordinarily are, and the comparison between the two will be more just and, I apprehend, no less striking; we shall then, if I am not greatly mistaken, see that four-fifths of this dry manure is simply decaying vegetable and animal matter, about one-fortieth is potash, one-eighth phosphoric acid, and one-fiftieth nitrogen.

BY STABLE MANURE is attained in general the greater measure of success. How is that? As already said, decaying vegetable or animal matter in the soil makes humus or vegetable mould. This common ingredient of all arable soils is not necessary for plant growth; for, on a small scale, in pot culture good crops have been obtained in a soil as white as snow, and therefore quite free from humus, but containing all the real plant nutrients that have been mentioned. But that this humus is an important ingredient of a fertile soil no one can doubt. Given two soils equally rich in nitrogen, potash, phosphoric acid, lime, and all such matters, but of which one is poor in humus and the other rich in it, but yet not so excessively rich as a bog or a manure bed, there is not a cultivator who knows soils who would not give more for the soil rich in humus than for the other. In the course of the decay of these vegetable



matters several acid substances are formed, and chiefly carbonic acid. These acids act on the large quantity of difficultly soluble plant food in every arable soil of fair quality, and aid in bringing it into solution, and thus within easy reach of the plant. Few realise what a large native stock of crop food they have in their soils. In the case of a fertile soil from a Western State, analysed some time ago in Germany, there would be, by calculation from the analysis, in one acre of it, and within a foot from the surface, 2400 lbs. of phosphoric acid and 7000 lbs. of potash. But nobody in New England has a western prairie soil; nevertheless, judging from analyses of twenty-five different soils of average quality by the same chemist, we may say that an average good soil will contain within 12 inches from the surface, and therefore accessible to the crops, and fit for plant food if any means can be provided for bringing it into solution, 1500 lbs. of phosphoric acid, 1500 lbs. of potash, and over 1750 lbs. of lime. If humus by its decay helps to bring about the solution of these supplies which are much larger than the yearly demands of our crops, then it must be useful, since all such plant food must be taken up in solution.

THAT CARBONIC ACID, which is one of the main products of the decay of humus, does in some way favour vegetable growth is very neatly illustrated by an experiment performed many years ago by Stoeckhardt. Three deep glass vessels, two of which had holes pierced through the bottom, were filled with soil and Peas were planted; through the hole in the bottom of one of the vessels and up through the soil was passed every day a certain quantity of air, and up through the soil of another of the vessels a mixture of air and carbonic acid; the third vessel was left to itself, and the condition of things in it was about the same as in an ordinary soil with a very compact and impervious subsoil. The weight of dried crop produced in the third vessel without any circulation of air was about ninety grains, in the soil through which air was circulated 162 grains, and in the soil through which air and carbonic acid were circulated 190 grains. In some way the carbonic acid along with the air helped the crop amazingly, more than doubling it. It has been proved over and over again that vegetation supplies itself with carbon, at least mostly, if not entirely, from the carbonic acid of the atmosphere. The fair presumption is that the carbonic acid passed through the soil in this case brought more plant food into solution, and so the crop was more liberally provided with this means of growth. In support of this presumption we have the fact, demonstrated also by Stoeckhardt, that the very soil which produced the largest crop, and therefore had yielded up the largest amount of dissolved plant food, still contained the largest amount of soluble plant food ready for the next crop. The quantity of such soluble food was, in the soil of the closed cylinder without any circulation of air, twenty-two grains, in the cylinder furnished only with air, forty-three grains, and in the soil to which both air and carbonic acid were supplied, sixty grains. It will be noticed that the second soil receiving only air also gave a notable increase both of crop and of soluble food left for the next crop. On first thought this result would appear to conflict with the explanation given of the increased crop in the third soil, that it was due to the carbonic acid passed through that soil along with the air. But there is not necessarily disagreement here; it is quite reasonable to suppose that the humus in this soil, together with the oxygen of the air that was circulated freely through it, produced the same effect and in the same way as was

produced by the carbonic acid ready formed in the third soil. The formation of carbonic acid from the humus can take place only in the presence of oxygen, and the more liberal the supply of oxygen the larger will be the production of carbonic acid from a given quantity of humus. In this second soil we had, as in all the others, the ordinary quantity of humus; the supply of air, with its one-fifth part of oxygen, was liberal; carbonic acid must have been produced freely, and it would have been strange if there had been no increase of crop. Such a result would have tended to disprove just what we are seeking to prove, that the humus does good work for the cultivator by the carbonic acid given off in the soil as it decays or oxidises, which two terms mean much the same thing.

ANOTHER EXPERIMENT shows in a no less striking manner the part that humus may take in bringing plant food into solution. A sample of a sandy loam was compared with another portion of the same soil to which some humus had been added; in the course of the summer months, while a crop was growing vigorously on these soils, the quantities of potash that became soluble in the two soils were as 366 parts in the soil poor in humus to 574 parts in the other; the quantities of plant substance produced in the two cases were 5040 and 9800 parts. That the presence of decaying vegetable matters or of humus in the soil does increase the proportion of carbonic acid there, is fully shown by analysis of the air in the pores of the soil. The air above the soil contains three parts of carbonic acid in 10,000, while that in the soil may contain ordinarily 100 parts in 10,000, and, moreover, such richness in carbonic acid is found only in the air of soils containing humus. A rich dressing of stable manure, or, in other words, a large addition of decaying, humus-forming substance, largely increases the quantity of free carbonic acid in the soil. An Asparagus bed that had not been manured for a year contained in the air in the pores of the soil 122 parts of carbonic acid in 10,000, but when recently manured 233 parts. Another, a surface soil rich in humus, had 540 parts of carbonic acid, a newly manured sandy field 333 parts, and the same soil in wet weather 1413 parts, of carbonic acid in 10,000 of its air. This function of the humus of the soil can also come into use with respect to the plant food added in manures. To me, one of the most interesting properties of soil is that remarkable power which it has of absorbing certain valuable plant nutrients, holding them in a difficultly soluble condition near the surface, so that however much rain may pass through the ground, they will be only very slowly carried down deeper or washed out altogether. Thus the soil behaves with phosphoric acid, with potash, and with the ammonia that is so valuable for its nitrogen. For these three substances any arable soil that is not too sandy is a most trustworthy savings-bank. Therefore, although we should make much account in buying a fertiliser of the proportion of soluble phosphoric acid, or potash, or nitrogen compounds in it, yet, in all probability to say the least, our crops take up but a little of these nutrients before they are changed by this fixing power of the soil into a difficultly soluble condition. Why, then, it will naturally be asked, should we pay for soluble phosphoric acid when we can good insoluble acid cheaper, if what we put on the soil as soluble so soon becomes insoluble? For this reason, partly, that the even distribution of the food through the soil is a matter of much importance. Practically, then, every crop has to procure all its phosphoric acid, all its potash, and a part at least of its nitrogen, from difficultly soluble

compounds in the soil, and I think it is now easy to understand why, as so often observed, artificial fertilisers do their best work when used with stable manure; the abundance of carbonic acid generated by the fresh application of such manure assists in the re-solution of the insolubilised phosphoric acid and potash of the artificial manure, as well as of the difficultly soluble native food of the soil. Some consider this to be such an important function of stable manure, that they condemn the practice of allowing it to rot in the yard at all; they would have all the decay go on in the field, just where the products of this decay are needed for their action on the soil.

ARTIFICIAL MANURES, be it observed, I do not regard with disfavour. On the contrary, I do not believe we could get along without them, and I see no reason why, if they are judiciously used, they should not do as much for horticulture as they are doing for agriculture. If the farmer succeeds better in getting profitable returns from an investment in a certain quantity of nitrogen, phosphoric acid, and potash in a superphosphate than the horticulturist does, it may be because the latter has not learned by experience, as the former has, how to get such returns; and as long as he can procure animal manures by any sort of management he will continue to use them rather than get out of the rut and learn how to use something else in place of them. So far as the humus is concerned, on whose apparent usefulness I have dwelt so long, its due proportion in the soil can be maintained by green manuring, and without getting or making much stable manure. In order, however, to enable these artificial manures to compete with the cheaper plant food in animal manures, they must be bought at such rates and in such ways as to reduce the cost of the plant food they contain to as low a point as possible. Let me now sum up in a few words the main points which I have attempted to illustrate: 1. That if the elements needed for the food of the horticulturist's crops cannot be obtained in sufficient quantity from stable manure or other animal waste, they can be procured in the trade in unlimited quantity, and in every degree of availability depending on different grades of solubility, and in the greatest variety of mixtures, so as to suit any whim or fancy of crop or crop grower. 2. That profitable crop-growing can be carried on, for many years at least, with these artificial fertilisers alone. 3. That the most evident distinction between stable manure and artificial fertilisers, and the distinction upon which we should, therefore, naturally base an explanation of the greater reliability of the former, is its large proportion of vegetable matter, or humus-forming material, of which artificial fertilisers contain practically none. 4. That soils contain, in a difficultly soluble condition, and therefore not easily fed upon by the crops, large supplies of all the needed elements of plant food. 5. That humus, through its decay in the soil, furnishes carbonic acid among other solvent agents; and this carbonic acid appears to play an important part in the nourishment of crops by bringing the native insoluble stock of plant food within their easy reach. 6. That even if we add water-soluble plant food to the soil it becomes largely insoluble before the crop can feed upon it, or needs it; therefore soluble plant food added to the soil in artificial fertilisers needs also the help of the humus, finally, for its solution. 7. That plant food in most animal and vegetable residues used as manures costs much less than in artificial manures. 8. That, in spite of the



disadvantages which, under some conditions, attend the use of artificial fertilisers, they are nevertheless a very important and necessary help in crop growing. 9. That in using these fertilisers the wisest course appears to be to make one's own mixtures of the raw materials, as well for securing a better manure as for economy in first cost.—*Massachusetts Horticultural Society's Transactions.*

## TREES AND SHRUBS.

### IMPROVEMENT OF PARK SCENERY.

SUFFICIENT attention is not directed to park planting, with a view to render the landscape scenery picturesque and varied, when marginal masses, young plantations, clumps, or groups are being formed in new parks; it is also necessary from time to time to fill up blanks in park plantations occasioned by high winds or the decay of trees, if a succession of healthy growing timber be desired throughout the country. Before selecting the subjects to form the principal masses, it is essential to have some knowledge of the trees most suitable to the various conditions of soil, geological formation, and climate. As a general rule, it is the safest and perhaps the wisest plan to plant the park belts, marginal masses, and the larger clumps and groups with those trees that are found to thrive best and to develop into the finest timber in the locality where the planting is intended to be carried out. Trees suitable for forming the principal masses in the park may be divided into two classes, thus: Oak, Elm, Lime, Horse and Sweet Chestnut trees, for rich loam and clay soils and somewhat sheltered sites; Beech, Sycamore, Norway Maple, and Birch trees for thin poor soils and in exposed sites. Among Conifers (though not strictly park trees) the Wellingtonia, Silver Firs in variety, Douglas and Menzies Spruces, and Pinus austriaca, Laricio, Benthamiana, Jeffreyi, ponderosa, macrocarpa, and many other hardy and tall-growing varieties may be planted on the declivities of hills in groups amongst the marginal masses to give variety, contrast, and shelter; they can also be planted in groups to form a background to deciduous trees or prominent hills in the distance to break the hard, level, sky outline. The best and at the same time most pleasing and picturesque effect in park planting is to be produced by grouping with distinct species, bold, sweeping masses of different sizes and irregular shapes, to avoid giving similarity in size and form of groups of each distinct kind of park tree, and by planting smaller groups of the newer and more beautiful varieties of each species in front of the common sorts, distributing these latter at wide and irregular distances apart from tree to tree, so as not to add a stiff and clump-like appearance to the larger masses. By a judicious arrangement of groups of ornamental trees and dwarf tree forms, they should exhibit a different outline to the eye on every side; and although they should be planted at wide distances apart to allow every tree sufficient room to develop its special features of habit and foliage to the fullest extent, yet still these, when viewed at a distance, should blend into one group. Clumps of park trees are generally round or oval in shape, and mostly planted on prominent knolls. They should be composed of one distinct variety or species. Groups of dwarf trees may be advantageously used to soften down abrupt outlines of clumps. Mixed groups of fine-foliaged and flowering trees, of silvery and dark foliage, of rich autumn-tinted and the more quiet coloured, and the round-headed with the fasti-

giated forms, the weeping with the irregular or oblong forms, should be tastefully distributed throughout the park, advantage being taken of the undulating surface by planting the groups on the rising ground, leaving the hollows or valleys to form grassy glades. These latter may occasionally be broken when too great a breadth of Grass is visible by planting groups of dwarf trees in the foreground. Thorns and other dwarf trees should also be planted near carriage drives, and on each side of sharp curves of park roads and drives in scattered groups of various sizes from a triplet to a score or more. These dwarf tree forms, when planted judiciously, give variety without abruptness and a more natural appearance generally to the planting. Single specimen trees of distinct and marked features should be planted on well-chosen spots, but care must be taken not to plant too many, so as to give a speckled or chessboard-like appearance to the park. The leading features to be aimed at in park-planting should be variety, with distinctiveness, and system of arrangement without formality. Conifers are only suited for park adornment at a distance from the mansion, on the sides of hills, or prominent high-lying outskirts; when planted in the foreground or in the low-lying sites of parks, either in clumps, groups, single specimens, or to form avenues, they are altogether out of character with true English park landscape planting. The only exception to this rule is the Cedar of Lebanon, which may be tolerated near a mansion, but even this only when the style of architecture is Elizabethan, Tudor, Jacobean, or of some other allied type.

G.

### SOME OF THE BEST JUNIPERS.

THE Junipers comprise a useful and ornamental class of evergreen trees and shrubs. They prefer moderately sheltered situations, and are well adapted for planting on the margins of woods and along the sides of drives, where they not only make excellent game covert, but also give variety to woodland scenery. In addition to their use in this respect, the wood is very valuable, being highly prized by the cabinet-maker, who uses it for a variety of purposes, especially in cases where lightness, fragrance, rich colour, and durability are requisite. The following are a few of the best Junipers that can be recommended:—

COMMON JUNIPER (*Juniperus communis*), an indigenous plant, and one of the hardiest and best of the section to which it belongs. It thrives in a great variety of soils and situations, but the best examples I have seen of it were growing in the natural forest associated with the common Birch, at an elevation of about 1000 feet, where the soil was of a rich friable nature resting upon limestone rock. It is perfectly at home under the shade of trees; in this respect it is quite equal to the Holly, and, moreover, I have often found it necessary to protect the latter from the attacks of hares and rabbits during a storm of frost and snow, while the Juniper is exempt from such attacks; consequently its value is increased as a covert plant. It is a favourite resort of the woodcock, the hare, and the roe-deer during storms.

SWEDISH JUNIPER (*J. suecica*), a native of Denmark, Norway, and other parts of Northern Europe, is very hardy in this country, and makes excellent covert. It has a compact, upright habit of growth, and the branches are well clothed with leaves, which are rather longer and of a brighter green colour than those of our native species. It is said to sometimes attain a height of about 50 feet in the Forest of Fontainebleau, but we have never seen it of such a size in this country.

IRISH JUNIPER (*J. hibernica*) is a close, upright growing variety found on some of the mountains of Ireland; its foliage is of a silvery glaucous colour, and very effective when planted with others of a more sombre appearance. It thrives best on peat

bog and cold clay soils, and makes a handsome specimen plant for a Grass lawn where the area is of limited extent.

CHINESE JUNIPER (*J. chinensis*).—In China and Japan this species attains a height of about 30 feet. It was introduced over sixty years ago, and has proved not only to be hardy, but one of the best and most ornamental small trees we have in cultivation. It has a close, conical habit of growth, furnished with branches from the ground upwards, the foliage being of a green and slightly glaucous colour. It is admirably adapted for planting on lawns of limited extent. In early spring, when loaded with golden catkins, which it produces in great abundance, it is highly attractive. It thrives on any soil of ordinary texture, including peat bog, and is well adapted for planting on cold, bleak situations, inimical to a good few others of the same tribe.

PLUM-FRUITED JUNIPER (*J. drupacea*) is a native of Syria and Asia Minor. On the mountains there, at a rather high elevation, it attains a height of some 15 feet. Since it was introduced in 1820 it has proved itself perfectly hardy with us. It thrives best on good well-drained soil in a moderately sheltered situation, and is unsuitable for planting on peat bog. It has a close, narrow, conical habit of growth, clothed with sharp-pointed leaves, arranged in six distinct rows along the branch, which are of a light grassy-green colour. This Juniper makes a handsome specimen for a lawn, its only fault being that when it attains a height of some 10 feet or 12 feet it is apt to lose its under branches.

THE WEEPING JUNIPER (*J. recurva*) is a very distinct species from the elevated mountains in Nepal and Bhotan, where it grows to about 15 feet high. It was introduced into this country about the year 1830, and we have found it to thrive best under the shade of trees, on cold clay loam well broken up, and on peat bog. It is a beautifully drooping evergreen, furnished with elegant feathery branches of a deep green colour, which contrast finely with the warm cinnamon colour of the bark of its stem and branches, the outer layers of which get detached and are thrown off in loose flakes, which give the plant a peculiar appearance. From its graceful drooping appearance it is adapted for planting under the shade of trees in the vicinity of water, but in places where the soil is of a dry, warm nature, it assumes a rusty, stunted appearance, and is unsuitable for that class of soil.

THE RED CEDAR (*J. virginiana*).—This beautiful and well-known North American species forms a close, dense conical tree of a dark green colour, and thrives in a great variety of soils and situations, including peat bog, if moderately sheltered. *J. argentea*, or glauca, is a variety of the Red Cedar, and, from its peculiar whitish silvery appearance, is useful for contrast when planted with others of a darker tint of colour. It thrives under the same conditions with regard to soil as that of the species. It grows to the height of about 50 feet.

THE SPANISH JUNIPER (*J. thurifera*) has a close, conical habit of growth, tapering slightly to a sharp point at the top. Although tolerably hardy, it likes a sheltered situation, and makes a fine specimen under ordinary circumstances, but in low-lying ground we have seen it occasionally damaged by late spring frosts.

BEDFORD JUNIPER (*J. Bedfordiana*), a native of Barbadoes, requires a sheltered situation, and is well adapted for planting in the margins of plantations, as the shelter thus afforded promotes its healthy development. It is unsuitable for planting on peat bog, as in such positions it is liable to suffer by frost.

J. B. W.

Pruning the Sequoias.—Sequoia (*Taxodium sempervirens*) is a Conifer which stands the knife well, and its outline may be greatly improved both by branch and stem-pruning. If properly attended to by judicious pruning it will become in many parts of England an excellent avenue tree, but the condition in which it is generally seen renders it rather forbidding than otherwise. Sequoia (*Wellingtonia*) gigantea, whether produced from seeds or cuttings, if growing



on good soil, naturally assumes a pyramidal shape. Branch-pruning is not therefore necessary except in the case of a stunted specimen or a wayward branch, as occasionally happens. Wellingtonias, however, may be stem-pruned with impunity. Where many specimens exist, it will be noticed that the upward tendency will be greatly improved by stem-pruning.—T.M.

**The Monterey Cypress.**—Notwithstanding its liability to be cut off when a bad year comes, the beauty and grace of this Cypress (*C. macrocarpa*), even in its young stage, are so great, that we may be sure it will always hold a place around our English country houses. When killed it must be replaced. It should perhaps be noted that a variety of *Cupressus Lawsoniana* (a much hardier plant) has been met with possessing exactly the same habit and port as the fastigate variety of *C. macrocarpa*; its colour, however, is not equal to that of the latter, though very beautiful in its own way; but the green of *C. macrocarpa* is peculiarly rich, and we remember no other Cypress which possesses it.—M.

**Vitis humulifolia.**—When this Vine fruits freely, which, by the way, is not always the case, it is a truly handsome object at the end of the summer and early part of the autumn, and is specially notable from the rich blue tint of the berries, a colour which we do not find elsewhere among hardy climbing plants. A hot, dry summer is most favourable to the production of berries, and it therefore follows that a situation against a south wall is very conducive to a good show of Grapes, for Grapes, indeed, they are, though blue in colour and no larger than a good-sized Pea. They are, however, borne in clusters and under favourable conditions freely enough. I have seen this Vine allowed to ramble at will over some sticks and shrubs in its immediate vicinity, but though it grew away freely and formed a useful climber, it never fruited, while a plant on a wall but a little distance away was every year studded with berries. Treated as a roof climber in a cool greenhouse, it will, if well exposed to light and sun, generally fruit freely, though for such a purpose it is but little used. This Vine is easily propagated by cuttings of the young shoots taken at any time of the year when growing and kept in a close frame till rooted.—ALPHA.

**Hollies in hedgerows.**—There is little or no objection to Hollies in hedgerows, as "P. G." suggests. As they usually grow in a conical shape individually, and wedge-shaped when forming as an untrimmed hedge, and as their roots do not extend far, hardly any of the objections apply to them that apply to the Oak, Ash, and Sycamore. Besides, the

Holly does form a dense shelter wherever shelter is wanted. Many a one has admired a lofty natural Holly hedge on the estate here, which is situated on one side of a field 900 feet above the sea. The hedge has been there from time immemorial, and having shed its seeds on the lee side from time to time, a mass of seedlings has been added to the hedge on the roadside, thus rendering it a thick, dense mass from end to end. It is the finest hedge of the kind I have ever seen, and, while not damaging the crops by its shade to any serious

our commonest hedge trees and bushes such as had been referred to earlier in the paper,—D.

## INDOOR GARDEN.

### BIGNONIA CHAMBERLAYNI.\*

UNDER the names *Bignonia Chamberlayni* and *B. æquinoctialis*, this plant has been in

cultivation in English gardens almost a hundred years. It is not unlike some of the true *Bignonias* in both leaf and flower characters, the leaves being conjugate, or composed of two leaflets, which are ovate, smooth, and shining, and a stout hooked tendril, and the flowers long, funnel-shaped, bright yellow, and borne in drooping racemes, from two to six flowers in each raceme, which are developed from the axils of the opposite leaves, generally two racemes at each node. It is a native of Brazil, where it grows to a great length, the branches extending along from tree to tree and helping to form that dense canopy of foliage which is said to form a perfect roof in many of the moist forests of South America. At Kew it is grown in the Palm house, trained against the side and roof, where it grows very rapidly, so that close pruning has to be resorted to to keep the plant within reasonable bounds, but the pruning should be done after the flowers are over, as if done at any other time, it is likely that the flowering wood will be cut away, and so all bloom sacrificed. It is only where plenty of space can be afforded it that this climber is likely to give satisfaction. It would, no doubt, grow and flower well in a warm sunny greenhouse if planted in a well-drained border



Flower-spray (two-thirds natural size) of *Bignonia Chamberlayni*; flowers pale yellow. From a photograph of a plant at Coolhurst, Horsham, October 1.

extent, it provides a shelter in every respect as good as a wall. As to hedgerow timber generally, it cannot go on with good farming, and is one of the first things "disestablished" by scientific agriculturists, who will have nothing to do with it.—YORKSHIREMAN.

**Trees in autumn.**—The expression "hedgerow trees" at the close of the remarks on this subject (p. 408) is somewhat unfortunate, as if connected with the discussion which has been going on lately with regard to hedgerow timber trees it may convey a wrong idea. What is referred to here is of course

and kept dry in winter; indeed, our drawing was made from a specimen grown in such a way, and Mr. Scrase-Dickins, of Coolhurst, to whom we are indebted for the opportunity of figuring it, tells us that with him it is now a beautiful sight, festooning a large portion of the roof in his greenhouse. Many of these Brazilian climbers prove happiest when treated as greenhouse plants; such, for instance, are *Bignonia venusta*, which is annually an attraction in the

\* The proper botanical name of this plant is now *Anemopaegma racemosum*.



conservatory at Syon House, and *B. speciosa*; whilst *B. Cherere*, a native of Mexico, will not flower if grown in a warm temperature, but bears in abundance its brilliant blooms if trained against the glass in a greenhouse. For an account of the garden Bignonias and a list of the plants which are known in gardens as species of Bignonia, but belong to other genera, see *THE GARDEN*, Vol. XXVI., p. 520. In the Palm house at Kew there are two specimens of *A. racemosum* bearing flowers at the present time, and they have been in bloom all through the summer. B.

#### DOUBLE ZONAL PELARGONIUMS.

WHEN properly grown these rank amongst the most serviceable of all plants for affording blooms of various colours throughout the year, and more especially during winter, when flowers of all kinds are most appreciated. Double Primulas, notably the old white, *Bouvardias*, Carnations, Begonias, and Tea Roses, are all highly valued here, as elsewhere, for their many good qualities, but in my estimation they are not so profitable as a few sorts of double zonal Pelargoniums when these receive the treatment that best suits them. We prepare about 160 plants of them for winter flowering, the largest, or about one-third of the number, being in 8-inch, 9-inch, and 10-inch pots; another batch we put in 5-inch and 6-inch pots, and the remainder in 4-inch pots. The latter are struck during summer, and are flowered on shelves in winter. Next season they will be shifted into 5-inch and 6-inch pots, while those already in those sizes will replace those in the larger sizes that are worn out or over-grown, and which are yet available for vases and mixed beds in the flower garden. It will thus be seen that we are constantly renewing our stock, and this, I believe, largely contributes to our success with this class of plants, as I find that cut-backs do not flower so well as more branching, yet not over-luxuriant, plants. If our houses were suitable, we should continue to shift the larger plants into larger pots, and it is surprising how effective and serviceable those unstopped specimens become. We have had the variety *Guillon Mangilli* 5 feet high, beautifully furnished with large trusses of bloom, at mid-winter, and that, too, in a light plant stove in which *Crotons*, *Dracenas*, *Begonias*, and other plants were growing. A large shift is never given zonal Pelargoniums, neither is it advisable to employ very rich compost, as very luxuriant growth is not so floriferous as could be desired. We use a compost consisting of three parts turfy loam to one of old Mushroom manure and a liberal addition of sharp sand. If we were only able to procure heavy and fibreless loam, and this we and many others have oftentimes to be satisfied with, rather less of it would be used, and some good leaf-soil added. The better the root action, the more floriferous will be the plants, and firm potting is also conducive to that end.

DURING THE SUMMER the plants are kept growing sturdily in a sunny, unheated pit and near the glass; they are never allowed to become very dry at the roots and always receive abundance of air. It is a custom with some to expose their plants to all weathers, and especially to hot sunshine, under the impression that the baking which they receive causes them to flower more profusely than they would otherwise do, and so it does, but the plants acquire a shabby appearance and only give a blaze of bloom for a time, while the trusses are smaller and the plants generally inferior in every way to those kept under glass during the summer. This baking process was

necessary perhaps when less free blooming sorts had to be depended upon, but now-a-days with our greatly improved varieties of both double and single zonal Pelargoniums it is quite uncalled for and even mischievous. As before intimated, cutting back is not practised, but during the summer any of the plants not sufficiently bushy are pinched back once or twice, and any shoots disposed to grow more strongly than the rest are also stopped. Our small plants have each three or four shoots, those in the next sizes double that number, while the largest are of various heights and about 15 inches through, and these are grown principally for cutting from, the smaller plants being most serviceable for house decoration. Late in September or early in October all are transferred to their

WINTER QUARTERS, this being a compartment in a range of three-quarter span-roofed houses in which Melons and Cucumbers are cultivated during summer. We have found from experience that a dry bottom is most favourable to free blooming, as when the plants stand on a moist bed faced over, perhaps, with ashes they are apt to grow too luxuriantly, especially if allowed to root through their pots into it, and the blooms are also more liable to damp off. Dry staging or shelves are best, and if these cannot be had, then it is advisable to stand the plants on inverted pots. Every plant should be perfectly clear of its neighbours, and should receive all the light and warm air possible, as when too much heat or moisture is given the growth is apt to be over-luxuriant. Ours have a house wholly to themselves, and receive heat from the bottom-heat pipes constantly circulating among them, while, as a rule, the heat of the house ranges from 55° to 60° at night and 10° higher in the daytime, air being given on all favourable occasions. If we found that the plants were growing more strongly than we wished under this treatment, a little air would be left on whenever the weather was dull and mild, and the roots would also be kept rather on the dry side. On the first symptoms of the plants becoming impoverished, they are either watered occasionally with farmyard liquid manure or receive a light surfacing of Beeson's manure. The latter was the only manure given last winter, and it maintained the plants in good health without unduly stimulating them. It will thus be seen that we force our double zonal Pelargoniums a little—not a new practice, but one by no means generally adopted as it might be. From a house 22 feet by 15 feet, I could at this time, October 16, cut not less than 500 perfect trusses of bloom, and in about a week quite as many could again be cut. Later on they will not be so plentiful, but we still have as many as are wanted throughout the winter, and till such time as the house may be required for our Melon crops. Where there is much dinner-table decoration to do, especially "on the cloth," and where many bouquets of different sorts are required and vases to fill, and again in spring, where large quantities of flowers are required for packing, double zonal Pelargoniums prove invaluable. It is not to be supposed that all the varieties now catalogued are suitable for forcing or winter-flowering; on the contrary, a great deal depends upon a

JUDICIOUS SELECTION OF VARIETIES being made. The very best sort for the purpose is *Guillon Mangilli*. This very distinct variety is invaluable, being alike floriferous in large pots or small when planted against a light back wall or against a pillar in an intermediate house or a conservatory, and it is also one of the best for growing in small pots for sale.

It will stand more heat than any other variety with which I am acquainted, and its great trusses of semi-double rich cerise-coloured flowers never fail to elicit admiration. We have not a really good scarlet companion for it, but *F. V. Raspail* and *Ludwig Ferchl* are both worthy of culture for winter flowering. The well-known *Madame Thibaut*, rich purplish pink, is very free and serviceable, and succeeds admirably in small pots. *Mrs. Arthur Latley*, a beautiful bright pink variety, is of a free branching habit and the trusses are produced in profusion and extra large. *Louis Buchiner*, salmon and white with small neat trusses, succeeds admirably with us, but it has not done so well with others who have tried it. *Earl of Beaconsfield*, bright crimson with large dense trusses, promises to be serviceable for autumn flowering, but the growth is not so compact as I should prefer to have it, and I am afraid it will not force so well as the foregoing, a remark which also applies to *James Vick*, a variety distinct from all others. It forms very stout growth, branching but little, and the trusses and pips are extra large, colour rich salmon. The white-flowering sorts are of great value, and several force very well. *Candidissimum fl.-pl.* when true produces handsome small pure white trusses, and it does not grow too strongly. The old *Amelie Baltet* is not pure white, nor does it flower continuously, but a few plants of it yield a lot of bloom early in the winter. *Mons. Thiers* has larger trusses of nearly white flowers, and forces fairly well; while of newer sorts we are trying *La Niagara*, a kind which is dwarf in habit, and which produces neat trusses; *Heroine* is vigorous in habit, and produces extra fine trusses and pips, though not pure white; *Madame Léon Dalloy* promises to be a very fine blush white; and last, but not least, *La Cygne*. The latter we at first thought somewhat overrated, but now we consider it to be the very best double white we have yet seen. It is of compact habit, very free blooming, and the beautiful trusses of large semi-double pure white flowers which it produces are conspicuously superior to any others in that section. W. I. M.

#### SOCIETIES.

##### THE PEAR CONFERENCE.

THE great exhibition of Pears, opened on Wednesday last at Chiswick, is without question among the most remarkable exhibitions that have been held in connection with the Royal Horticultural Society. It is remarkable on account of its magnitude, the general high quality of the fruit shown, and the wide field from which they have been brought together. The exhibition is decidedly national, and one might say international, for we have the co-operation of some of the leading fruitists in France, besides some of the best representatives of that fruitful land, the Channel Islands. Therefore, taken altogether, this exhibition is quite as remarkable as was the Apple conference and show held in the same place two seasons ago. All who have seen this show pronounce it to be unique and beyond their expectations, so that the promoters of it may well take courage now that it is seen that even in these days of general depression a desire to uphold horticulture for its own sake does exist throughout the country, for it must be remembered that in this case there are no awards and no recompense whatever to the exhibitors who have sent even from distant parts large collections of fruits to this conference. The show is arranged chiefly in the great vinery—a capital place, but, large as



it is, it is too small to accommodate this gathering; therefore, it is supplemented by two capacious tents. The arrangement is excellently well carried out, the plan followed being that of grouping together the collections that came from each particular county. The produce of the home counties, Middlesex, Surrey, Kent, Sussex, Hertfordshire, Hampshire, and Buckinghamshire, occupy the whole of the available space in the great vinery. In one of the tents will be found the large and wonderfully fine collections from the Channel Islands and from France, also from the north midland counties and Wales, while the other tent is filled with exhibits from the northern counties and Scotland.

THE DISPLAY is thoroughly representative as regards exhibitors, amongst whom are many of the leading nurserymen, while from great private gardens throughout the country large collections are contributed. In fact, the amount of fruit brought together is bewildering, there being upwards of 6000 dishes, and, reckoning six fruits to each dish, the result is a total of some 36,000 fruits. In the absence of statistics it is difficult to say how many different sorts are shown, but we imagine the number cannot be under 200. Kinds never heard of or seen in books may be found here, and popular sorts are repeated in every collection *ad infinitum*. The collections range in number of dishes from half a dozen to 200, and, roughly speaking, we should say the exhibitors number about seventy. They come from all parts, from the lowlands of Scotland to Devonshire, and from South Wales to Norfolk. We shall not attempt to give a detailed account of the show from the hurried visit which we paid it on the opening day, but we may say this that a walk round it reveals to anyone, be he a fruitist or not, that the collections are not of equal merit. On the contrary, there is a wide difference between many of them. About half the number of collections shown are excellent, some of superlative merit, but others are decidedly below mediocrity, and one wonders what can induce exhibitors to send such fruit, except it be to show their incapacity as regards Pear culture, or the unsuitableness of their soil and climate—often an apology for unskilful culture. The northern exhibits are remarkable for inferiority, but, fortunately for them, they are not in proximity to the collections from the southern growers, or the contrast would have been too violent. Whether it be climate or otherwise, there can be no question that the southern producers are far and away superior to those in the midlands and farther north. The healthy stimulus given by frequent exhibitions of hardy fruits in the home counties has doubtless had a good effect. Such successful Pear and Apple growers as Mr. Haycock, of Barham Court, near Maidstone, does not believe in the oft-asserted theory that a good locality and a suitable soil are in themselves sufficient for the production of high-class fruit.

PEAR EXHIBITIONS and their attendant conferences it is thought will lead to good results, and leave the Pear question in a more advanced stage than heretofore. But will they? We hardly think that a mere exhibition of fruits and a revision of the names of sorts actually shown (which by the way in many cases benefits the exhibitor only) can influence the real progress of pomology, or, to use a more homely phrase, further the progress of Pear knowledge and Pear culture in this country. Will it be the means of diffusing throughout the land, by the medium of the Society, a knowledge of the best sorts of Pears to grow in particular districts, the kind of soil and site best suited for particular sorts, the best sorts for the different modes

of culture, and the best sorts for the dessert table at different seasons? Will it be the means of bringing into more prominent light any sorts of great excellence about which little has been known? We are sadly in want of more variety in first-rate late Pears like *Easter Beurré*, *Winter Nelis*, and if the Pear growers will confer and tell us which among the multitudes of new or little-known sorts are the very best for late keeping, that alone would be doing a great service to the community at large. One great work, however, requires to be done above all others, and that is the reduction of sorts. Two-thirds of the named sorts of Pears should be expunged; we should then have sufficient good ones. There are quite as many bad sorts of Pears in this country as Apples, and of this we have practical knowledge, as we are continually receiving sorts to name that are worthless. If a list of first-rate sorts suitable for different localities, soils, and modes of culture were drawn up by the committee of this conference and stamped by the authority of this our representative horticultural society, it would not only have the thanks of cultivators in this country, but our Continental neighbours and American cousins would see then what are considered first-rate Pears.

This present exhibition is certainly a large gathering, but how much more valuable if, instead of inviting exhibitors to send plates of named sorts *ad lib.*, they were invited to contribute a certain number—say a couple of dozen—of the sorts which each considered most suitable for his particular locality, combined with excellence of flavour, productiveness, and other good qualities. Then an exhibitor, be he a private grower or nurseryman, would have done real good in his own locality; in fact, he would come to be looked upon as an authorised adviser in the locality for miles round, provided his selection was approved of in other respects. To simply go round one's garden or nursery and pick and send to London as many fruits of different sorts as one can lay hands upon does not seem to require a great amount of thought, but this is what appears to have been done in the case of some of the collections at Chiswick.

Leaving for the present any notes of the collections in detail—if, indeed, they would serve any useful purpose—we should like to direct the visitor's attention to what we consider some of the most salient features in the exhibition. First of all, we look upon Kent as best representing all England, and Kent itself has no better representative collection than that from Mr. Roger Leigh's garden at Barham Court, Maidstone, which is admitted by all to be as grand a collection of Pears, and as judicious a selection of sorts, as has ever been seen at an exhibition. Let the visitor, therefore, take special note of this collection, as every dish represents the variety in perfection. Note, also, should be taken of the sorts, as almost every one of them is acknowledged to be first-rate. But, in all, there are some seventy sorts, and these could be considerably reduced, leaving only the cream. Other fine displays are shown from Kent, and particular attention is directed to the collection of 100 sorts from Kent's finest nursery, that of Messrs. Bunyard, of Maidstone.

The great gardens of Sussex contribute bountifully, Petworth, Eridge, Leonardslee, and Arundel being worthy of special note, and most particularly the collection from Petworth, for as it is one of the finest hardy fruit districts in all Sussex the fruits shown are all of the highest class. Mr. Breese shows no fewer than seventy dishes of fruits gathered from various positions—standards, pyramids, cordons, and walls—large

size and high colour being the prevailing points. The fruit nurseries of Sussex have a capital representative in Messrs. Cheal, of Crawley, who make a special feature of cordon fruits.

HAMPSHIRE collections are not many in number, but were they ever so numerous there is no doubt that Lord Eversley's garden at Heckfield would out-distance them all, for the collection shown by Mr. Wildsmith is for extent and high quality throughout only surpassed in the southern collections by that from Barham Court. It contains ninety sorts. We could wish that Mr. Wildsmith, with his thorough knowledge of good and bad Pears, had separated the chaff from the corn, and showed the visitor what *his* selection of first-class Pears would be. He could well have done it, as, indeed, could all the others, by putting the best two or three dozen by themselves. As it is the inquiring visitor must look at the tickets whereon is stated the good character of the Pear. By the way, we looked at a good many tickets, but we did not see that anyone stated a Pear was worthless, and we all know that there are Pears not worth eating, however good-looking they might be. In Pears, as in other things, good appearance does not always run parallel with good quality.

THE LONDON SUBURBAN GARDENS are in strong muster, and what is most remarkable some of the finest Pears in the whole show are from gardens within six or seven miles from Charing Cross. Note the fine collection of fifty which Mr. Roberts contributes from Gunnersbury Park, and the smaller one from the garden hard by—Mr. Atkinson's. No one need despair that hardy fruit-growing within the gloomy radius of London smoke cannot be done by men who understand the art. Other private garden collections from the suburbs are equally remarkable. From the famed garden of the author of "My Garden," at The Grange, Wallington, are no fewer than 103 dishes, all capitally representing the respective sorts, and more ruddier-cheeked fruits than such as *Beurré Clairgeau* and *Louise Bonne* of Jersey it would be difficult to find in the whole show. On the other side of London, more to the smoky east, Pear culture is understood and well carried out. Note the trim collection from Mr. Larking's pretty garden at The Firs, Lee. There are more "foreigners" in this collection than in any other. Some good-looking new French and Belgian sorts may be found among those which Mr. Sanders shows from The Firs, and we hope their taste will be as good as their appearance.

Among the leading trade collections are Messrs. Veitch, 150 dishes; Messrs. W. Paul, Waltham Cross, 190; Messrs. Lee, 100; Mr. Turner, Slough, 100; Messrs. Paul, Cheshunt, 80; while from the society's garden itself no fewer than 212 dishes are shown, representing almost as many sorts. The society, therefore, possesses sufficient material without extraneous aid for selecting the best sorts as regards the eating quality of Pears. One called *Bezi de Louvain*, shown well from the society's gardens, is a promising-looking sort, and the committee of tasters may find others which may be added to the English list. By the way, we forgot to mention above that that grand-looking French Pear, *Directeur Alphand*, which we figured some short time ago, was well shown by Mr. Wildsmith, who pronounces it to be a capital steeper. For size it will probably beat the gigantic *St. Germain*. Several of the great London nurseries are represented, and it seems as if each is trying to out-distance each other in the number of sorts they can muster.



Surrey gardens and nurseries are well represented, the collection of 50 from The Deepdene, Dorking, being excellent, and in all there are some 500 dishes shown from the county. Hertford, a fine county for fruit-growing, contributes largely, for besides the collections from the great nurseries of the Pauls there is that from the great fruit nursery at Sawbridgeworth, which is worthy of special mention, inasmuch as it contains many new sorts that have been raised by the Messrs. Rivers. We are anxious to see how a race of hybrids, obtained from that first-rate sort Louise Bonne of Jersey will stand the test that the committee ought and should put them to. They are fine-looking fruits, all bearing a family likeness to the parents. One called Magnate is particularly handsome. Messrs. Rivers' collection abounds with sorts that one seldom sees or hears of, and perhaps some of them are worth a lift to the front.

THE WESTERN DISTRICTS send capital produce. From the southern parts come grand collections from Sherborne Castle and Sir T. Acland's garden at Killerton, while the trade is represented admirably by the Veitch's, of Exeter. Worcester contributes some 150 dishes chiefly from the great nursery of Mr. Richard Smith. Hereford, famed for Apples, does not shine so well in Pears as we expected, there being only about 350 dishes in all from the county. A fine collection from Mr. Coleman, of Eastnor, numbering nearly a hundred dishes, is remarkable for fine quality and size throughout. The nurseries of Messrs. J. Dickson, of Chester, are well represented, and farther west in Wales come some creditable exhibits, while Mr. Muir, of Margam, upholds the honour of the South Wales district in a creditable way.

THE MIDLANDS send a considerable quantity. Great private gardens are represented by the Duke of Rutland's at Belvoir, and the collection shown by Mr. Ingram from that garden is as fine as we expected. The eastern counties have contributed poorly; Suffolk and Norfolk together only muster a hundred dishes. Bucks has good collections from Mentmore and other gardens to the number of about a couple of hundreds.

THE NORTHERN parts, whether on account of difference of climate or any other reason, cut a poor figure. We cannot think that the best growers are represented. The whole of the exhibits from north of the Trent do not number much above a thousand dishes. Lancashire, Yorkshire, and Staffordshire are miserably represented both in numbers and quality, and as for Scotland it were better had it not been represented. Surely the great gardeners of Scotland did not contribute to the display. If they do, we must blame the climate or the weather.

The visitors will doubtless linger around the magnificent exhibition made by the French and Channel Island growers. These are the lions of the show. Here may be seen gigantic stewers and ruddy-cheeked eating sorts, whose colour could only have been acquired in a climate "better than ours." Everybody enquires for the Jersey collections, and Mr. Le Cornu has a collection, indeed, to show them. It numbers about a hundred dishes, and there is not a bad dish among them. They have huge fruits of sorts that we see here in a puny state, and the collection throughout indicates that it cannot be the climate alone that has brought about such results. France has a worthy representative in M. Leroy, of Angers, who sends from his

famous nursery no fewer than 196 sorts. They seem to go in for more variety on the Continent than we do even. What a bewildering array of names, and how much alike do many of the sorts look! Perhaps they vary in taste. Let us hope so. Some of the big fruits are very tempting to look at, they have such good colour. The yellows are clear and the reds are bright, the result, no doubt, of the exceptionally hot and dry season in Central France. The large collection from M. Jamin, of Paris, will likewise receive much attention from visitors, as it contains many fine examples of first-rate sorts known here. It is in one of these French collections—that of M. Leroy, we think—that a ponderous fruit of Belle Angévine (Uvedale's St. Germain) will be found. It measures some 7 inches high and girths 15 inches.

Such are the more prominent features of this great exhibition, and, in conclusion, we should like to express a hope that both show and conference may be the means of adding to Mr. Barron's store of Pear knowledge, so that he may soon be able to give us a treatise on the Pear (as well as the Apple) as thorough in every respect as his work on the Grape Vine. Let us hope also that any Pear book will give us selections of the best sorts suitable for all kinds of soils, sites, and tastes in this country, and should the author possess courage enough, a grateful public would appreciate the addition of an *index-expurgatorius*—sorts to avoid, and which only encumber valuable ground. The exhibition will remain open until November 4.

The annual Jersey fruit show was held on October 14, at St. Heliers. The show of Grapes was very good—in fact, better than we have ever before seen at this season. Mr. Davidson had very fine Gros Colman, Champion Hamburg, and Muscats, as had also Mr. Touzel. Mr. Blissett's Lady Downes Seedlings were very fine. Other successful exhibitors in this department were Captain J. F. De Carteret, Captain Thomas, Mr. A. Le Gallais, Colonel J. J. De La Taste, and Mr. Asplet. Pears were extensively shown, but not quite as fine as usual. The dry summer very much checked the growth, and the severe autumn gales blew down and spoiled much of the finest of them. Mr. Bashford's first prize fifty Chaumontels weighed 40½ lbs.; Mr. Langlois' second, fifty Chaumontels 35½ lbs.; Colonel Howell's first prize twenty-five weighed 21 lbs.; Mr. R. Robins' second, 18 lbs.; Mr. Bashford's twenty-five Belle de Jerseys weighed 32½ lbs. These were all below the average of former years. Doyenné du Comice was very fine. This handsome sort is rapidly rising in favour with growers. Colonel Howell's first prize twenty-five were well coloured and evenly matched. Beurré d'Aremberg was plentiful and very good. Mr. W. Taylor was first for twenty-five; and Mr. Seabrooke first for twelve; Mr. Collas first for six; Mr. Bashford was first for twenty-five Catillacs, and Colonel Howell first for twelve. Mr. Tarrant was first for twelve Duchesse d'Angoulême, also for six very fine specimens in each case. The other sorts shown were Van Léon Leclerc, General Totleben, De Tongres, Marie Louise, Beurré Superfin, Maréchal de la Cour, Bergamote Esperen, Beurré Bachelier, St. Germain, Crassane, Winter Nelis, Passe Colman, Napoléon, Josephine de Malines, Beurré Diel, Beurré Clairgeau, Doyenné Boussoch, Beurré Rance, Beurré Éaster, Passe Crassane, Urbaniste, Doyenné Sterckmans, Forelle, Anna Audusson, Louise Bonne of Jersey, Nouveau Poiteau, Brown Beurré, Jules d'Airoles, Matthews' Eliza, Lucie Audusson, Beurré Bosc, Belle de Bruxelles, Flemish Beauty, Citron des Carmes, and a few others; and the chief prize-takers included General Wray (governor of the island), Colonel C. J. Le Cornu, Colonel J. J. De La Taste, Colonel Howell, Captain J. F. De Carteret, Captain Thomas, Mr. R. Robin, Mr. De Genlle, Mr. De Faye, Mr. Bashford, Mr. Neil, M. Coutanche, M. Langlois, Mr. Seabrook,

Mr. Henry, and Mr. Elliott. Of Apples there were shown about 200 dishes, and among them some extremely fine samples, for instance, General Watson's Jacques Lebel, Mr. Seabrooke's Cellini, the Emperor Alexander of Colonel Le Cornu, the Blenheim Oranges of the Rev. Cardwell, the Ribston of Mr. Tarrant, the Monster Pippin of Mr. De Genlle, and Altmor's Seedling of M. S. De Gruchy, who also won a first for a good dish of Peaches. General Wray's Hawthorndens were very fine, as were also many of M. De Genlle's dishes. The show must be pronounced a decided success, the entries amounting to upwards of 600, including many collections.

## BOOKS.

### HOW TO GROW ROSES.\*

By Mr. S. Ryder, Sale, Manchester, is a useful addition to books on this subject. It consists of sixty-two pages, in which are chapters on soil preparation, situation of the Rose garden, planting and manures, various forms of Rose trees, pruning, various classes of Roses, propagation, Roses in pots, the blooming season, exhibiting, calendar of work for each month, and a list of the most successful exhibition Roses as shown at the National shows in 1885. On the preparation of the soil, planting, and manuring, Mr. Ryder writes as follows: The ideal Rose soil is a rich mellow loam lying on gravel or some other good drainage medium. The garden which has such a soil is naturally a Rose garden, and with the addition of good manure and under good cultivation will produce the finest exhibition blooms. The new beginner who has never grown Roses in his own garden will do well to look round and see how they succeed with his neighbours. If he finds Roses growing freely around him without any special preparation in the way of draining, &c., he may safely conclude that his garden, well manured, will be a good Rose garden. As a rule, if the wild Dog Rose grows freely in the hedges in the neighbourhood, the soil may be regarded as a natural Rose soil. However good the soil may be, it will generously repay any trouble taken in manuring, draining, &c. The amateur who knows little about the Rose or gardening generally should read what is here said, and in addition have a talk with some local rosarian experienced in the capabilities of the soil as a Rose soil, or, better still, should get the advice of some practical rosarian in the locality. It will always be found that gardeners and all interested in flowers are willing to give all the help and advice they possibly can. Although in very many localities the soil is naturally suitable for the growth of Roses, it must not be forgotten that many, perhaps most, soils need special preparation before they can be regarded as suitable. It is a remarkable fact, however, that the best results have been produced on soils that have needed much preparation. The most famous rosarian is probably the Rev. S. Reynolds Hole. When he exhibited, he was the champion among amateur growers. In his garden was a plot of ground singularly unpromising and about which a friend said "No man in England could grow Roses there." In his "Book about Roses" it is recorded how this plot of land was taken in hand and made to grow Roses which won all the champion and many other prizes of the year. The Rev. J. H. Pemberton, who is generally acknowledged by all to be the champion grower of this year (1885), says "Our soil is gravel in one part and brickearth in another, so we have to make the beds, using the top spit of meadow land together with yellow clay or strong brickearth. I have never tried a good indigenous Rose soil; I wish we had one." The results produced by two such celebrated growers under such circumstances should encourage all amateurs who have to cope with an ungenerous soil. The following hints may be of service: A heavy clay soil should always be drained. The draining should be thorough, the common red drain pipes being used, and the drains being 3 feet deep. Where this is not convenient, good results have been produced by a

\* "How to grow Roses in the garden and in pots under glass." By Samuel Ryder, Junr. A thoroughly practical and useful handbook for amateurs. Ryder & Son, seed and bulb merchants, Sale, Manchester.



substratum of brickbats or broken stones arranged 3 feet below the surface. The soil should be rendered porous and friable, that is to say, workable. This is achieved best by the addition of burnt clay, which serves the purpose of rendering the soil open and also more fertile. This is best prepared by slowly burning all the garden refuse, weeds, prunings, sweepings, &c., and adding clay to the fire. The clay should not be burnt too much, and should be black, not red, when burnt; this with all the ashes and charcoal from the fire should be worked well into the soil. Old mortar and sand may be added with advantage. The great object with all such soils is to take away all superabundant moisture, and render them subject to the action of the sun and air. This is of greater importance in close tenacious soils, so much so, that many rosarians who have a clay soil fork up the surface of their beds several times during the summer.

SANDY AND LIGHT SOILS, especially if dry, are improved by the addition of good loam. The top spit from a meadow or pasture should be well worked into the soil, and is the best possible improvement that can be made. Where good loam can readily be procured, money will be better spent in it than in manure. Where the soil is very sandy, poor, and thin, it is generally the best to entirely replace it with good loam. Clay is a grand addition to all light soils, but it should not be worked into the soil at first, but laid on the surface until it is pulverised by the action of the atmosphere, frost, sun, &c. The rosarian who has a light soil to cope with will never regret a generous expenditure in loam and (especially for light sandy soils) cow manure. It will sometimes be found that a soil that on the surface is poor and sandy has lying underneath a rich stratum of much superior soil; such ground well cultivated and trenched will be wonderfully improved. There are many soils as well as those that are roughly styled light and heavy, and it would be impossible to give instruction that would apply to every case. Everyone can judge, however, how near he is to the ideal Rose soil, and can do the best possible to bring his soil nearer that much-to-be-desired possession. It usually happens that the material necessary to improve the soil is close to hand. The soil in a Rose bed should not be less than 2 feet in thickness; if it is not, loam should be added and also manure.

THE BEST POSITION is one that will give the Roses the advantage of the full sun from early morning till well into the afternoon, as Roses are grateful for partial shade during the late afternoon and evening. There should be a free circulation of air, but at the same time the Rose beds should be protected from the strong winds, which otherwise would make sad havoc during the blooming season. The best shelter and protection from strong winds is a shrubbery or a hedge, and the best shade from sun is that afforded by trees. But one danger must be avoided—Roses will not grow directly under trees; the shade must therefore be afforded without the taller trees overhanging the Rose beds. In selecting a spot, care should be taken that the rich bed for Roses be not made near very strong-growing trees, as it might happen that the strong roots would seize the rich food and the Roses be starved. The fact is that to grow Roses well and continuously in one position the circumstances and treatment must be as favourable as possible, as it must be remembered the immense blooms produced exhaust the plants, and to keep up their strength they must be well fed, and in every way encouraged to grow. In looking out a suitable plot of ground, let not the kitchen garden be forgotten; it may be that the very piece of ground needed is there. A place may be found in many gardens ready protected by walls, or buildings, or shrubbery, and with just the right aspect. The first consideration in Rose culture is sunshine, and my reason for recommending afternoon and evening shade is that the flowers in such a position will last much longer in perfection than they would otherwise do. Amateurs who have only a small garden and cannot make arrangements just as one might desire, should, as a rule, select the sunniest spot possible for the Rose bed.

PLANTING is best done early in November, as the soil is warmer then than in the spring, and the plants are all the more likely at once to commence a little

root action. The plants on arrival from the nursery may be a little dry at the roots they should be damped and immediately "heeled in" in some spare corner of the garden and watered. So they may remain for a few days if need be until the ground is ready. In planting, first fork up the beds, working in a liberal allowance of manure, of which more will be said later on. The manure should be arranged so that it does not touch the roots, but yet so that the roots will quickly find their way to it. When the beds are thus forked, the plants may be planted, taking care to dig the holes deep enough, and working a little manure among the soil round the roots. The roots should be spread out fan-like, any strong fibres or any broken or bruised ones being pruned in. Dwarf Roses budded on the Brier or Manetti should be planted with the junction of the stock and Rose 2 inches or 3 inches below the surface; the Rose soon gets on its own roots and becomes independent of its foster-mother. Dwarf Roses in beds should be planted at a distance of 2 feet from plant to plant. The exhibitor will probably find it convenient to grow his Roses in flats, the Roses being a full yard apart and the plants 2 feet apart in the rows. When standards are planted, the roots should be examined for "suckers" which need to be cut clear away. A good rule for amateurs is to plant a little deeper than the plants have been in the nursery. The usual fault is that Roses are not planted deep enough—better too deep than otherwise. In planting Roses in beds not specially prepared, as, for instance, in a mixed flower border, the holes need to be made large. If the holes are too small, the roots will soon get beyond the limits of the rich food that will be placed immediately round the roots. Especially in heavy soils is there danger, as the holes may merely serve to hold the water, and, as a consequence, kill the plant. In heavy soils, therefore, let the holes be made large and deep. It is not very advisable to plant Roses so, as they succeed much better in properly prepared beds.

AS TO MANURE, any good moderately decomposed manure will do. It usually happens that some particular variety of manure can be readily obtained, and as a rule the amateur will be safe in using the best manure that is at hand. Cow manure, pig manure, horse manure, and night soil are each considered by reliable authorities to be suitable. All such manure except night soil should be gathered in a heap, turned frequently until it is thoroughly decomposed, and when the beds are formed this should be liberally dug in. The liquid manure which flows from the manure heap should never be wasted, as nothing gives such immediate help to Roses in growth as a good watering with weak liquid manure. If during the summer good loam, the top spit from a Grass meadow, can be procured, a heap composed of this and night soil in the proportion of three of soil to one of manure should be made. If this is done in summer, by October the Grass sods will have decayed, and the whole will form as good a Rose soil as one can desire, and will be a grand addition to any existing Rose beds. Where the soil is light, a surface dressing of manure laid on in March and allowed to remain on all summer is very beneficial, as it keeps the soil cool and moist. Such a dressing of course is out of the question in an ordinary garden, but the exhibitor cannot dispense with it if his soil is light and dry. Good horse manure is the best, as it has no offensive smell. In beds already established it is a good plan to spread a good mulching of manure over the beds in November, to remain on the beds all winter, and to be dug in in March. By this method some of the fertilising qualities are lost, but that is not material, as the manure renders such excellent service by keeping out the frost.

## OBITUARY.

M. BENEDICT ROEZL.

WE regret to learn that M. Roetzl, the well-known plant collector, died at his residence in Prague on the 14th inst. The adventurous life that has just closed has left a deep mark in the history of gardening, for without doubt M. Roetzl was one of the most remarkable, and at the same time among the most successful, in the small band of adventurous men who risk their lives in order to collect plant treasures for

enriching our gardens from the untrodden tracks of the Tropics. Our gardens have indeed been enriched by the industry of M. Roetzl, as a proof of which we have only to run through the lists of garden plants which bears his name, and these represent but a small number of those which he has been instrumental in introducing to European gardens from the Tropics. The hilly regions in the north parts of the vast South American continent were his chief hunting grounds, but he has scoured Central America throughout, and some of his most successful "finds" were in Mexico. The great family of Orchids has been especially the object of his attention, and the crowds of species which have been discovered and sent home by him would swell a long list. The lovely *Odontoglossum Roetzli* need only be mentioned as one of his discoveries, and which will perpetuate his memory. He has died before reaching old age, but this was not surprising, having regard to the vicissitudes through which he must have passed for many years.

CARNATION and Picotee growers will learn with regret that an old and much respected member of their fraternity, Mr. SAMUEL BROWN, Crompton-road, Handsworth, passed to his rest on October 16. Mr. Brown had attained the age of seventy-one years, for more than forty of which he had been known as a zealous and successful cultivator of Carnations and Picotees.

"The Garden" Illustration Competition. —Mention was omitted last week of the two charming photographs sent us by Miss Lindsay Antrobus, of Cheam, showing the gardens at Westonbirt and Coombe Wood (Lord Wolverton's). Both of these photographs we hope to engrave for THE GARDEN, and the sender is awarded one of the prizes.

## LATE NOTES.

We are requested to state that illustrations of Mr. G. F. Wilson's experimental garden at Oakwood, Wisley, will appear in the *Graphic* of October 24.

**Diseased Pelargonium (Galway).**—There is no disease on the Pelargonium sent; its weakly condition is doubtless owing to the imperfect culture to which you say it has been subjected.—W. G. S.

**Muscat Grapes (M. H. C.).**—There is no disease on the leaves or berries of the Muscats forwarded, and as Lady Downes and Black Hamburgs are unaffected, we suspect that the Muscats have been kept too cold. They like a little more heat than the kinds just named.—W. G. S.

**Wall plants (Tourist).**—The fruiting Passion flower hanging in great profusion from sundry out-door trellises is *Passiflora cærulea*. The bronzy red small-leaved climber that spreads itself over the front of certain houses clinging tenaciously thereto without any artificial aids is *Ampelopsis Veitchii*. The bronzy-leaved Ivy used for sprays and button-holes is doubtless a true Ivy.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants and shrubs.**—*J. Wilkins.*—*Rhus Cotinus*.—*G. C.*—*Aster Novæ-Angliæ formosus*, also called *Madame Soignée*; *Orchid* is *Epidendrum fragrans*.—*Bet.*—*Oxyura chrysanthemoides*.—*A. C.*—Next week. *Beginner.*—1, *Dendrobium nobile*; 2, *Gleichenia hœcistophylla*; 3, *Justicia speciosa*.—*D. J. Yeo.*—Sedum spectabile; tree is *Wild Service* (*Pyrus torminalis*).—*E. F. T.*—*Sisyrinchium Bernudianum*.—*H. R.*—1, *Celsia cretica* (pale variety); 2, *Linaria stricta*; 3, *Aster lœvis*; 4, *Aster*.—*H. H. (Ros-cra).*—*Aster Novæ-Angliæ pulchellus*.—*C. Scott.*—*Potamogeton pellucidus*.—*J. Dredge.*—*Odontoglossum confertum*.—*H. S.*—Apparently *Cattleya Harrisoniæ*.—*F. W.*—*Cratægea tanacetifolia*.—*A. K.*—*Lavendula Stœchas*.—*H. Kettlewell.*—1, *Vincetoxicum officinale*; 2, *Corrigiola littoralis*.—*W. R.*—3, *Aster longifolius* var. *grandifolius*; 4, *A. paniculatus* var. *vimineus*.—*M. H. S.*—*Gomphocarpus fruticosus*.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruits.**—*G. T. Blomfield.*—1, Old Crassane; 2, Bergamote d'Esperen; 3 and 4, too much decayed. *Cork Subs.*—1, Wyken Pippin; 2, Court Pendu Plat; 3, Fearn's Pippin; 4, not known; 5, Downton Pippin. —*E. C.*—1 and 2, Marie Louise; 3, Comte de Lamy; 4, Jersey Gratioli; other is Ne Plus Meuris. —*W. Threlfall.*—Apple Irish Peach, Pear Seckle. —*S. P. Hants.*—1, Brown Beurré; 2, Beurré Capiaumont. —*J. H. V.*—1, Fearn's Pippin; 2, Aromatic Russet; 3, Lady Henniker. —*C. Kelmisch.*—1, Beurré Bosc; 2 and 6, Louise Bonne de Jersey; 3, Seckle. —Others next week.



## WOODS & FORESTS.

### WHAT TO PLANT.

MR. J. B. WEBSTER commences his notes on this subject with the very pertinent inquiry of "What shall we plant in order to give the quickest and best return for the capital expended?" On seeing this I read the remainder of the article with some amount of eagerness in the hope of getting some new light upon this most interesting and important subject. I confess, however, I was disappointed with what followed. The question is admittedly a difficult one; nevertheless, as it has been propounded and has to be faced, it is the duty of those concerned to look into it as carefully as possible.

Mr. Webster speaks of the Larch as the tree fulfilling the conditions of his query. Without disparaging or in any way underrating this tree, I am not sure that Mr. Webster is right. The Larch we know is a quick-growing tree, and one which generally sells readily enough, but that it will give the best return I do not think is correct. Mr. Webster enumerates certain uses to which it can be put, and adds that we cannot have too much Larch. So far so good; but that this tree occupies, or will occupy in the near future, the premier position, in the sense the question is put, is quite another thing. I am inclined to assign the position to the Ash. This latter tree has been referred to several times lately. Some of the remarks have been practical, some rather vague. On the whole, however, looking to what has been said and the judgment formed from one's own observation and experience, there is no tree which presents a brighter outlook to the planter than the Ash. There are two potent factors to be reckoned with in timber growing as well as in anything else, viz., supply and demand. With the Ash the supply for various reasons is small, and the demand is considerable and increasing.

The cry is raised from time to time of the coming scarcity of wood in general. With respect to this, I do not hold a pessimist view, but as to the Ash in particular, I take it that the case is different. For some reason or another this tree has long been under a ban, and has been looked upon as a fit object for extermination. When the crusade was commenced the demand may not have been considerable, but we have changed all that; the conditions are reversed. Planters are slowly awaking to the merits of the tree, and the demand has increased in proportion as the supply has diminished. Many of the pictures painted for the edification of planters are mere will-o'-the-wisps; but here, so far as human foresight can be certain, is a legitimate opening for enterprise.

Many trees consume a whole lifetime before they reach what may be called saleable timber, but here again the Ash has the advantage of being usable at almost any stage of its growth beyond the mere size of a walking-stick. So much, then, for the wood. As to the mode of growing, opinions may differ, and circumstances sometimes control; but although I deprecate the harum-scarum system, commonly called mixed planting, I look upon growing the Ash in plantations with the Oak as being one of the best methods. Planted in this way the chances are greatly in favour of producing good timber, as the two kinds of trees will grow up together until the time comes for the Ash to be felled. This will give a return to the planter, and the Oak grows on and forms a legacy for the coming generation.

Next to the Ash, perhaps, comes the Larch; but as Mr. Webster has dealt with this, I will not now remark upon it further than to thus indicate its place. The third position I assign to a hardwood tree—the Beech. This is a wood for which there is a steady demand if the quality is good, and although the price is not so high as the Ash, and it takes a somewhat longer time to mature, it is a tree to which attention may be turned with less hesitation than is the case with many others. It is a tree which, on account of its fine and abundant foliage, is often found in avenues and as isolated specimens. It is seldom, however, when grown under such conditions that it produces as good timber as it does when grown in woods, or even in groups. If landscape effect and good timber are both sought after, the planting of Beech somewhat closely on suitable soils, in groups of from twenty trees upwards, is a good plan. The outside trees will throw out branches and abundant foliage, and assume the character required in the landscape, whilst those in the interior will be growing into timber with just sufficient foliage at the top to give a finished appearance to the group.

D. J. YEO.

### TIMBER TRADE VAGARIES.

THERE is not much cause for wonder that the producer does not get better returns for his timber when some of the vagaries it has to pass through before it reaches the consumer are looked into a little. There are, of course, many cases where a long rail carriage of native timber is necessary, as all kinds may not be obtainable on or near the place where it has to be used. In such cases the charges, though heavy, are legitimate, but we are of opinion that the same cannot be said where timber of a given kind is sent from county to county when, according to reports, the same kind of wood is seeking for a market at home. As a case in point, "Yorkshireman" recently says, "Oak of moderate size for ordinary purposes will be a drug in the market for many years to come whether trade revives or no." And he also adds, "In this part of England at the present it cannot be profitably or easily disposed of unless put in with Ash or something else, otherwise there would not be so many dead and dying trees all over the country."

Now, judging from reports which have long been current as to the general dullness of the trade, and the slackness of demand for Oak in particular, this statement seems to represent the position of things very fairly. In the face of it, however, I have the information on good authority that the merchants hereabouts are now buying Oak to saw up and send by rail into Yorkshire. If an occurrence like this was at all an isolated one, it would be scarcely worth directing attention to it, but as anyone who has observed the points of starting and destination of much of the timber which is year by year sent by rail in this country must know that in very many cases it is like sending "coals to Newcastle," as in many districts into which it is sent in quantity the timber is as abundant as it is in the one from which it originally started, there is scope for the inquiry why such a system should prevail. The easiest way, perhaps, to account for it may be to look upon such instances as mere vagaries, but though such a solution is easy, it is not satisfactory.

It is perfectly clear that every shilling unnecessarily paid for freightage must, in the first instance, come out of the grower's pocket, and that if Oak is required in Yorkshire, it must be worth the cost of the carriage more there than

it would be here, and, as it would not cost more to grow there, the difference must go into the producer's pocket. What, therefore, can be the reason, if Oak is a drug in Yorkshire, for buyers coming all the way to Wiltshire for it? For many classes of goods the freightage from here to York, or *vice versa*, would not be a heavy item, but in timber it is. Speaking for growers in this county, we ought to consider ourselves under obligations to the northcountryman for giving us his patronage, and although we undoubtedly do, the feeling is not so deep as to overpower one's natural curiosity as to the real cause.

That this lies in any want of knowledge of the best market by the sellers in the northern county we do not for a moment believe, so until we have further light upon the subject we can only conclude that this apparent vagary must arise from the unwillingness of sellers in Yorkshire to part with their timber at prices obtainable, or the unsuitableness of the timber itself. Such an assumption as this, however, would not be a sufficient answer to every case, as instances could be multiplied where no other explanation than the sheer waste of the money paid for freightage appears possible. It may be urged that such instances are the outcome of necessity; possibly so, but the chances are that the necessity would not have arisen had a little beating about the bush been done in advance.

WILTSHIRE FORESTER.

### THE BLACK AUSTRIAN PINE.

THERE is no other Conifer with which I am acquainted capable of accommodating itself to a greater variety of soils and situations than this Pine; in fact, I have planted it in Scotland with success in all positions from the seaboard up to some 1000 feet above that level, and in soil composed principally of poor gravel, resting upon both granite and limestone rock. In Armagh I have planted it extensively on deep peat bog, in which it thrives admirably, and if allowed plenty of room retains its side branches, and is invaluable for cover, shelter, and general utility. At Loughall, in the same county, it makes rapid progress on calcareous soil resting upon limestone; and in the vale of Avoca and Glenelly, in Wicklow, it is quite at home on poor inorganic fragments of clay-slate containing but very little soil. It is admirably adapted for planting as a screen in out-of-the-way corners, and forming a background for trees and shrubs of different habits and shades of colour. It likewise makes a grand specimen tree when planted singly on a lawn, its finely-balanced conical top rendering it very effective; the large terminal buds of the side branches, too, get capped in spring with a white downy substance, which looks at a short distance off like burnished silver, contrasting strikingly with its beautiful, dark green glossy foliage. When the trunk is cut up for use, the timber is found to be of a close, firm texture, full of resin and very durable. In cases, however, in which the trees have been grown for ornament and their side branches retained, the timber is rather knotty and coarse, but when planted and reared up as forest trees for utility, and the thinning regulated in such a way that the side branches die and fall to the ground of their own accord, they acquire fine clean stems comparatively free from knots, quite workable, and useful for all ordinary purposes. Young trees used in the round state for fencing purposes last equally long as trees of the best Scotch and Irish Fir of the same age. Irish Fir is identical with the true Highland Pine (*Pinus sylvestris*); fine specimens of the latter are to be found in



many parts of Ireland. I have propagated it from seed, as well as the true Highland Pine, in the natural forests of Braemar, and likewise cut up the trunks of both trees extensively for constructive purposes, and have not the least doubt that the two are identical.

**PROPAGATION.**—The Austrian Pine is propagated from seed, which should be sown in April on well pulverised soil, formed into beds about 4 feet wide. Should the soil be of a stiff character, I have found a dressing of lime to be beneficial; it renders the soil more friable, and infuses activity into its dormant constituents, thus rendering it not only workable, but also capable of supporting and nourishing the young plants. Sow evenly over the surface, but not too thickly, as the plants under such circumstances get drawn up weakly from want of proper space in which to develop their side branches. When they attain a height of from 4 inches to 6 inches, they should be planted out in nursery lines at a distance of about 8 inches apart and about 14 inches asunder between the lines, thus affording room for weeding and keeping the ground in proper order. Care should be taken to spread the roots properly out, an operation on which much depends. The ground which I use for these nursery plantations is in an exposed locality at the base of a hill, and consists of three kinds of soil—viz., good strong loam, light sandy soil, and light peaty ground. It is protected from the inroads of cattle by a common wire fence constructed in the usual way, with a web of wire netting about 30 inches high stretched along the surface and fastened to posts; this prevents hares and rabbits from getting within the enclosure. Thus the young trees have no shelter whatever, and being injured to the blast from infancy they receive no check as regards growth when planted out on exposed situations. On properties where extensive planting is contemplated it is a good plan to form a nursery for young plants as near the ground to be planted as possible. I have sometimes had four such nurseries at different places on the same estate, and have found them to be useful in every sense of the word. In selecting and enclosing ground for such nurseries, preference should always be given to such as contain different kinds of soil, in order that the different species of young trees can be planted on the description of soil most suitable for their development. W.

**Peculiarities of the Oak.**—We have no tree in England more sensitive of exposure to wind than the Oak, and the best and fastest growing woods are those in sheltered positions, well inland. There is a tract of country in the south-east of Sussex, lying between Battle and Hailsham, the soil of which is well adapted to the growth of Oak, but which, from its nearness to the sea—about 10 miles as the crow flies—fails to produce, except in very deep narrow gills, other than short stumpy trees with bushy boughs, evidently thrown out as a protection against the south-west wind. These trees, I observe, produce knotty and unsaleable timber. About thirty or thirty-five years ago, the planting in St. Leonard's Forest was begun with Larch and Oak, the proportion being about five of Larch to one of Oak. Since the Larch were seven or eight years old, they have been gradually thinned out, and though in no case have they thoroughly disappeared, the land is fairly planted with straight-grown silver-rinded Tellars, which bid fair in due time to become a fine Oak forest. This land is ordinary forest land. My experience is that Oak will grow in almost any description of clay, from the poorest and stiffest to a good deep loam. As the Oak, in its earlier stages of growth, has a long tap-root, a deep soil, free to a certain depth from rock, is necessary to its rapid development. Oak will grow with considerable

luxuriance in a gravelly soil, but on arriving at a size fit to be called timber, it becomes what is termed shaky, and it will be found on felling to be little more than a bundle of laths, utterly unsuitable for the uses to which Oak timber is generally put.—C.

#### PROFITABLE TREE PLANTING.

If we are to compete with the foreigner in the production of forestal produce, we shall have to pursue and practise a more enlightened system of tree culture in order to produce timber of the proper size to meet the demands of the market. Planting and thinning seem to have been the theme dwelt upon by most writers on the subject of tree culture—in order to explain the utility of allowing the trees space for the production of a large size of timber, although it is by no means proved that a crop of large timber, which requires a period of from sixty to eighty years to reach maturity, will pay better than a crop of poles, which can be grown thickly upon the ground, and cut with advantage when they are from thirty to thirty-five years of age. There are few estates where trees are allowed to grow up thickly to encourage the formation of clean, drawn-up poles, but from what is known of their value and the time it takes for their production, there is nothing of so obscure a nature in the surroundings as to prevent us from estimating their value and utility.

TREES to be grown to a large size are generally recommended to be thinned out at different stages of their growth, as near as possible to a distance apart of about one-third the height of the stem, and the yield of useful timber is always found to vary according to the timber-producing capabilities of the soil. Poles, on the other hand, can be grown for profit and utility upon soil that is incapable of producing timber of a large size, and in order to produce tall, clean stuff, free of knots, they can be grown with advantage at a distance apart of 6 feet, or say in round numbers about 1210 trees per acre, by which means the side branches are killed and the stems rendered smooth and clean, which, coupled with their length, constitutes their principal value.

I have been in the way of selling such stuff (Larch and Spruce Fir) at the rate of 2s. 6d. and 3s. 6d. per tree, and if we allow a margin for deaths of 210 trees per acre, we have still 1000 left as a crop, the average value of which we shall estimate at 3s. per tree, which is by no means extravagant, so that the crop at thirty-five years' growth represents the sum of £150 per acre, or about £4. 5s. 9d. a year for ground rent, from the commencement up to the time of felling the crop. In some of my previous articles I pointed out, by detailed statements, that I had drained, soiled, and planted Irish peat bog at the rate of from £8 to £10 per acre, so that after deducting the cost of the formation there is still left to the proprietor in the shape of rent £4 per acre for his land during that period. I have planted heather-moor ground by the notch system of planting, where draining was not required, at the rate of from 30s. to 40s. per acre, which sum includes the proportional cost per acre for fencing. Firs, unlike hardwood trees, require little attention in the way of pruning further than the repression or cutting off rival leaders at the top when the trees are young, so that the cultural cost after the formation is but a mere trifle.

Seeing that there is always a demand for poles of this description at fairly remunerative prices, even when timber of a large size is rather a drug in the market, and in view of the vast stretches of unoccupied bog land and heather-

moor ground in Great Britain and Ireland capable of being drained and turned to account in the production of this class of timber in particular, I think the owners of such land would be consulting their own interests if they had such ground planted, in order to secure a continuity of forest produce from the land and so increase their incomes. J. B. WEBSTER.

#### THE CORSICAN FIR.

"WHAT we do know of the Corsican Fir," observes "Yorkshireman" (p. 387), "is that it grows on the mountains of Southern Europe at various altitudes," &c. That is so. But what has that to do with the utility of the tree when compared with the utility of the Scotch Fir for general planting purposes in this country? The utility of the tree is not doubted in its natural home, nor yet even, to a certain extent, in extraneous climes; that is conceded. What, however, it is that is questioned is its fitness to take the place of the Scotch Fir in the common planting of our lands. It is manifest that trees luxuriate better in their natural habitats than elsewhere, while it is likewise patent that the farther removed trees are from agreeable nutrients (both of air and earth) their luxuriance will be in fitting proportion; or when the area and the environment are congenial the growth of the tree will be the greatest, evolving the maximum of excellence. But when the conditions are foreign to the temperament of the tree we must expect a contrary result.

Although the Corsican Fir in the island of Corsica does sometimes reach the height of 80 feet to 150 feet, it does not inhabit the poorest soils, nor is it found indigenous at any great altitude. Of course it has been known to make marvellous progress in favourable conditions, such as in the Botanic Gardens at Paris, where it reached the great height of 80 feet, with a trunk of 80 inches to 90 inches in circumference in little more than fifty years. Remarkable as that is, it nevertheless does not nearly come up to "Yorkshireman's" calculation of its growth. Here is how Brown, in his "Forester," rates the Corsican Fir as a subject adapted for culture: "It makes the least progress on cold-bottomed clay lands. The more sheltered the site is the better does it develop itself. Indeed, the tree does not prosper well on high-lying situations in this country, as its comparatively weak roots are not adapted to resist the action of high winds on its heavy top." I entirely acquiesce in what Brown says, and in a general way I reckon Brown the greatest authority on most things appertaining to the arboriculture and sylviculture of this country. "Yorkshireman" says, "In this country planters know that it is perfectly hardy in the most exposed situations (I demur to that); that it is not at all particular as to soil, and, above all, it increases in bulk of trunk about twice as fast as the Scotch Fir or Larch," &c. Now, all this is absolute assertion without the shadow of a fact to prop it up. Where are all these splendid marvels of the tree's growth to be seen? There are thousands of acres of Scotch Fir all over the country—monuments of the tree's most excellent growth. Yet when "Yorkshireman" is asked to say where one solitary hundred acres of Corsican Fir of that remarkable proclivity which he says it has to grow might be seen, replies by such vague asseverations as the above, and by comparison of certain "quarters" of a district nursery. He thinks that that is more than sufficient to answer my question. Not much, I doubt. Still he will not find many of the same opinion as himself. Such facts may please the Utopian, but will not satisfy the practical



mind. We are not ignorant of the tree's aptitude, and know that it has not the aptency of, and does not affect the heterogeneous states of our country, like the Scotch Fir. Now a word about "Yorkshireman's" comparison of these two Firs—the Corsican and Scotch. He says, "We have a quarter of three-year-old Corsicans in the nursery here, and next to it a quarter of Scotch of the same age. . . . I will undertake to say that not one Corsican could be found and compared in which this rule does not hold good—that is, the Corsican is twice as bulky as the Scotch Fir, and it is the same in all the older trees. Does "Glendye" deny these statements?" Yes, but not without reason. I can tell "Yorkshireman" that we have Corsican Fir in the nursery here more than seven years old not nearly so good as our three-year-old Scotch Fir that has been growing in less favourable conditions. In the seed bed or anywhere the Corsican Fir has no chance with the Scotch Fir. Most likely, "Yorkshireman" will tell me that the seed and the Corsican Fir plants I have got are spurious. Perhaps they are, but then I may just say the same thing about the Scotch Fir he has got, and even with a greater show of truth, because we are certain that there is a vast amount of fictitious and foreign Scotch Fir seed sold and diffused that afterwards yields very bad results. The fact of this being so ought to make us more wary and much more scrupulous about having the proper article. In another place "Yorkshireman" says (p. 384), "Were I going to plant for profit, I would plant Ash, Sycamore, and Corsican Fir only, and each by themselves." Would "Yorkshireman" tell us what the facts and figures are concerning the Corsican Fir which has led him to that conclusion? What is the greatest profit he has ever known the Corsican Fir to produce on an acre of land? That is a small limit, but it will serve to show what the tree is capable of as well as a larger extent. I am not now writing against the inclusion of the Corsican Fir or of any of the other Conifers in the wood culture of our country not sufficiently hardy to grow and yield valuable timber. No, I am only desirous of having them confined to their proper sphere (in our forest economy), which is at present very narrow, but wide enough to allow of their adoption, and as naturalisation progresses, the spheres congruous to their existence will also extend.

The most practical view to take of the production of wood is its profit to the producer and its usefulness to the community. If the production of wood be looked at in that direction, this then would impose a finer discernment on our part of the use of the various trees in forest economy, and would demand the annihilation of everything destructive to the life of trees, whether by animals or by men in their method of management. Such a powerful writer as "Yorkshireman" must incline the minds of many, and these frequently do not take the trouble to examine for themselves all the bearings of these highly vital questions that are being from time to time discussed, and on which depends the success or failure of thousands and thousands of trees. GLEN DY E.

**Tree planting in the past.**—Who are these early planters so often referred to (p. 330)? "T. B." seems to hold them in considerable veneration and to greatly admire their work, and rightly enough, too, for who could be expected to make a more suitable selection of subjects than Nature herself. This is the error "T. B." falls into, as he attributes the marks of superior knowledge to these old planters; whereas in the majority of cases which he cites, the "grand old

planter" was the one who works in all ages and all climes. Does "T. B." when he complains of the preference given to the Elm "by the planters at an early date," seriously believe that the vast majority of Elms were ever planted at all by the hand of man? If he does, these early planters must have been very assiduous indeed, and far in advance of their modern representatives. If "T. B." had given a little more of the credit to Nature's planting, he would have arrived at a solution more easily than by trying to prove that the tree planters of the past had such large amount of judgment as he claims for them.—J.

**Mixed planting.**—We have never seen much in this method of planting to commend it for imitation. In a limited sense, such as growing a certain proportion of Fir and Ash with Oak in a plantation which ultimately is to consist of this latter tree only, there may be some reasons why it should be adopted. This, however, can scarcely be called mixed planting as commonly understood, as the temporary use of other trees to promote a certain object, viz., the production of one particular tree, is a very different thing to the promiscuous mixing up of species with an ill-defined idea that out of the whole some will turn out sufficiently well to make amends for the others which must inevitably suffer. Such a haphazard plan is almost without precedent in planting, as if the agriculturist were to set about growing his crops in such a fashion, his prospect of a fair return would be very poor. There is, of course, a wide difference between planting trees and farm crops, as trees can be handled singly, whilst the different kinds of agricultural produce would become inextricably mixed. Admitting this difference, however, in other respects the result would be somewhat the same.—D.

#### HARVESTING TIMBER.

THERE may be the elements of economy in the practice advocated in a paper on this subject given recently, but it is very improbable that such a scientific plan will be ever brought into general use. Forest management does not always run like clockwork, and other considerations beyond the mere question of how much measurement per annum a tree or plantation of trees is putting on have to be taken into account. Prices, for one thing, are not always uniform, so what may be gained by cutting the timber at the time it had ceased to make profitable growth would be really a loss if this epoch in the life of the tree happened to occur in a time of depression.

The writer argues that although a plantation may increase in value £10 annually, if £15 per annum could be obtained as interest on its value in the market it would be economy to cut it down. Precisely; but is this reasoning, without looking at surrounding circumstances, quite safe? I think not. Assume, as we previously hinted, that such a period occurs when prices are low, and that simply because the trees do not keep pace in increase with their previous rate of growth that they must come down. This, according to the views expressed by the writer, must be the right course, but in the end it may turn out very differently. I do not pretend that I am right in my dates, but suppose, for the sake of argument, that timber has dropped 25 per cent. in value during the last five years, and that the chances are level that five years hence it will fetch its normal figure. A plantation worth £300 only increases to the extent of £10 annually, and 5 per cent. can be made of the money. By cutting now the owner pockets £5 per annum extra interest, and at the end of five years he is £25 to the good. During this time, however, the price has increased by 25 per cent., and what he parted with for £300 would be worth £400; so where is the economy?

This, of course, is merely a typical instance, but it will serve to show the little value that can

be attached to rules which are so easily laid down, but not so easily worked out. It would be unfair, however, to say that they are altogether without their use, as even a proposition which contains a fallacy may afford a valuable suggestion, which, if not implicitly followed, may let in a side-light. Indeed, these side-lights may be taken as the whole benefit arising from discussion, as unless sufficient acquaintance with the subject is possessed to judge of their worth, specific rules are more likely to mislead than to direct. Y.

#### THE FIELD MAPLE.

(ACER CAMPESTRE.)

MANY a good word has been said for the larger-leaved and less common Maples, so I offer no apology for making a few remarks on the common field species. As a timber tree it is not much in demand, but as it makes capital fuel, and when kept with proper bounds it forms a good hedge, it has a considerable claim to attention as a tree for live fences. It has not, of course, the spines of the Hawthorn, but when it is cut to the desired height with a moderate frequency its branches interlace and form a hedge strong and thick enough for any ordinary requirements. This is true of the winter season when the leaves are gone, but it is in summer when in full foliage that its merits are seen. At that season, and so long as they remain on, its really ornamental leaves form a dense screen, and, indeed, so thick do they become and the wood is so entirely hidden that the impression of a fence composed of masses of foliage is given. I have a tree of this kind growing with the Hawthorn in the hedge round my garden. It, therefore, is trimmed at the same times. On comparing the two trees as they grow side by side, I have been much struck with the appearance and behaviour of the Maple under periodical cutting. That it would be by any means as satisfactory with regard to density if it was allowed to run riot, as is the case with the Hawthorn sometimes, I do not think likely, but with rational treatment the common field Maple will form a really strong fence. It is not, perhaps, desirable to mix too many things in a hedge, although many hedges are formed of a mere succession of bushes of various sorts. The Hawthorn and field Maple, however, grow well together; especially now the two trees are very effective when seen side by side, as the decaying foliage of each has assumed its usual autumn garb, and each possesses a beauty peculiar to itself, yet they harmonise well together. Unfortunately, on closely clipped hedges the haw is not to be found, or the deep colour of this fruit and the less deep tint of the leaves in contrast to the golden hue of the Maple would greatly add to the general effect.

D. J. Y.

**Undergrowth for covert.**—There seems too much of a tendency to recommend species of plants for this purpose which are more fit for ornamental planting in groups where they would be free from the attacks of rabbits and other things which it is the especial object of covert planting to harbour. There may occasionally be some difficulty in making a selection which will thrive and answer the purpose, but the best general rule will be to follow the growth which is common to the district and soil. An eye to this would often save disappointment and waste of money. I have nothing to say against Rhododendron, Privet, or Laurel if they are particularly desired, but these will cost more money to get, be less certain, and not more effective than the trees and shrubs common to the district. Take, for instance, a clay soil, where such things as Hazel, common Dogwood, Euonymus, Viburnum Lantana



and Opulus, Hawthorn, Blackthorn, Elder, Willow, and Bramble are as frequent as weeds, and if planted on a similar soil would soon form a cover as dense as was necessary. These things are deciduous, it is true, but some suitable Evergreens could be added if required. Whether such would be likely to be necessary or not must depend on circumstances, but much game and many foxes are preserved with no different shelter than that above indicated. If ornament is looked to as well as covert, the case may be different, but if covert, and that pure and simple, is wanted, there is no necessity for casting about all over the kingdom for species which, when obtained, will probably fail. In nine cases out of ten the individual who wishes to raise covert will be surrounded by suitable subjects, and if he will only use his eyes, and a little common sense in using them, he will not fail to obtain a satisfactory result.—D.

**Planting trees.**—The inducements to create property by tree-planting are so many and so powerful, that to the greater part of those who possess the means but little need be said to urge them to the employing of those means. Occasions enough will offer for showing how quickly the profits come. But still there are some persons who possess such means who are well assured of the ultimate gain but who are, nevertheless, discouraged by the thought that they shall not live to see the actual pecuniary product of their undertaking, and who, according to the idea of that dismal moralist, Dr. Jonson, begin to think of dying when they are exhorted to plant a tree.

#### TIME FOR PRUNING TREES.

THE pruning of trees, and particularly Conifers, is, I know, too often performed at the wrong time. I well remember, more than fifty years ago, being employed with others in pruning a plantation of young trees of Spruce, Silver, and Scotch Firs of some ten or twelve years' growth, on a high, bleak, and cold situation, and the operation being performed in winter, the practice taught me at that time I never forgot, for the next winter it would have been easy to have gathered cartloads of the resin which exuded. It collected in lumps at the base of every cut branch, and showed in the most unmistakable manner that the very life-blood of the plants was being drained away. This was done under the name of science, but it occurred in an age when bleeding human beings was also done under the name of science. Well, the latter has, in a great measure been abandoned, and so ought pruning Conifers, excepting at a proper season. I have repeatedly pruned Conifers in August, and on one occasion, I think, I operated on the limbs of some large Cedars of Lebanon—that encroached on and overhung a walk—in the month of July, and that with the best results, there being scarcely any bleeding, and the growth the next season did not appear to have experienced the least check.

Of course, many kinds of trees could not be pruned at that season, but there may possibly be even some deciduous trees which might be cut early in the autumn with advantage; there are one or two concerning which I never could fairly find out the right time to prune, and one of these is the Sycamore, which, if cut in winter, loses gallons of sap in the spring when growth commences; and the same happened in the case of the Birch, if I recollect rightly. The common Laurel may be cut at almost any time with impunity, but, as it seldom happens that pruning improves the appearance of any shrub, it is often best to delay it until spring, when the growth which takes place soon after restores the fine appearance of the plant.

For a like reason, spring is a good time to cut Ivy well back, although I have cut it pretty close in in July; but then it was in a vigorous state, and speedily recovered its foliage. Some plants seem to dislike the knife more than others,

and the Portugal Laurel suffers from cutting in most places, while I have seen the common one cut with shears in July, and make a fresh growth after that, which also ripened; but the situation was a favourable one, otherwise such treatment could not be generally adopted. Therefore, a knowledge of the locality as well as of the plants to be operated on must to some extent guide the pruner.

A. G.

#### THE COMMON BIRCH.

(BETULA ALBA.)

THIS is met with in all the countries of Europe, and in the north of this continent, as well as in Northern Asia and America, it forms extensive forests. In Sweden, Norway, and Lapland it springs up in places where Fir, Pine, and Beech forests have been destroyed by fire.

The size and appearance of the Birch vary considerably, according to the nature of the locality in which it grows. Upon lofty mountains it becomes comparatively small and shrub-like, thriving best upon slopes and plains. Its usual height is from 40 feet to 50 feet, but it frequently attains 70 feet. The bark of young trees is of a reddish brown hue, but with increasing age it whitens until it assumes a beautiful silvery colour; the larger branches also become white, but the small twigs always retain their original hue.

The Birch throws off the outer layers of its bark annually, and thus it generally presents a smooth and shiny appearance. Upon very old trees, however, the bark is sometimes burst and rent in all directions. The branches are slender, and at their extremities divided into numerous small twigs and rods. The leaves are ovate, sharp-pointed, and doubly serrated; they are bright green in colour, and when young emit a strong balsamic odour. The leaves droop downwards, and give a peculiar appearance to the tree, by which it can readily be distinguished from its forest companions. The flowers form catkins depending from the branches upon slender peduncles; the male catkins appear in autumn, but remain undeveloped throughout winter, and open only in spring. They bear upon each of the scales of which they are composed three quadripartite florets, with four stamens. The female blossoms appear in spring; they bear upon each scale two naked germs, each of which has two thread-like styles. The seeds are ovate, and provided with two membraneous wings. The ripe seeds fall in autumn, and are eagerly sought after by siskins.

The timber of the Birch is white, close-grained, tough, light, and pliant. It makes excellent firewood, and yields superior charcoal for smelting purposes. The *sabots*, or coarse shoes worn by the peasantry in some parts of France, are made from the wood of the Birch; in Germany, spokes, ladder-beams, axe-handles, and cattle-yokes are made from it; and in Great Britain it is used for turnery, hoops, and fish-barrels. Almost every part of the tree is utilised. Brooms and switches are made from the small twigs and rods. The young buds distilled in water yield a useful oil, which in taste and smell resembles balsam of copaiba.

In Sweden and Norway the leaves are often gathered while green, and given to sheep and goats in place of fodder. Prepared with alum, they yield an excellent dye, which imparts a beautiful permanent yellow colour to linen and woollen materials. The outer bark of the tree is very tough and almost impitrescible, and contains valuable balsamic and antiseptic qualities. In Sweden, Norway, and Finland the bark is used instead of slates for roofing houses.

Along the Volga and in some parts of North America canoes are constructed from the bark, and fishermen make their shoes of it. In Siberia and Lapland it is employed in the manufacture of boxes, baskets, hats, ropes, and drinking vessels. In Russia a bright reddish brown oil is distilled from the bark of old trees; it is used in the preparation of Russian leather, to which it imparts a peculiar odour. In Poland the inner bark is highly esteemed by tanners. In America and Germany snuff-boxes are often made from the bark. When holes are bored in the trunk or

branches in spring, before the leaves begin to expand, the sap readily flows out. This liquid is clear as water, and has a pleasant, sweet, though somewhat acid, taste.

Some trees yield a large quantity of sap, and as much as 10 lb. of it may be obtained at once, especially if a bright sunny day follows upon a cold night. The sap contains a large amount of saccharine matter, and, when fresh, forms an agreeable beverage. In a fermented state it is known as Birch wine. In domestic medicine, certain preparations from the bark, leaves, and sap of the Birch are considered valuable remedies for ulcers, dropsy, intermittent fever, scurvy, and other diseases.

The common Birch is propagated by seeds, layers, suckers, and cuttings. The seeds do not retain the power of germinating for more than one season. They should be sown in calm weather, in moist soil, loosely dug and covered with Moss. Sandy wastes may be reclaimed by being planted with Birches; but, at the time of planting, it should always be remembered that such principal masses or trees as are to remain permanently must be arranged first, and their future size and character taken into consideration, so that the effect hereafter may not be left to chance.

J. H. M.

#### UNSIGHTLY FENCES.

A FENCE need not be unsightly simply because it is made of wood. Now and again it may happen that wire can be usefully employed where it is desirable to erect invisible fences across park lands, but it does not say much for the ingenuity of those concerned if they have to resort to it for such purposes as fencing woods and plantations when other material is to be had. When the question resolves itself into one of cost, as of wood against wire, when one or the other has to be bought, circumstances must decide, but when wire comes to be chosen merely because it cannot be seen, and because wood is unsightly, the reason is a poor one indeed. We admit it is quite possible to make a wooden fence appear about as ugly an object as one would desire to see, but at the same time it cannot be denied that, properly manipulated, very effective and ornamental fences may be made of wood. If a fence is wanted which will not be an eyesore, be chary in using the saw and the hatchet. In putting up a fence of Fir, for instance, it has got to be the fashion to square up the posts and rails with almost mathematical accuracy, and nothing can be more fatal if a formal effect is deprecated. The saw, of course, must be used to get the materials into something like shape, but it is used far more than need be, and every bit of bark on a rail is scrupulously sawn off, and the sawn surface is consequently always before the eye. If, instead of this, a saw-cut was merely run down the centre of the pole and the rail fixed with the bark adhering to the side next the eye, the result would be very different, as the post could also be arranged in the same way, and nothing need be seen but the bark. Not only could the common bay fence of four or five rails be arranged so, but with a trellis or paled fence the same thing would apply. In the case of plantations surrounded by a ditch, the trellis often forms a pretty fence quite sufficient to keep out cattle, and where in other cases it is desirable to erect a fence which will keep out every class of trespasser, the vertically paled fence will do good service, as it may be carried to any reasonable height. In each of these instances, the woodwork may be arranged so that nothing but the bark is seen, and, if tastefully done, will not only not be unsightly, but will produce a good effect. Wire in one sense may be looked upon as lasting, and in countries where wood is scarce and labour not over abundant, may possibly be used to advantage.



It is a thing, however, which soon gets out of order, and there are few things more unsightly than a bent and partly broken-down wire fence.

J. N. BLUNT.

### INFLUENCE OF TREE SHELTER.

IN planting cold and exposed situations great difficulty is often experienced at the outset in order to procure shelter to enable the young trees to get a fair start, but when this is attained and the trees have taken to the soil and commenced to grow, the battle may be said to be gained, as they will then gradually shelter and protect themselves, and it is astonishing how trees will progress even on inferior soil when once the climate has been to a certain extent ameliorated under their influence.

Various means have been recommended for the purpose of shelter, but I think nothing can be better than a hedge or screen, as it gradually exhausts the force of the wind without turning it off in another direction, which is the case when it hits a solid wall. Specimen trees planted by themselves on exposed situations often require special protection, not only from cold, but likewise from heat, and in such cases I have found the screen fence invaluable.

I planted a Wellingtonia upwards of twenty years ago on an exposed situation, about 70 feet above sea-level, and some 35 miles inland on soil consisting of a mixture of peat bog and clay, thoroughly incorporated and well drained. The young tree appeared to have been grown in a pot during its nursery career, from the fact that the roots were what is termed cork-screwed, so that I had considerable difficulty in disentangling them previous to planting, and the plant was by no means what I could have wished for an exposed situation. After the tree was planted I had it fenced with wire netting to prevent rabbits from destroying it, and a circular row of Spruce branches stuck in around the plant for shelter, notwithstanding which, the foliage of the plant got considerably browned in colour by the blast in spring, but by paying a little attention in sticking in a few fresh branches for protection for the first few years, the tree gradually got established and inured to the place, and is now a fine specimen, feathered to the ground all round, and I should say some 20 feet in height. I could give other similar examples, but it would be superfluous; suffice it to say, that I have often seen the foliage of the Wellingtonia injured by cold cutting winds in spring, but not to such an extent as to permanently disfigure and retard its further progress when once established and inured to the situation. In the same locality I have repeatedly seen the foliage of the Scotch Fir scorched by the wind along the south and west margins of plantations, and I have no doubt that many others have witnessed the same occurrence; and as the native species sometimes are injured in this way, it is not surprising that some of the exotic species are likewise.

SOME CONIFERS, however, that are liable to be cut down by the late spring frosts thrive best when planted on a cold situation at a considerable elevation, for the simple reason that they are less liable to be excited to early growth in spring. I once planted a group of coniferous and other ornamental trees on a piece of flat ground near the bank of a small stream, where the soil was clay loam resting upon clay and well sheltered, and where the trees grew remarkably well with one exception—namely, a plant of *Picea bracteata*. This plant, although special attention was paid to it for years in the

way of shading and giving protection, never made progress, and I believe would ultimately have died had I not removed it to another situation on the north side of a hill, exposed to the full sweep of the wind from the north. Here the only protection necessary was shelter from the heat of the sun during spring, and it soon recovered and proved perfectly at home in its new situation.

J. B. WEBSTER.

### FENCING WOOD FOR ESTATES.\*

THE very best quality of wood will begin to decay in a short time when exposed to the changes of the atmosphere. Timber, if kept constantly under water, will last a long time; and, on the other hand, if kept constantly dry, it will perhaps last nearly as long; but if exposed to the weather where it becomes wet and dry alternately, it will soon decay. It therefore becomes a subject of great importance to know in what manner timber may be preserved in exposed situations. It is considered that dry wood consists, on an average, of 96 per cent. of fibrous and 4 per cent. of soluble matter; but that the proportions vary somewhat with the seasons, the soils, and the plant. If excluded from the contact of moist air, woody matter, like most of the other organised substances, may be preserved for an indefinite period. But if the woody matter be not protected against the action of air and moisture, the case is very different. By degrees its hydrogen and oxygen are disengaged, and the carbon predominates more and more. Thus the particles of the texture are disintegrated gradually, their white colour fades, and passes through all the shades till it becomes quite black. The cells of woody matter also contain different sorts of substances tending to disorganise, and these are mixed and modified in many different ways. Woody matter being formed of one atom of carbon and one atom of water, as soon as it is submitted to the action of a somewhat elevated temperature, without the contact of air, experiences an internal reaction, which tends to separate the atom of water from the atom of carbon. The water is vaporised, and the carbon remains in the form of a black and granular residue. Now, if any means could be devised by which the substances in the cells of woody matter could be deprived of their tendency to disorganise when in contact with common air, wood may be rendered permanently durable.

All the varieties of timber grown in this country, as well as the Norway and American battens, which are imported, are those which are chiefly used for fencing purposes. Larch is the most durable, although well-grown Scotch Fir, of good age and cut down in the proper season, is often used, and suits the purpose as well, although not so durable as the Larch. All conditions being equal, the most resinous timbers resist decomposition the longest; also, the older and more compact the grain of the timber, the longer it will last when exposed to atmospheric influences; therefore, in the first case, Pine and Larch timber lasts longer than non-resinous trees. From the amount of resin in the Scotch Pine, it will no doubt last longer than foreign timber creosoted.

### BEST TREES FOR FENCE-WOOD.

The kinds of trees already mentioned last much better than the Ash, Poplar, Beech, and other deciduous trees; and in this case the heart-wood of trees is more durable than the

\* "On the best mode of preparing fencing wood." By D. W. Wemyss. Communicated to the Highland Society's Transactions.

sap-wood. Taking these two things, therefore, into consideration, if we try to get these two qualities into the timber, we shall succeed to a certain degree. In the case of home-grown timber intended for fencing purposes, the first and most important matter is to have the trees cut down at a proper season, which is from November till January, when the leaves have faded and the sap is down. When the wood is cut into rails, they ought to be laid flat in piles one above another on level ground, and kept as straight as possible and from twisting, which they are liable to do, and which is very inconvenient when the fence is being put up. Sometimes wood fences are made of the small or thinnings of plantations, the trees being split up the middle, but this is not a durable sort of fence, as the rails are often too heavy for the nails to hold any length of time; also, the bark being on the trees prevents the effect of any substance or substances which may be applied for its preservation, besides being a harbour for wet and vermin.

### DRY-ROT AND ITS REMEDIES.

When timber is decaying by dry rot, it will be found to be connected with the growth of a small plant in the wood belonging to the tribe of fungi. It feeds upon the sap and grows very fast; and by its rapid growth, and by removing all the sap from the wood, the timber very soon becomes brittle. This plant also spreads rapidly, but a good free circulation of air often prevents it. What the true cause of dry-rot is has never been determined, but it frequently shows itself by a species of mildew, which covers the timber, and the action of which apparently causes the wood to decay and crumble down into powder. The mildew, however, is neither the dry-rot nor its cause, but its effect. It is distinctly seen by the microscope to be a fungus, and as the fungus itself is so minute, as to require the aid of the microscope to be distinctly seen, its seeds may be supposed to be so very minute as to be taken up by the spongioses of trees. But, whatever may be the cause of dry-rot in timber, there is no doubt of the fact that simply steeping timber in a solution of corrosive sublimate preserves it from dry-rot. After it is subjected to this process, it is requisite that it should have free access of air, which it is sure to have when the timber is applied to fencing purposes. Whatever other causes may combine to promote the decomposition of wood by dry-rot, or other forms of decay, there can be no doubt that imperfect seasoning, by leaving in the pores of the timber a large proportion of the fermentable juices always found in recently felled timber, is one of the most important, and therefore that good seasoning is as essential in promoting the durability of wood as it is in lessening the tendency to those changes of form and bulk which so greatly increase the difficulties of the carpenter and joiner.

### SEASONING TIMBER.

The process of seasoning usually consists simply in the exposure of the timber to the action of air in a dry situation, in stacks or piles so constructed as to allow the free circulation of air in contact with as much as possible of the surface of each piece of timber, until the sap or vegetable juices shall have dried up so far as to offer no facility for the germination of the fungi which constitute various kinds of dry-rot. In order to promote the success of this operation, it is important that the pile of timber be so far elevated from the ground as to allow the circulation of air beneath as well as through and around it; and also that, if



exposure to rain be not avoided, care be taken to prevent the lodgment of moisture in any place where it would be likely to remain long.

#### BEST PROTECTIVE MATERIALS.

**DEAD OIL OR PITCH** is a first-class article in filling up the pores of timber, as it possesses the qualities of resin. It first coagulates albuminous substances; second, absorbs and appropriates the oxygen in the pores, and so protects from *cremacausis*; third, resinifies in the pores of the wood, and thus shuts out both air and moisture; and fourth, acts as a poison to the lower form of animal and vegetable life, and so protects the wood from all parasites. All these properties specially fit it for impregnating timber exposed to alternate states from wet to dry, as indeed some of them do for situations constantly wet. The cheapest and best composition for coating over wood fencing is

**COAL-TAR, LIME, AND RESIN**, in the proportion of a quarter of a bushel of slaked lime and half a pound of resin to four gallons of coal-tar, then boiled in a pot for an hour, and kept well stirred while on the fire. This applied to fences, either posts or rails, in a hot state, with brushes made for the purpose, will be found an effectual coating for preserving the wood against all weathers and seasons. If this coating is applied every two or three years, the fences will last for many years. Coal-tar is allowed to be very superior to vegetable tar, and its efficacy in resisting the worm is attributed to its containing sulphocyanic acid, which is highly destructive to animal and vegetable life. It is necessary, however, to observe that the coal be deprived of its ammonia, which would produce immediate decay if thrown into the timber. The protecting power of metallic oxides, when applied to the surface of wood in the form of paint, is well known; and many abortive schemes for the preservation of timber have been devised to act upon the same principle, which is that of excluding such external influences as might promote decay. Wood, when painted, is not preserved from the effects of the weather, as the ingredients in paint, namely, white lead and oil, have no power to do so. Still, ornamental, upright fences, that is, wood cut to measurement and dressed, are generally painted all over, and when this is attended to and renewed annually, it will remain fresh for many years. To imperfectly seasoned timber, however, such applications are worse than useless, because by filling up the pores they impede the natural drying of the vegetable juices, and therefore rather promote than check natural decay. Far more efficient than these are the numerous modes of protection which involve the impregnation of the timber with some antiseptic substance, or with such matters as, by pre-occupying the pores, may render the reception and germination of destructive fungi mechanically impossible.

**THE CREOSOTING** of railway sleepers has of late years been generally adopted by railway companies in this country, with more or less success. The system of creosoting is to subject the timber, along with dead oil or pitch, to a pressure, varying from 100 lb. to 200 lb. per square inch, for about ten or twelve hours. This is done in large iron tanks, and from 10 lb. to 12 lb. of the oil is thus pressed into each cubic foot of the timber. The cost of the process is about 4d. per cubic foot. There is very good reason to think that the state of the timber previous to its being creosoted has much to do in its after-preservation; for example, timber creosoted in a green state cannot take in the oil so effectually as that seasoned.

**TIMBER FOR FENCING**, when creosoted, has been found to last a long time; some years

after posts have been inserted in the ground, they have been found to be as fresh as when first inserted. Of plans for protecting timber by impregnation, one in particular has attained general celebrity. The preservative agent in this process is bichloride of zinc, commonly called "corrosive sublimate," which is dissolved in water, and forced into the pores of the timber in closed tanks, by means of forcing pumps, and which combines with the albumen of the wood, and converts it into a compound capable of resisting the ordinary chemical changes of vegetable matter. Chloride of zinc, creosote obtained from the distillation of tar, oil of tar, and other bituminous matters containing creosote and pyrolignite of iron, have also been successfully used.

Another system of preserving timber is to dissolve 1 lb. of blue vitriol in boiling water, and then mix it with five gallons of water, and have the timber steeped in the mixture for a few days.

#### REMOVING TIMBER.

IN instituting a comparison as to the proportion of the market value of timber consumed in carriage, it is hardly fair to take the lowest priced woods, as "Yorkshireman" has done, as the carriage of a ton of Spruce would cost as much as that of a ton of Ash, but the value would be greatly different, and consequently the proportion. It is true there would be a greater number of feet in the ton of Spruce, but not so many more as to make the selection of the Spruce a fair one. This, however, is a small matter, as the importance of the cost of carriage was fully recognised in the paper which "Yorkshireman" refers to; indeed, it was in the hope of removing some of the difficulties which lie in the way of those unacquainted with the work that it was written. "Yorkshireman" thinks the remarks made about farmers giving up the work in disgust were not correct, but he probably knows well enough that what is plain sailing for those having some little knowledge of the work is very different to those who have no notion how to set about it. When there is a considerable amount of work on an estate and farmers' horses are periodically employed, there is no reason why they should not do the work satisfactorily; but there are many small places where a week's work in a season would be about all that would be required. In such instances as this, if "Yorkshireman" has never seen or heard of work being given up in disgust, his experience is a peculiarly happy one. From the tenour of his remarks, it appears that "Yorkshireman" conceives that what was said about the employment of such horses was written in a deprecatory manner; if so, he is wrong, for as he justly says it is about the only practicable plan if matters do sometimes go awry owing to imperfect knowledge. Taken on the whole, there is very little difference here to the methods of which "Yorkshireman" speaks, the principal thing being that horse hire would cost about one-fourth less.

D. J. Y.

**Planting for heirs.**—There is something in the little paragraph which appeared recently in *THE GARDEN* condemning the practice of "toying with fancy Conifers," but not as much as would at first sight appear. If the country gentleman has the idea before him of planting what shall be really useful timber, he will do well in refraining from these trees, which have little or no commercial value, and in confining himself to the few really saleable and widely-known kinds which have been grown for centuries. That, however, it is necessary or just to displace the really pleasant and harmless pastime of experimental or ornamental planting is another question altogether. The writer apparently seems to think that there is as much pleasure in covering a barren moor or hillside with timber as would be found in planting and watching the progress of the many beautiful things usually collected in the arboretum or grounds. For all things there is a season, and, within certain limits, such planting as this has its right place. If the gentleman is unpatriotic in spending a proportion of income on

a thing which will not bring a direct return, it will follow that because the farmer's principal business is to raise roots and cereals, that he will be unpatriotic if he does not dig up his lawn and flower garden and plant them with Turnips and Wheat, because he is not providing for his heirs in growing what is only pleasing to the eye. Utilitarians may hold such a view as this, but happily it is one not likely to become universal. May the day be far distant when the ornamental grounds have to be discarded for the sake of planting a few trees in some out-of-the-world corner where they will be hardly ever seen, or the bit of lawn and flower garden turned into a Potato patch because flowers do not provide food.—D.

**The most valuable timber trees.**—The most valuable trees are not necessarily those which fetch most money, although at the present time, and it is likely enough to for some time to come, really good Ash is valuable in the sense of making about as much per foot as any home-grown tree, and it is a tree which has the additional recommendation of being a comparatively quick grower. So far, my experience goes with that of your correspondent's, but I should almost think "Yorkshireman" was straining a point when he says (p. 384) that it always finds a ready customer, no matter what it is like, if it be not rotten. Size, we know, is not necessary towards making a ready sale at a good price if the quality is right, but rough and inferior Ash, so far as I have had to do with it, is one of the most difficult things to get rid of at anything beyond firewood price. Probably the worst inferiority Ash can have, short of being actually rotten, is being black-hearted. Knots can be "dodged," so to speak, in working up, but black-heart sounds the knell of its use for the better purposes. It is of no use to the agricultural implement maker, and the railway companies, who use Ash largely for shovel and hammer shafts, cannot do with it. Possibly there may be a use for the very rough wood with which I am not acquainted; if so, I should like to hear particulars, as it may be helpful to others as well.—J. N. B.

**Seaside planting.**—I have been planting a small piece of land near the water in the Isle of Man, and have had rather painful experiences of the sea air. This spring I have planted young *Pinus maritima* for the fourth time, and am wondering if these will follow the fate of their predecessors. *P. insignis*, if behind shelter, does pretty well, but must have shelter. *Abies Nordmanniana* turns out well with some protection, but shelter is the prime condition for all of them that can stand sea air. The way *Pinus Pumilio* turned red and died off was a caution. Now shelter takes time to produce, and that is one difficulty; besides, what shelter is to be made of is another question. I am manufacturing it of Norway Maples and Alders, and my experience shows that these must be good-sized plants to begin with. I find Ontario Poplar stands much better than might be expected. I had several varieties of Cedars and *Arborvitæ*. Cedar of Lebanon went off in a short time, Red Virginian Cedar followed suit, but Mount Atlas Cedars did fairly well everywhere. *Thuja sibirica* was of no use, but *T. gigantea*, or Lobbi, as it is also called, did better than all the rest, and this is worth knowing. It is a strong and rapid grower, and is excellent in every way. I intend to raise seedlings, and plant it largely.—J. M.

**Pollard trees.**—There is another class amongst our field and hedgerow trees, besides what we may now term the "broom-head" variety, against which I must declare, and that is the pollard type. From this general condemnation we must, perhaps, except the Willow, and something picturesque may be seen in some others, but for timber producing there are few trees of less value than the pollard Ash. I know a whole row of these trees which have been standing in the same condition for many years, and they are scarcely fit for firewood. To describe them would be a hard task, but in the twilight they look more like a regiment of armless giants than anything else I can compare them to. The pollard Elm is almost as useless, and much cannot be said for the Oak, although occasionally some finely mottled wood is found in it; therefore, on the whole, I should express no regret at seeing the race of pollards go.—J. N. B.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## GARDEN IN THE HOUSE.

### HAND BOUQUETS.

THESE are always in request, but it is during the winter months when balls, both public and private, are being held that they are most wanted. The variety of bouquets displayed at a ball is surprising, no two being quite alike; some show good style and taste, but numbers of them are quite the reverse. At flower shows, too, the prize-winning bouquets are sometimes good, but the rest are often poor indeed. In making bouquets a few details must be observed, and unless these are mastered success will rarely be the result. A certain amount of taste is required, but much also depends upon the preliminary preparation of the materials and a knowledge of how they should be put together without being unduly crowded or too heavy. The amount of wire of different sizes employed in the formation of bouquets would surprise a novice, and I question if the bearers of them have any conception of the amount of labour expended upon them. There is scarcely a flower used that does not require wiring, a great many of them being also furnished with wire stems. I may here add, too, that it is almost futile to place a well-made bouquet in a jug of water with the idea that doing so will greatly preserve its freshness. If we were to cut the blooms of Camellias, Gardenias, Roses, Bouvardias, Begonias, Azaleas, and other choice flowers of sufficient length to admit of their being used without artificial stems, we should most probably both disfigure the plants and cut away growth that would furnish valuable bloom; besides, such stems are in some instances stout and stiff, and their use would result in a closely packed bouquet with a handle much too thick to be agreeable. Then, again, many flowers, such as *Pancratiums*, *Eucharises*, and *Stephanotis*, cannot well be used without being supplied with artificial stems. We find it necessary to have three kinds of wire, the stoutest being known as that for Camellia stems, an intermediate size to be had in rolls, and the small binding wire on reels. The stems are available for all short-stemmed or stemless blooms; the intermediate, and therefore much more pliable, wire is principally used for winding in rather close coils round the stems of zonal *Pelargoniums*, double white *Primulas*, *Cyclamens*, and other blooms with long slender stems, thus rendering them stiff and yet sufficiently pliable to remain in any position in which they may be bent. The fine wire is required principally for binding the flowers to the stems, and is much more easily used than thread or raffia. When the

blooms are not strongly attached to their natural stems—as, for instance, *Roses*—or have been purposely detached from the wood of the parent plant to avoid cutting, and which is advisable in the case of *Camellias* and *Gardenias*, it is necessary to pass a length of stiff wire either through the fleshy tubes, such as are found at the base of both *Roses* and *Gardenias*, or clean through the calyx, as in the case of *Camellias*, doubling the ends back so as to bring the two halves of the wire nearly close together, and these, in their turn, can be bound to neat lengths of *Privet* wood in preference to wire stems. With *Camellias* it is sometimes necessary to thrust two wires through the calyx in opposite directions, so as to steady the naturally heavy blooms. The long, delicate tubes of the *Eucharis* are best strengthened by means of several carefully-made turns of fine wire, after which they may safely be bound to stems. Some attempt to pass stiff wire stems up the fleshy stems of different kinds of flowers, but it is a tedious and unnecessary method, and inferior to coiling lengths of wire round them or binding straight stems with fine wire. A few there are who purchase a light wire framework in which to affix the flowers, while others concoct an evergreen foundation in which they fix the flowers in whatever direction their stems are passed through it, but neither of these plans find favour with good bouquetists. After all the flowers have been wired, but little time need be taken up in

FORMING THE BOUQUETS. A good centre should be had if possible, nothing in my estimation being equal to a partially developed *Rose* for this purpose, but a *Camellia*, *Eucharis*, *Water Lily*, or *Gardenia* are also frequently substituted. Whatever flower is used should be furnished with a stiff, straight stem—say, either of *Hazel* or *Privet*, this being near the size of a lead-pencil in thickness and quite 9 inches long. To this stem can be evenly bound all the rest of the stems and the centre still be easily maintained. Round the base of this central bloom it is our plan to bind a good thickness of green Moss in order to pad out the next ring of flowers, which without the Moss would be apt to unduly crowd the centre. We also use in addition about three shoots of sweet-scented *Geraniums*, which tend to preserve lightness and also to yield scent. There is nothing better than strips of soft matting or raffia for binding the bouquet, and a free use of fairly moist green Moss between each ring of flowers greatly assists the wires in keeping the flowers in their proper positions, and also in preserving their freshness. A too free use of small flowers, such as *Begonias*, *Jasminums*, *Bouvardias*, *Spiræas*, *Pompon Chrysanthemums*, *Rhynchospermums*, double *Primulas*, and even *Stephanotis*, is objectionable, as the bouquet does not in that case possess sufficient weight or solidity (I mean as far as appearance goes); while, on the other hand, employing a great number of *Camellias*, *Gardenias*, and *Eucharises* makes it too stiff

and heavy. Three or four blooms of *Azaleas* and four or five pips of *Stephanotis* bunched together are much more effective than single blooms. The large flat pancake-like bouquets 14 inches or 15 inches across I cordially detest, but if these are fashionable they must be made. I suppose those whose lot it is to carry them are heartily glad to get rid of them again as soon as possible. Not so the neater semi-globular bouquets that used to be most in demand, these being not only lighter, but much less cumbersome. When large bouquets are made, and they must be of good size—say about from 10 inches to 12 inches across—to be effective, the outer circles of flowers must have the longest stems and be kept well up, or the curve will be too abrupt, the result being a conical-shaped and by no means pretty bouquet. A half-turn given to the binding material will fix each flower in the position in which it is placed, and a light pad of Moss will keep the outer rows from unduly crowding inwards. It is necessary to work in a few light flowers rather above the rest, in order to obviate too much formality, and a few fronds of *Maiden-hair Fern* should also be added. Nearly any kind of *Orchid* bloom is also available for this purpose, while *Pancratiums*, *Roman Hyacinths*, *Lilies of the Valley*, *Spiræas*, *Bouvardias*, *Cyclamens*, *Orange-blossoms*, *Ericas*, *Eriostemons*, and *Rose-buds* are all frequently thus employed, and with good effect, too, if not overdone. In nearly every case, or when the flowers are not large, they are best wired and drawn through the flowers that form the groundwork of the bouquet; at least, such is my experience, as they can be more tastefully and lightly disposed than when bound in according as the bouquet is formed. The common *Maiden-hair Fern*, as well as *Adiantum gracillimum*, we invariably wire; a crook being formed at the end of the wire admits of their being drawn through the flowers and arranged to the best advantage. For surrounding the flowers, nothing equals common *Maiden-hair Fern*, the fronds of which, being supported by the bouquet paper, do not need wiring. If the whole of the stems are retained, the handle of the bouquet would generally be much too large; they should, therefore, be cut with a strong pair of scissors at different lengths, so as to gradually reduce the bulk till there are but few left except the one central stem, and this may also be shortened if found longer than is needed. As a rule, the bouquet paper requires to have the tube enlarged so as to permit the bouquet to fit well into it, and a few strong pins thrust through the divisions serve to fix it in its position. I ought to add, for the benefit of beginners, for whom I am principally writing, that after the stems are shortened with the scissors, the handle thus formed should be strongly bound with raffia or matting, the paper being then slipped on and fastened, finishing off with a covering of white note-paper. This we usually cut in the form of a quarter-circle, very little beside the right-hand



corner of an open sheet being cut away. With a little practice, this can be neatly bound round the handle so as to cover the points of the bouquet-holder, and it can be fixed at the top, first with pins and then strongly bound round with white silk or satin ribbon.

BRIDAL AND BALL-ROOM BOUQUETS are most in demand, and in such cases white flowers ought to predominate, those intended for a bride being usually exclusively white. In my opinion, no greater mistake can be made than an injudicious mixture of colours. Better err in using too few coloured flowers than an odd mixture of all the choice flowers that come to hand. As a rule, the colour should match the dress of the bearer, and if any other colour is added, it should not be at all conspicuous. A good central bloom of *Maréchal Niel*, *Sunset*, *Etoile de Lyon*, *Catherine Mermet*, *Grace Darling*, *Devonensis*, or other somewhat similar Roses may be used in conjunction with nearly every other colour, and a few bunches of *Marie Louise* Violets may also be added to a coloured bouquet with excellent effect. Five or six trusses of such semi-double zonal *Pelargoniums*, as *Mrs. Arthur Lattey*, bright showy pink; *Madame Thibaut*, purplish pink; *James Vick*, rich salmon; *Guillon Mangilli*, cerise; and *F. V. Raspail*, scarlet, are very striking; and so also are small bunches of *Azalea amoena* and *Caldwelliana*, and the other less well-known hybrids of *A. amoena*. One thin ring is sufficient, and the remainder of the other flowers used should also be well balanced, this being especially necessary in the case of such conspicuously distinct flowers as *Eucharises*, *Liliums*, *Azaleas*, *Camellias*, *Gardenias*, and *Chrysanthemums*. Sometimes very large bouquets of Violets are made, but these are very heavy, and at another time we have seen them composed of nothing but *Gardenias*, as many as three dozen blooms being used in one bouquet, and that, too, as late as December, but for real effect nothing in my estimation surpasses a bouquet composed exclusively of the various shades of yellow Tea Roses, buds, and Rose foliage.

PACKING BOUQUETS. — When bouquets have to be sent by rail or post to a considerable distance they must be very carefully packed, otherwise they will arrive at their destination much bruised, and they may be quite spoilt. We prefer to have light and well made deal boxes a trifle deeper and wider than the space occupied by one or more bouquets, with strong, narrow strips disposed in pairs about 3 inches apart to support the bouquets, and at a distance from the top to admit of the stems just touching the bottom of the box, the flowers being just below the level of the top. In order to properly secure the bouquets, stout pins should be thrust through the handles; above these should be tied a piece of strong string, the ends being sufficiently long to admit of their being fastened through two holes in the bottom of the box; the bouquets can then

be placed on their bearings and the strings tightly tied underneath the box. Thus fastened and the lid screwed down, the bouquets will travel uninjured, no matter how the boxes may be turned about. Those to whom they are consigned must be informed how they are fastened, and it is also advisable to mention that there is nothing gained, as I have already stated, by placing them in water for a few hours. The flowers preserve one another, and the Moss also keeps them fresh. A cool, dark room is the best place in which to keep them for a time.

W. I. M.

## FRUIT GARDEN.

### PEARS IN NORTH AMERICA.

THE following notes on the cultivation of Pears in the Southern States of North America may not be without interest. Pear growing has been carried on largely during the last six or seven years in South Georgia. There large tracts of land (both forest and cotton land) are being planted with Pears, which, with the older Pear plantations, are giving the country quite a distinct aspect, and running the Orange groves of Florida rather close as commercial speculations. At one place in South-west Georgia, Thomasville, I noticed that an enthusiastic planter had adopted quite a compromise between Pears and Oranges by planting them alternately. Whether the Oranges will ever pay is a matter of speculation, but that the Pears will has been proved beyond a doubt. The sort commonly grown is one called *Leconte*, or the *Sand Pear*, a variety that is wonderfully prolific in Georgia and other Southern States. Judged by our standard of dessert Pears, it is only of second-rate quality, but as a heavy cropper it is without an equal. It is grown on its own roots, and forms grand trees in a comparatively short time; one grove of trees in the form of huge pyramids, standing about 20 feet apart each way, produced in 1882 on an average fifteen bushels each tree, and this from trees only ten years old. This will give some idea of the bearing qualities of the variety, especially as the owner told me that his trees were overcrowded, and that if he had planted 30 feet apart instead of 20 feet, they would have given twenty-five bushels.

IN RAISING TREES, the plan adopted is very systematic; the ground is first well ploughed, and made fertile by means of artificial manure. It is then ridge-ploughed — *i.e.*, the ground is left in ridges by a double furrow; cuttings from 12 inches to 18 inches long are then inserted in the ridges, the latter being about 3 feet apart. The cuttings stand 6 inches asunder. This work is done in January, and if the season is not too wet they readily strike, and by the following autumn will have developed a strong, well-ripened rod of from 3 feet to 6 feet long; strong cuttings produce shoots even longer. In December these (called

one-year-old trees) are transplanted, and headed back to 3 feet and 4 feet, according to the strength of the shoot. Operations the second year consist in thinning out the shoots, leaving a good leader so as to form the outline of a pyramidal tree; by the end of the third season a good pyramid has been formed, and the knife is now freely used to induce spurs; the following season the tree commences to bear, and the pruning now merely consists in thinning the branches and shoots when necessary. All prunings are saved for cuttings, either to be used on the plantation or sold to other planters, good stout cuttings being worth about £5 per 1000 or 10s. per 100. Owing to this practice, a Pear plantation never looks untidy after pruning time, for if any pieces should escape the eye of the planter, they are quickly monopolised by the "niggers."

THE FRUIT is shipped to northern markets and fetches a fairly remunerative price; quite lately, however, large factories have been erected for canning and evaporating; therefore the Pear industry is becoming an important branch of Southern horticulture. The *Leconte* is now largely used when one year old as a stock on which to graft the *Keifer Pear*, and one or two other sorts. Other varieties of Pears, such as *Howell*, *Bartlett*, *Clapp's Favourite*, and *Duchesse d'Angoulême*, do well on the *Quince*, but they are not grown so extensively as the *Leconte*, or *Sand Pear*. The latter is not represented at the Pear conference at Chiswick, but I notice that it is in the list of *M. Leroy*, of Angers; whether it would be of any value in our climate is doubtful. I have several young trees of it that I brought from Georgia, but they have not made the vigorous growth so common in that State, nor have they shown any inclination to flower.

JOHN W. ODELL.

*Barrow Point, Pinner, Middlesex.*

## QUESTIONS.

5410.—*Diospyros Kaki*.—Can any reader of THE GARDEN kindly give me the address of a firm likely to supply me with a sweet variety of the *Kaki* (*Diospyros Kaki*), a new fruit tree from Japan? If so, I shall be greatly obliged.—G.

5411.—*Pampas Grass*.—Will some reader of THE GARDEN kindly tell me the way by which the *Pampas Grass* is kept so fine as it is in Covent Garden after it is cut? I saw some last January looking beautiful, while ours all close up tightly when cut, and look stiff and formal.—J. B.

5412.—*Araucarias decaying*.—We have two very fine *Araucarias* in our grounds, but unfortunately they are showing signs of decay, particularly in the lower branches. We have examined the soil, and find that they are on a yellowish loam about from 7 feet to 8 feet in depth. Can any of your readers suggest any kind of treatment for their advantage, either by top-dressing or otherwise?—J. T. JACKSON, *Clifton*.

5413.—*White York Rose*.—I remember some years ago in Yorkshire a beautiful old-fashioned Rose of the York and Lancaster species, and I should be so much obliged if any of your readers could inform me where this truly pretty old plant could be procured. I have the red Lancaster and the striped red and white York and Lancaster, but the one I am in quest of is the pure white form with blossoms almost single; otherwise it is like the striped variety.—M. T.

5414.—*Vine excrescences*.—Can any reader of THE GARDEN give any information with regard to excrescences appearing on Vines? They come on both old and young canes and shoots, and vary in size from a good sized pea to a hen's egg; they have affected the plant for fifteen years or more. We cut them off every year, but they always appear again, but seem to be worse this year than usual. We have consulted several authorities, but have not been able to ascertain the cause or remedy.—W. F.



## THE PEAR CONFERENCE.

THERE can be no more earnest wish amongst fruit growers than that a clean sweep should be made of some 50 per cent. of the kinds of Pears now in cultivation. They are legion, and many of them are so worthless when compared with really good average kinds as to lead one to wonder why they are still grown. If, however, it be assumed that the axe should be laid at the roots of small kinds only, preserving those which produce large fruits, then a grave error will be committed. In Pears, as in so many other things, neither the biggest nor the handsomest are always the best, whilst not a few kinds which seem now wanting both in colour and beauty of form will, after scores of the handsome ones of to-day are rotten, prove of the greatest value. Somehow it seems, too, that high colour is not often found associated with the highest quality. Louise Bonne is an undoubted exception, because it belongs to a race which develops colour; but another of the family (Forelle) gives rich hues, but its quality is not first-class; nor is that of such striking kinds as Beurré Clairgeau, Flemish Beauty, and some few others that are prominent. A dish of Alexandre Lambré, of Swan's Egg, Beurré de Capiaumont, Eyewood, or of Fertility makes but a poor show beside the big Beurré Clairgeau, B. Diels, or Pitmaston Duchess; but, on the other hand, these are far more reliable croppers, and in their seasons will give, perhaps, as good quality in smaller compass; hence, to select Pears for growth from the samples seen at the Pear conference may prove dreadfully misleading and disappointing. Many of these wondrous samples demand admiration, but what are they like when cut and tasted? How many of them are maukish or mealy, perhaps mere bags of sweet flesh and water, and nothing more. Such things please the eye whilst they disgust the palate. We have many things to consider, therefore, before we hasten to apply the axe to our Pear trees, and it may be that in many ways and for many reasons the pruning may well begin just where some would have us leave off. The congress or conference, or whatever this great Pear exhibition may be most fitly termed, certainly does show that certain localities enjoy privileges in the production of Pears which others lack. That the southern and warmer counties should by a long way excel the northern counties was to be expected, but it is evident also that even in some of our southern districts certain spots are much more favoured than others, especially where situation or aspect and a good Pear soil are found in unison. There are few commoner expressions than this: "Your ground does Pears well;" and in the face of such a statement few growers would retort that "Yours would grow them equally well also if you proceeded rightly," because that would be inexact.

All soils will not grow Pears well, even though equally favoured with warmth and sunshine; hence we see certain gardens producing exceptionally fine fruit without specially high-class culture being given, whilst in others even the best of culture fails as to good results. It is in such cases as these that certain so-called inferior, yet hardier, kinds prove so serviceable, and the very sorts which A. with his good Pear soil would uproot are the very life-blood of B.'s Pear produce. No doubt it suits the trade to cry "Sour Grapes!" in the case of many old kinds and aged trees, but the possessors of these will think twice before they destroy old friends, even though they do plant a few dozens of Quince-worked cordons or bush trees to test, by way of experiment, the value of larger

fruiting, but less known varieties. We may well remember that the farmer and the cottager have penchants for Pears in their seasons, and their penchants lie rather for small-fruited productive kinds than for big sorts, which are worthless unless they have high-class culture. Then we have the market grower's interests and those of the town dealer, costermonger, and poor consumer to consider as well, and if these former do not grow Hessles, Capiaumonts, Williams, Windsors, Lammass, and Swan's Eggs, sorts which fruit with fair certainty, that others may sell and consume, there is little chance of their getting big kinds grown on Quince stocks into popularity with the million. Reverting now to another aspect of the congress, there seems good reason to believe that much useful and conscientious work is being done in revising the nomenclature, provided that those whose names are thus revised will accept the labours of the committee, a matter open to grave doubt. Work of this kind was done, with much cost of time and trouble, at the Apple congress, but the result, as far as exhibitors are concerned, remains open to doubt. There is no doubt whatever that, when so many kinds are imperfectly developed, correct naming is very difficult, especially as so many assumed distinct kinds vary only in the most trifling degree.

Even this correcting of imperfect nomenclature can have but very inappreciable results, as the 150 persons who have sent Pears to the show are but a small number out of the thousands who grow Pears, and whose errors in the naming of which—doubtless, there are myriads—will still exist. The best reform, as far as the future is concerned, may be looked for from the nurserymen, who would be only too pleased to revise their naming, and do it thoroughly. Thus, if each trade grower was free from errors in his Pear lists, we should in time reach a perfect unanimity in Pear nomenclature, even if not in opinion as to the best varieties for general cultivation. A very noticeable fact, and one which sadly needs correction, is the unduly large number of Pears grown which ripen in October and November. No doubt those two autumn months with September constitute the chief Pear season, and after November the useful kinds are materially reduced. Perhaps autumn ripeners are the more prolific, probably the handsomest, but they can hardly be in all cases the most useful. In such a season as the present many a Pear grower must be troubled with the wealth of fruits he has needing consumption, whilst after Christmas he will be equally led to bewail his poverty in useful kinds. Perhaps the too common practice of giving prizes for Pears in the autumn at numerous shows conduces to the growth of so many kinds which ripen now. If such is the case, the sooner we give prizes for good ripe kinds in January and February the better, because really good Pears would then be indeed invaluable. As Quince stocks and wall cordons are so highly praised just now, it may be worth while to ask what is the common effect on keeping the fruits of this sort of production of Pears as compared with samples of the same kinds, though perhaps less in size, produced on free growing pyramids or even on large trained wall trees.

Again, we may ask how far keeping is affected when in southern gardens the same kinds are grown under the same conditions, but on south and west and east walls it must be obvious that a most valuable product of the conference will be wanting if we refrain from taking stock of the best keepers, and how produced, as also of the finest and handsomest of

autumn kinds. One form of culture which in years past was most popular, viz., the old-fashioned border espalier, seems to be going out of fashion. Perhaps its produce was not in all cases equal to the expectations, and it is now being superseded by upright or oblique cordons planted closely to form a kind of fence, as, for instance, may now be seen at Chiswick. Trees of this kind usually yield fair sized fruits, not forced too early, and yet well developed. Still we miss the old espaliers as we regret the loss of once familiar friends.—A. D.

— The exhibition of Pears at Chiswick has given us opportunities of examining a vast array of specimens of that fruit. Such a display, coming from the chief fruit-producing counties of England, with examples from Jersey and France, conveys some very useful lessons, and we have facilities for learning more of the several influences of soil, climate, culture, and latitude than we have ever before enjoyed. Those who cultivate Pears for sale cannot fail to derive some useful lessons from the opportunities of comparison and means of identification; the diversity in size and quality of the specimens exhibited from the various counties is remarkable, and the uninitiated amateur may obtain some valuable information which will save him from the loss of time and disappointment that attends on injudicious selection. Mr. Barron will no doubt be able to tell us by-and-by the northern limits of certain high-class Pears. There are evidently circumstances that militate against the high development of Pears in the south of England. The Exeter examples were by no means so fine as might have been expected. How far the annual rainfall of a district affects the size and quality of Pears we have yet to learn. Mr. Symons's "Tables of Rainfall" will here be of use, and should be in Mr. Barron's hands. Correct nomenclature is one of the objects of the exhibition, and errors of designation will have an excellent chance of being corrected. Although the variation in size, colour, and character of fruit grown in different localities, and from trees grafted on different stocks and cultivated under the varied circumstances of training, combine to enhance the difficulties of the task which Mr. Barron, assisted by the examining committee, have before them, soil and subsoil have undoubtedly a potential influence in the development of Pears and contribute in no slight degree to their quality; but the majority of our large and luscious fruit are very sensitive to climatic influences, and require a certain number of degrees of heat to bring them to perfection. Nothing is more common than to hear a Pear highly spoken of and the same condemned by two skilful cultivators, the one deriving his experience from the south, the other from northern districts.—W. INGRAM, *Belvoir*.

5406.—**Leasing orchard land.**—The usual course seems to be in leasing orchard land that is yet unplanted for the tenant to have a lease of not less than fourteen years' duration, though twenty-one years would be fairer. With such a lengthened lease the rental may very fairly be advanced, say 20 per cent., because as the term of the lease rolls on and the ground is all planted, the profits from the orchard will increase in value annually. At the expiration of the long lease the standard trees, if well cared for and the soil good and well drained, should entitle the owner to a slightly advanced rent, but all would depend upon the manner in which the orchard had been previously maintained. Two courses are open to the landlord in letting the land; he may, in the first place, agree with the tenant to plant the ground for orchard purposes with proper trees and in a proper way, the tenant to receive full value or compensation for his trees at the close of the tenancy, or, better still, the option of a renewal of lease on the same terms. Again, the landlord may contract with the tenant to provide all the needful standard trees, such as Apples, Pears, Plums, Cherries, &c. These would range from 120 to 160 per acre, and probably cost, inclusive of stout stakes to support them, from £6 to £10 per acre. All would, of course, depend upon the density of planting; the tenant would then in return undertake to properly plant, stake, and maintain these trees, and generally cultivate them for his



prospective benefit. The tenant usually provides and plants his own bush fruits—Gooseberries, Currants, and Raspberries, as these are not so permanent as standard trees are, and may become almost worthless when the lease expires. A tenant can easily raise these in quantity every year, and may replant as old bushes wear out at no considerable expense. Ordinarily the interest of the owner and of the tenant should be identical, as a tenant who badly cultivates his orchard injures himself materially, whilst a good cultivator is at once the best friend of both himself and his landlord.—A. D.

### CURRANTS AND THEIR VARIETIES.

THE CURRANT, like the Gooseberry, is worthy of better treatment than it very often receives at the hands of the managers of private places, where fruits under glass receive the greatest attention. If the produce of these humble bushes is of little or no value, it is hardly worth while to allow Lichen-clad trees to cumber the same piece of ground for twenty years or more, but they cannot be dispensed with, as we find the Red, Black, and White varieties growing in some form or other in every garden, great and small, throughout the kingdom. Growers for market assure us that the Black Currant is the most profitable, but the Red variety is equally if not more valuable to the private grower, as it suits all palates, and can be used for so many purposes, cooked, preserved, and fresh throughout the season. Red and White Currant trees can be grown as pyramids and bushes on clean single stems, as standards, and as cordons against trellises and walls. Trees trained on the bush form are most frequently met with, and doubtless this is the most simple and inexpensive mode of growing Currants in quantity for daily use in the kitchen and preserving, but for special or ornamental purposes, pyramids, standards, and cordons, or vertical trained trees are recommended, as the fruit, fully exposed to solar heat, attains its best size and quality, and it can easily be protected from the ravages of birds and wasps; moreover, well preserved samples of the fine Grape varieties command good prices when all other small fruits are over late in the autumn.

*Propagation.*—When Red Currants are propagated at home, well-ripened pieces of wood of the current year should be selected early in the autumn, if with a sound heel so much the better, and after being carefully denuded of the lower buds that would be buried in the soil, particularly the cluster of small ones near the base, they should be firmly planted 6 inches in depth in a light rich border, where their after management must be regulated by the purpose for which the young trees are intended. If for pyramids, cordons, and standards, the leading growth must be allowed to ascend, all side growths being moderately pinched to throw the full force of the sap into the proper channel. If for bushes, the three or four buds left at the top of each cutting should be encouraged to make all the growth they will, as leaves help the roots, but gross shoots should be pinched to equalise the flow of sap, as these young growths will have to be pruned back in the autumn or spring to form the foundation of the future bush. The newly-struck plants will require lifting, sorting, and replanting in nursery lines at the end of the first season, that is, if the cuttings are inserted in the autumn and not in the spring, as is too often the case, when those that are best adapted for special training can be planted together and receive proper attention until fit for removal to their permanent quarters.

*Planting.*—The ground for Currants should be clean, well drained, deeply trenched, and in

good tilth. If light and sandy, the roots may be let in below the level of the quarters, but if cold and heavy, plenty of burnt earth or leaf mould should be introduced, when ridge or mound planting will suit them best. Dry weather or certainly a dry state of the soil should always be selected for lifting and planting, the earlier in the autumn the better, as it is important that new root action precedes cutting back in the spring. Although bushes do not often receive supports at the time of planting, it is a good plan to drive a stout stake down to define the position each tree is to occupy when setting out the ground, particularly in exposed situations. These stakes need not stand much higher than the collars of the trees, which should be from 6 inches to 12 inches above the surface of the soil, and the bushes should merely rest against them to prevent disturbance by wind or workmen. The distance from row to row and from tree to tree need not be quite so great as was recommended for Gooseberries; nothing, however, is gained by planting too close, as the sweetest fruit is gathered from trees that are fully exposed to solar influences. Assuming, then, that Red Dutch, a variety greatly superior to the old Red, is to be planted, I would allow 9 feet from row to row, and 6 feet between the trees in the rows. Let each tree be planted with its roots near the surface, wash the soil well home to the tender fibres in preference to treading, and mulch freely with light rich stable manure.

The most suitable trees for planting against walls or trellises are those which have made three or more shoots of equal strength and well placed for training in an oblique or vertical direction, according to the height of the wall or fence to be covered. The borders for these should be well drained and prepared as for wall Gooseberries, the distance from tree to tree being regulated by the number of shoots with which they are furnished, and in some measure by the varieties themselves. Strong growers having large leaves, like Raby Castle, require more head-room and a greater breadth between the stems than would suffice for Red Grape or White Dutch, sometimes called White Grape, and for this reason they are best adapted for high walls and extension training, where, under a system of root-pruning, they produce moderately strong wood and soon grow themselves into a fruitful condition. Their after-management will come under the head of pruning and training.

*Bushes.*—Having secured plants with clean stems free from buds, from 6 inches to 12 inches in height, furnished with, say, three shoots each, shorten back to good buds pointing outwards. These will produce two shoots each, six in all, during the season, but they will not be sufficient to form the foundation of a good bush; therefore these six shoots must again be shortened back at the winter pruning still to buds pointing outwards, otherwise the twelve shoots which will be made will be too close together to admit of the free passage of warmth and light when they commence bearing. Should this be the case, a spreading habit can easily be induced by tying or pegging the external shoots out until the trees nearly touch each other in the rows, not so between the rows, as room must be retained for cleaning, mulching, and gathering the fruit. Having determined the height of the bushes—say, 3 feet to 5 feet—shorten the terminals and pay attention to future laterals. These may be pinched or shortened back in July to let in light and air, but not sufficiently close to expose the fruit or check the flow of sap during the time it is ripen-

ing. This shortening back will not, however, affect the annual winter pruning, as every lateral must be cut back into solid wood within an inch or so of the main stems, to keep the spurs close at home, as well as to prevent overcrowding. When bushes are completely formed and in full bearing, it is a prudent practice to allow a few well-placed shoots to grow up wherever there is room for them, not only to take the place of others which may have become bare of spurs, but also to assist in the formation of layers of alburnum over every part of the tree.

*Standards.*—If standards are wanted, the principal aim should be the production of one stem, as strong and as straight as possible, by training to sticks firmly inserted in the ground. Take out all the terminals at one uniform height. Allow side shoots to grow, but pinch them at first to force the flow of sap upwards, and carefully guard against the production of underground suckers. When the head is properly formed, pinch back weakly growths and gradually remove the spurs and side shoots from the lower parts of the stems as others are formed above them.

*Cordons.*—Where it is desirable to cover a wall or trellis quickly, well-rooted trees with single or twin shoots of equal strength best answer the purpose. Allow them to grow freely throughout the summer, and keep them closely nailed or tied in to protect them from injury and to prevent warping to the light. If more shoots are wanted, always have one or two starting from the base. Shorten back to induce the formation of spurs, and tie in side pieces to furnish the old stems should they become naked. When the wall is completely covered, spur in nearly close to the old stems every autumn, as gross wood on north walls does not always ripen well; consequently, if left any length, parts that are unripe and pithy invariably shrink and die back to the base, which is firm and solid. The Currant submits to root-pruning when the ground has been made over-ripen for new plantations; it also enjoys and well repays good living when in full bearing, and the active roots are kept near the surface. This can best be supplied by raking off the old mulching into the openings every autumn, and top-dressing with a mixture of light rich manure and fresh soil or road scrapings. Liquid manure may be freely administered to increase the size of the fruit, and an occasional drenching with the hose will greatly assist the trees in dry weather. The White Currant, being less acid than the Red, is generally preferred for the dessert; and for this reason it should always be grown in open quarters where it can be brought to the highest perfection by full exposure to sun and air. Like the Red kinds, it enjoys light rich food; but the flavour or rather the sweetness is not increased by the application of too much water. Although the fruit of the Black Currant is extensively grown for preserving and cooking, it is not often used in a fresh state for the dessert. It is met with in every garden, and attains the finest size and quality when grown on light, rich moist soil, and the trees are sufficiently close in the rows to partially shade the roots. Unlike the Red and White varieties, it does not succeed well when kept to a single stem, but makes the finest bushes when allowed to throw up sucker shoots from beneath the surface of the soil. To favour this mode of growth cuttings should not be divested of the lower buds when they are prepared for planting. Many people break up old plantations and select kind, well-rooted pieces for replanting, but the best bushes are obtained from well-ripened cuttings.



*Pruning*, a very simple operation, so simple that it is very often neglected altogether, consists in the removal of a few of the oldest branches to let in light and air, and to allow the younger growths to ascend from the stools. The young wood should not be spurred or shortened back, as it produces the finest fruit. If treated in this way and liberally supplied with rich top-dressings, Black Currants can be kept in good condition for an indefinite number of years; but the best fruit is obtained from young trees, and for this reason, as well as to enable the cultivator to carry out a regular and profitable system of cropping, fresh plantations should be made on deeply trenched ground to take the place of old ones when they are broken up.

*Varieties*.—As yet nothing has been said about the best varieties for general culture. Both of Red and Black Currants there are several sorts worthy of general cultivation, but of the White there are only two which need be mentioned, although they are known and grown under numerous synonyms. *Of Reds*, we have Cherry, bunches short, berries very large, deep red, early, but more acid than Red Dutch; Knight's Large Red, bunches long, berries large, bright red, similar to Red Dutch; Long-bunched Red, bunches 6 inches long, berries large, deep red, later and said to be better than Red Dutch; Raby Castle, bunches long, berries large, bright red, rather acid, great bearer, very late, suitable for walls; Red Dutch, bunches medium, berries large, bright red, the best for general purposes; Victoria, bunches and berries very large, said to be superior to Raby Castle. *Of Whites*, we have White Dutch, with bunches the size of those of the Red Dutch, berries large, early and very sweet; White Transparent, large and handsome, finest for dessert. *Of Blacks*, there are Black Naples, late, short grower, heavy bearer, best for market; Black Baldwins, berries very large, profuse bearer, good for market; Black Grape or Dutch, the old variety superseded; Black Lee's Prolific, berries large and sweet, a heavy cropper, very hardy, a great acquisition; Ogden's Black, berries rather small, hardier than Black Naples. W. COLEMAN.

*Eastnor Castle, Ledbury.*

#### PRUNING THE PEAR.

SOME of the horticultural papers and writers appear to have got the Pear on the brain lately—caught, I apprehend, from the conference. A good deal of the matter I have not managed to get through, but one article from the thoroughly practical Mr. Wildsmith has interested me, and I want to say a few words about it in THE GARDEN. On the subject of pruning and training, he writes in a way, I must say, which puzzles one, and his precept and his practice appear to have very little connection with each other. Of the two, the practice pleases me by far the best, and I know he will excuse me if I point out where I am in difficulty. After paying a compliment to the non-pruners as "men of deep thought and first-rate practical ability," but who are nevertheless mistaken, he proceeds to tell us that constant fruitfulness in the Pear can be attained "in no other way than by pruning. We may call this dogmatism," he adds, and which it certainly is, but "he has proved it by the best of all tests, namely, abundant crops of fruit from the same trees every year and for many years in succession." I say nothing at present about the abundant examples of Pear trees bearing constant and many crops all over England and elsewhere, that were never touched by the pruning-knife, as a set-off against Mr. Wildsmith's assertion

that such results can be secured in "no other way" than by pruning—but will notice another portion of his article, which sufficiently contradicts that just quoted. Speaking of bush training, he writes: This is a "form of training that is much in favour here and is what may be described as an 'upright bush form,' of which we have some pretty correct representations. One especially, a tree of *Beurré Clairgeau* on the Quince, was planted in the autumn of 1876, and, except the year after planting, the crop of fruit has been as heavy as it is this year. The mode of training is self-explanatory. The only pruning the trees receive is that of pinching back the lateral growths of the principal branches twice during the season, the first pinching being done about midsummer, and the last at the end of July or beginning of August. Of course, when the trees are being pinched, and there is space for another principal branch, the most likely young shoot is left intact with that intent. The winter pruning required is almost *nil*, for there is really nothing to be done except it be the cutting out of any long spurs, or may be the removal of a main branch with a view of making the trees more uniform."

A figure of this tree is given, and it is neither more nor less than an untrained and almost unpruned tree that is so "much in favour" with Mr. Wildsmith, and which he testifies has borne so remarkably well since it was planted. The winter-pruning is "*nil*," because there is really nothing to be done "except it be the removal of long spurs and unsightly limbs. This being so, and the summer pruning consisting "only" of pinching back the lateral growths of the principal branches, it follows, of course, that the terminal shoots are never pruned or pinched at all, and thus we have an extension-grown tree pure and simple, for, as has been pointed out by me often, the chief barbarity of pruning consists in hewing back the main growths, thereby causing a profusion of lateral growth instead of fruiting spurs. I have no hesitation in saying that in the case of Mr. Wildsmith's bush Pears the pinching of the lateral growths amounts to little or nothing, because they are not produced to any extent when the terminal shoot is allowed to extend. It is a tree after my own heart, and quite upsets the "dogmatism" Mr. Wildsmith starts with. Referring to the non-pruners, he says, "They disparage pruning and do just as little of it as they are obliged to do for appearance sake." At the end of his paper he says of his bush trees that the winter pruning "is really nothing," except it be the cutting out of unsightly spurs and branches "with a view of making the trees more uniform." I really wonder in what way Mr. Wildsmith's tree so "much in favour" differs from the non-pruner's tree if the one prunes for appearance sake, and the other for more uniformity. People attach importance to what Mr. Wildsmith says, and rightly so, and that is why I have taken him to task, and I hope he will accept my criticisms in the spirit in which they are offered. I claim him as a recruit in the ever-increasing ranks of the non-pruners.

And now a word as to the dogmatic and wholly baseless assertion that constant fruitfulness "can be attained in no other way than by pruning." I assert, on the contrary, that there are thousands upon thousands of Pear trees all over the country, that have never been pruned for ten, twenty, and thirty years, that never fail to bear the most abundant crops except from three causes, and they are causes which pruning cannot help—viz., cold, wet seasons, that hinder the buds from ripening, frosty springs, that kill the bloom after it ex-

pands, and occasional over-cropping, which tends to reduce the crop the ensuing year. With this I send a photograph of a branch of a Pear tree that never was pruned, and which always bears in the same abundant manner year after year, the fertility depending on causes not connected with pruning, to which all other fruit trees are more or less susceptible.

[The photograph shows a branch laden with Pears, and well furnished with short-jointed, fruitful wood.—ED.]

Since the above was written, a further contribution of Mr. Wildsmith's has appeared in your contemporary containing a "twelve-year-old" example of "a natural pyramid with scarcely any pruning" that I must earnestly protest against. In the first place, the figure no more resembles a pyramid than my pen resembles a balloon, and by what effort of the imagination Mr. Wildsmith conceives it to be either a "natural" or an artificial pyramid is more than I can understand. It is a tree much wider at the top than at the bottom and much wider at the middle than anywhere else. But the most singular thing about it is that it professes to be an almost unpruned tree, in which the past season's growth of 1885 is represented as being as tall as that of all the other eleven years put together, exclusive of the stem, or very nearly so, and as the example is left to explain all, I suppose that it is a *bona-fide* one, and that the topmost fruits show the limits of the bearing wood. But for the description given underneath the figure, I would have called it a tree just broken loose from the pruning knife with the first whole summer's growth upon it, or a pyramid run wild, as they always assume the shape represented under such circumstances, the habit of the Pear not being to grow pyramidal, but with a round or somewhat conical head proceeding from a branching trunk.

J. S. W.

**Duke of Buccleuch Grape.**—I have never taken part in the discussions which have been raised from time to time respecting the merits or demerits of this Grape, but, seeing "S. W.'s" statement (p. 367), that the specimens of the Duke from Clovenfords which were awarded a special prize at the late Edinburgh show "for general excellence and for the manner in which they were packed for market" were unripe, I write, as one of the judges who made the award, to say that "S. W." is in error in saying so, and to ask him to be good enough to give his reasons for pronouncing the Clovenfords examples of the Duke to be unripe. I may be allowed to say, moreover, that the examples of the Duke as shown in the baskets in the Waverley Market on September 9 last were only fair specimens of hundreds of bunches that might have been seen at that time on the Vines at Clovenfords.—H. W. WARD, *Longford Castle*.

**Clitoria Ternatea.**—This is a pretty stove annual of very uncommon character, its curiously formed, large, azure-blue flowers, with a horse-shoe shaped ring of white or yellow set in the middle of the broad standard, the whole flower about as large as that of a fine Sweet Pea, being unlike the ordinary run of stove annuals. Seeds of it may be obtained from any seed dealer for a few pence, and these, if sown in spring, soon send up plants which, when trained on a bush-like support, or along the rafters in a low-roofed house, quickly grow into flowering size, and then flower for several months in a most profuse way. Such plants are so easy to grow, and have such a graceful and pleasing effect in small stoves, that we wonder they are not paid more attention to. In India *C. Ternatea* is one of the commonest hedgerow plants, and flowers during the greater part of the year. Here it is a native, but according to botanists it is now quite cosmopolitan in the Tropics. In the gardens at Pendell Court it is now a pleasing picture trained against the roof in a small stove. If grown



along strings placed near the glass till the plants attain flowering size they could be moved to warm places in conservatories, or trained round the bare stems of tall plants in stoves, where their beautiful blue and white flowers could be seen to advantage. There are a great many stove annuals which might be turned to good account if treated as here suggested for the Clitoria.—B.

## KITCHEN GARDEN.

### POTATO HYBRIDS.

THERE is an old saying that "for every ill there is a remedy," and for the Potato disease there may be one, but it is a long time about making its appearance. "Salus" proved useless, "ridge planting" was no better, and the "Jensen system" is now also reported to be a failure; but it is hoped that the latest workers in this direction—the Messrs. Sutton, of Reading—will prove more successful. At any rate, whether they are so or not, they have begun at the root of the matter by obtaining tubers of a wild Potato—*Solanum Maglia*—first discovered by Darwin growing in—preferring, in fact—low marshy places in the Chonos Archipelago. The theory is that a plant from such a moisture-loving district must necessarily be better suited to the British climate than our present race of Potatoes, the produce, it is supposed, of *Solanum tuberosum*, a native of the higher Andes, where rain rarely ever falls. That this is a reasonable theory all must admit, as it is in the wettest seasons that the Potato disease is most virulent. Taking this view of the matter, the whole question as to whether or no the experiments in hybridisation now being made by the Messrs. Sutton with the view of obtaining a race of Potatoes that shall effectually resist the disease hinges on the establishment of the fact as to whether our present race of Potatoes originally sprang from *Solanum tuberosum* or from *Solanum Maglia*. Before giving our own impressions of the matter, we must add that the Messrs. Sutton have allowed us to make a minute examination of some twenty-eight seedlings, the whole of which have been raised from *Solanum Maglia*, crossed with pollen obtained from one of Fenn's Seedlings not yet put into commerce. We venture to think that a more remarkable variation from but one cross has seldom, if ever, been made, as will be seen on reference to the statistical table annexed. The tubers range from the size of Peas to that of a fair usable size, and are of all colours and shapes, smoothness and roughness of skin, to suit all tastes. *Solanum Maglia* has for a long time been grown at Kew, but till Lord Cathcart suggested to the Messrs. Sutton the desirability of obtaining the wild, or native Potato, with the view of raising varieties with a vigour of constitution that should effectually resist disease, very little account was taken of it; consequently, for lack of proper cultivation, the tubers never attained a size larger than marbles. Cultivation has, however, produced in it size, and, though coarse in appearance and dull red in colour, the quality

of its flesh is equal to that of some of our cultivated varieties, whilst its vigour and productiveness render it, in every way, a desirable variety for the hybridist to work upon, apart from the question of its being the natural wild Potato, which alone is the reason for selecting it in this instance. Again, the question arises as to the parentage of our British Potato, and in the endeavour to settle this matter the Messrs. Sutton obtained seeds of the wild *S. tuberosum* from Prof. Dyer, and from which thirty-six plants were raised, the whole produce of the thirty-six plants being sixty-eight tubers, weighing in all but  $1\frac{1}{2}$  oz. A tuber of the same was received from the College of Pharmacy at Philadelphia, which was discovered by Prof. Lemmon, on the Huachuea Mountains, at an elevation of 9000 feet. The produce of this tuber was several very small and apparently worthless tubers, and in neither case was it possible to obtain a cross with any of the cultivated forms of the Potato, and both proved to be identical in habit of growth, the haulm being of a weakly spreading habit, of the weediest description, and though given exactly the same cultivation as *S. Maglia*, not one of the new tubers was larger than the one first received from Philadelphia.

ANOTHER REMARKABLE INCIDENT in this connection is, that though all attempts at cross-fertilisation with the cultivated Potato proved abortive, crosses were easily effected between *S. tuberosum* and *Solanum Dulcamara* (the Woody Nightshade) and *S. nigrum*—facts that leave no doubt as to the wild origin of the seeds and tuber of *Solanum tuberosum* that Messrs. Sutton obtained from the sources named. But now comes, as has been already stated, the most difficult and vital part of the question, viz., whether it is from *S. tuberosum* or *S. Maglia* that our present race of Potatoes originally sprang. After careful examination of the results obtained by Messrs. Sutton from *S. Maglia* and their failure to effect a cross with our Potato and *S. tuberosum*, as also the sickly, uneatable appearance of the tubers of *S. tuberosum*, and of such as have been raised from crosses with *Solanum Dulcamara* and *S. nigrum* and, last, the obstinacy which all these manifest to increase in size, there can be little doubt that *Solanum Maglia* ought to have the credit of being the parent plant of our present race of Potatoes. With the object that the Messrs. Sutton had in view in undertaking these experiments, this is the very opposite of the conclusion to which we would like to have arrived, because if our stock did originally spring from *S. Maglia*, the native habitat of which is moist—the conditions that most favour the disease in this country—we can hardly expect that the re-introduction of the same tuber will have the desired effect; yet there is a ray of hope in the consideration of the fact that the disease is, comparatively speaking, of recent origin, and a fresh start from the foundation (the wild Potato) may

perhaps rid us of the disease for a time, if not altogether. At any rate, the prospects, if gloomy, are worthy of a trial, and everyone with the nation's welfare at heart, and especially hybridists and practical gardeners and farmers, will join in hearty thanks to the Messrs. Sutton for the very difficult, interesting, and, before completed, most expensive experiments they have undertaken, and are doing with that thoroughness that characterises the whole of their proceedings. Having given our reasons for surmising that *Solanum Maglia* is the first parent of the Potato now in use, it only remains to give a few details as to the raising of seedlings and the cultivation adopted by the Messrs. Sutton. The seeds were all sown on a slight hotbed in March of the present year and were planted out side on a warm border on June 11, the sets being a yard apart in the row, and the rows 4 feet asunder, and with the view of obtaining the best results, the haulm was tied to sticks as growth proceeded, and varied in height from 12 inches in the case of some varieties to 70 inches in that of others, the latter height being a most unaccountable freak, when it is remembered that neither *S. Maglia* nor Fenn's Seedling Potato, from which the pollen was obtained, ever produce a greater height of haulm than 50 inches. It might be expected, that if left to mature, the number and weight of tubers would be in proportion to this extraordinary growth, but only in one or two instances was this the case, as will be seen on reference to the accompanying tabular statement.

SOLANUM MAGLIA HYBRID POTATOES.

No.	Height of Haulm.	When Lifted	Weight of Produce.	No. of Tubers.	Colour of Tubers.
1	12 inches	1885 June	19 grains	6	brown
2	12 "	August	6 "	5	white
3	12 "	"	11 "	4	"
4	12 "	"	11 "	4	"
5	18 "	"	3½ "	50	pink
6	18 "	"	4 "	11	white
7	18 "	"	4 "	17	brown
8	24 "	Sept. 22	11 "	27	red
9	54 "	" 22	10½ "	28	white
10	60 "	September	7½ "	15	"
11	12 "	"	5 "	25	brown
12	48 "	"	13½ "	30	white
13	69 "	"	2 lbs.	61	"
14	54 "	"	1 7½ "	43	dark red
16	48 "	"	1 10½ "	54	white
17	30 "	"	1 5½ "	83	"
18	30 "	"	1 1½ "	28	"
19	62 "	"	2 12½ "	44	blush
20	36 "	August	10 "	39	pink
21	18 "	"	4½ "	25	white
22	75 "	Sept. 22	1 9½ "	20	"
23	42 "	August	11 "	99	"
24	30 "	"	8 "	5	pink
26	30 "	September	6½ "	9	brown
27	70 "	"	1 2½ "	11	white
28	30 "	August	3½ "	17	"

These were, as has just been stated, all sown in March last, and planted out on June 11.

By way of comparison, seeds obtained from cultivated Potatoes, several varieties, were sown at the same time, as were the seeds of *S. Maglia*, and as showing the exceptional vigour and productiveness of *S. Maglia* over any of these, the tubers of most of the *Maglia* hybrids are about six times as numerous, and in size the proportion is still greater, for while none of the Potato seed



lings are larger than a marble, there are many tubers of Maglia of a fair cooking size. The pleasure derived from an inspection of the whole of the hybrids, some of which are very nandsome and look like being of high quality, has raised to a high pitch our expectation that good will result from the experiments in question.

### ROOTS CROPS IN WINTER.

A GOOD supply of roots is of the utmost importance; indeed, they are as necessary as green crops and more convenient, as, should severe weather occur and destroy Broccoli, Brussels Sprouts, &c., roots, if properly stored, will be quite safe, and add to one's supply of vegetables in a very satisfactory manner. Potatoes must always be regarded as the chief amongst roots. Care is needed in storing them, but if perfectly dry at that time little or no decay will follow, especially if kept perfectly dry and away from frost. Damp is injurious to them. I have sometimes seen fine sound tubers put into pits in the open ground at this season for spring use, but when spring came and they were opened, it was found that the wet had penetrated to the tubers, and general decay had been the result. It is owing to the danger of this occurring that Potatoes pitted in the open cannot be too well thatched at storing time, and, apart from this, we prefer a house for them in winter, if possible. When under a good roof they are sure to remain dry and a quantity of hay or straw thrown over them will always exclude light, and prevent the tubers from becoming green. When under cover, too, they can always be turned over and examined on a wet day or at any time—a great advantage. I know there are many who have no sheds for Potatoes, and outside they have to go; nevertheless, so long as they are fully and thoroughly protected there is no great objection to the system. Really late-keeping Potatoes seldom decay after this time, and if examined and the sound ones stored now they need not be disturbed again for many weeks. Kidney varieties and any which are more adapted for early than late use should be used up before the late ones are begun. The early ones may not decay as winter advances, but they will shrivel and lose a good deal of their flavour.

**ONIONS.**—These are in great demand in winter. In fact, they are in daily use, and must be had. They are not extra large this year, but firm and grandly matured. The weather was excellent at the time when they were lifted, and when that is so they are sure to keep well. Where taken in roughly to be cleaned on wet days, proceed with that work and finish storing as soon as possible. Any with thick necks, or that made a second growth, and which seem to be almost in two, should be put on one side for immediate use, as they will not keep until spring. Others of large size may also be placed amongst these, and it is only medium-sized bulbs of good form

and great soundness which should be stored away for use in spring and early summer. The common white Spanish types are tender, and not such long keepers as Bedfordshire Champion and James's Keeping, which should always be left to the last. We rarely rope any of our Onions; they look well in this way, but that is all. They keep equally without tying, simply laid out in a thick layer on shelves, or on the floor of a dry cool room or shed. Properly stored Onions do not decay readily. Ours hardly ever fail in that way until they begin to grow, which is not until April or thereabouts.

**TURNIPS.**—Some think none but white Turnips should be used at any season, but I am glad to say I know of some who also like Swedes and yellow Turnips in winter, thus making it easy to keep up a supply of this useful root. White Turnips are the most tender, and often perish wholesale in times of severe frost. Swedes are exceedingly hardy, being rarely injured by frost, and, in my opinion, their sweet mellow flavour in winter is very much superior to that of any of the white varieties. Swedes may be left in the ground and be drawn up daily as required when severe frost is likely to occur, or a few wheelbarrow-loads may be put under cover for convenience. The yellow Turnips of the Orange-jelly type are also very hardy, but we do not like them so well as Swedes. White Turnips fully grown now will not remain sound very long, and ought to be taken up and stored in a cool outhouse.

**CARROTS,** as we all know, are of the utmost importance; they are indispensable, and must be treated accordingly. Those sown in August will be growing now, and may be left in the ground and taken up as required, but spring-sown crops now fully developed should be stored at once. As in the case of Onions, we sort these. If scarce, as they may be should some of them have been destroyed by grubs, all kinds are saved. The very small ones are better than none, and those which may be split can be used for some purposes; these are sent in first, as the best and soundest will keep longest and should be reserved for spring use. Those intended for use from now until Christmas need only be put in a heap in a corner of a shed and have a little straw or hay thrown over them, but the spring ones would shrivel if treated in this way before the time came for using them; these, therefore, should be cleared of soil or leaves which may be adhering to them, and put in a shed or cellar in layers one on the top of another, with sand, ashes, leaf-soil, or earth between them. The packing material, whatever it may be, must not be quite dry, as this would extract moisture from the roots; on the contrary, it should be slightly moist, although not approaching an adhesive character. When the very best and soundest of the roots are stored by themselves it will be a long time before any of them decays, and probably the first atten-

tion they may require will be rubbing the young growths from the crowns in spring.

**BETROOT.**—This is not grown in every small garden, but it ought to be, as it is very acceptable and useful, especially in winter. The roots should be taken up by the beginning of November at the latest, and on taking them up care must be taken not to break or bruise them. The secret as regards preserving Beetroot sound is never to break the skin or allow the juice to escape. For this reason the leaves should not be cut in close to the crown, but should be allowed to remain 3 inches or so beyond it. No attempt must be made to cut off any of the small fibres, as although these may not be of any use, they should not be disturbed until after the roots are boiled. We store our Beetroots in a heap next to our Carrots, and treat them exactly like the Carrots as regards putting material amongst and over the roots. The Turnip-rooted Beet is useful early in spring, as it grows much faster than the ordinary sort, but it is not so good to keep until spring or summer as the long varieties, of which Dell's Crimson is a fine type.

**PARSNIPS.**—At one time we lifted all our Parsnips in autumn, but we found that they were liable to shrivel before spring was far advanced, and now we allow them to remain in the ground all winter. They keep fresh and sound until March, and after that they are not much required. During very frosty weather it is sometimes difficult to get them up, but a little forethought will enable anyone to store a few at such a time.

**SALSAFY AND SCORZONERA** are treated like Parsnips. We have found them to remain sound in the ground until April, when they begin to grow again and become tough. Shallots and Garlic are kept with the Onions. Radishes are allowed to remain in the ground where sown and are drawn up as required. In severe weather a little straw or Bracken is thrown over them, and sometimes we place bent sticks over them hoop fashion, and put mats over them by way of increased protection. CAMBRIAN.

**Diseased Cucumbers.**—I should be glad if you could tell me what is the cause of my Cucumbers dying at the ends; the plants themselves seem in excellent health. They were put in about the middle of July, and are growing in a very good house running from north to south. The border consists of good soil about 8 inches deep, with ample drainage. One side of the house was planted with Melons, the other with Cucumbers, but I have now cleared out all the Melons. I may say that I have grown Cucumbers very successfully for years, and have never seen them go off in the manner in which those sent for inspection have done.—S. T. W.

\* \* Amongst the many cases of diseased Cucumbers which we have examined we do not remember having seen a case like yours before. In the examples sent the flowering end of each young Cucumber has perished—softened, blackened, and collapsed; the diseased end resembles a brown rotten snout an inch or two in length. The interior of the diseased ends is one mass of fungus mycelium, mixed with innumerable minute elongated spores. Outside the diseased parts the fungus known as *Polyactis vulgaris* in some examples whitens the surface. The injury was, no



doubt, commenced at the time of flowering, but how we cannot say. The fungi are probably after effects rather than causes. As the fruits are swarming with disease germs, they should be carefully removed and burnt. Has any other correspondent of this paper observed an identical case?—W. G. S.

The effects of the drought are now beginning to show themselves, and especially in the case of vegetable crops, such as Turnips and Spinach, which are now very scarce. The usual space was sown, but owing to the dry weather the seed could not vegetate. Salading is also small in size and late. The usual plantations of Broccoli to come on in spring are in many cases so small through drought, but also through the prevalence of a low temperature for the time of year, that there is not much prospect of their coming to a suitable size to stand the winter. If we should get a spell of hard frost before Christmas, I fear the supply of open-air vegetables will be very scarce next spring.—J. C. C.

## WORK DONE IN WEEK ENDING OCT. 27.

### OCTOBER 21.

Fine. Completed weeding of Asparagus plots, earthed up winter greens, and stored away what Carrots it is intended to house till the weather is likely to be so severe that to leave them in the ground would prove injurious. Other kitchen garden work has been the trenching of borders preparatory to planting Apples and Pears, newly dug turf being added to the old soil in lieu of manure, the quantity given being about the same proportion to what we should consider a good manuring. Sweeping and raking up of leaves is now a daily part of our labour. Indoors, Chrysanthemums are now our greatest anxiety, as necessarily for want of space the plants are overcrowded, so that watering and turning about of the plants gives us a large amount of labour. As the plants come into flower this difficulty will be ended by the plants being drafted out for house and conservatory decoration. Part of our plants we are forcing on by the application of a little fire-heat, and others we are retarding by keeping them in the latest Peach houses, which is about equivalent to being outside, and by this means we get an extended season of flower. Our most showy decorative flowering plants now are tree Carnations, Bouvardias, and Pelargoniums. A temperature of about 60° and a rather dry atmosphere is needed to keep them in continuous flower and to prevent flower or foliage being injured by damp. Indeed, damp at this season of the year must be as much guarded against as frost.

### OCTOBER 22.

Heavy rain and wind during the night brought down the leaves; so all our outside hands have to-day done nothing else but rake and sweep up, and as the leaves are required for immediate use in forcing pits, we are rather glad to get a quantity together so early in the season. Work indoors has been picking over and arranging flower garden plants, in as little space as the well-being of the plants will admit of, stock plants of tender kinds being stood on shelves in Pine stoves, and the hardier kinds in vineries and Peach houses that are now at rest. The frost still keeps off, and many flower garden plants are still most effective, but as frost is sure to come soon, we keep on lifting a few of the more important plants, particularly such kinds as we have failed to get a young stock of. Put a few Roses in to force and the first lot of Deutzias, Rhododendrons, and Spiræa japonica. A pit having but one flow and return pipe, and which without difficulty can be kept up to a temperature of from 55° to 60°, is a capital place to start them in. A bed of Oak leaves will be made up in the said pits as soon as the leaves can be got together, and the heat thus engendered renders fire-heat all but unnecessary.

### OCTOBER 23.

Rain without a moment's cessation (0·97 in.), all outside work quite at a standstill. Finished the arranging and labelling of Apples and Pears in fruit rooms and washed doors and floors. The Apples now in use are, for kitchen, Cellini Pippin, and, for dessert, the Kerry Pippin. Pears now in are Fondante, Van Mons, Beurré Bosc, St. Michel Arch-

ange, and Marie Louise. Plant cleaning, washing pots, and making boxes in which to plant the old plants of Pelargoniums, &c., that must shortly be lifted from the flower garden. Cut out decayed berries in late vineries and cut back a few more of the longest lateral growths to let in more light and air to the fruit. Fire-heat is kept on whilst the weather is so damp, and as a matter of course the ventilators are left more or less open the while. The remainder of Black Hamburg Grapes from one of our largest vineries has been cut and put in Grape room, and the Vines have to-day been partially pruned and the house thrown wide open. A large tree in our second Peach house having grown too strong for us to feel confident as to its fruiting satisfactorily, has to-day been root-pruned by digging a trench right round it at 4 feet from the stem, and after cutting the roots clean back at this distance, the trench was filled in with the same soil and the whole border surface mulched. This, we expect, will have the effect of inducing it to fruit as we should like it to do.

### OCTOBER 24.

Rain again, more or less all day long, and though we tried to do some cleaning up we were compelled to desist, and to recommence the same description of jobs as yesterday. Besides which, there being plenty of spare hands, the houses were extra well done as regards re-arrangement and picking over of plants, washing the pots, and the like. Sponged the leaves of Dracænas, Crotons, Palms, and Gardenias, and now that the Grapes are all cut from the Vines, under which are planted-out Camellias, these have been thoroughly washed by syringing and the border watered. Some of the plants are already flowering freely, and all are full of buds, and as vigorous as any plants could possibly be, showing plainly that the shade of Vines is rather beneficial than otherwise. Began to prune trees in second Peach house; very little is needed, but every shoot is loosened from trellis and examined separately, long, budless, cankered, or otherwise injured shoots being cut away, and if, when tying, the shoots seem likely to be overcrowded, other, and maybe good, shoots are cut out.

### OCTOBER 26.

Last evening there was another heavy rain and a strong south-westerly wind, so that all hands have again been employed in raking up, carting away and stacking leaves for use in forcing and Pine pits. Gathered the last of the Pears—Ne Plus Meuris and Bezi Mai; the first-named is sometimes good for dessert, and always first-rate for culinary use; the latter never rises to the dessert stage, but is one of the very finest for stewing, and the tree never fails to produce a heavy crop. The flowers, I think, are as hardy as the fruit itself, for I have never known them to be cut with frost. Work indoors is mainly propagating and getting every description of plant that will not stand frost packed as closely together as possible, due regard being had to appearance, or, rather, neatness, notwithstanding such inevitable crowding together as always more or less happens in most places at this time of the year.

### OCTOBER 27.

Being fine, we took advantage of the day to finish up the renewal of our Pine beds with leaves, a little long litter being added just to start fermentation. Potted a few suckers, and top-dressed with a little fresh loam all small plants that were rooting on the surface. It is too late to give them a shift into larger pots, though some of them ought to have been shifted; but in lieu of this, we shall take pains that such plants do not suffer for want of water, otherwise premature fruiting would be a certainty. We shall pot them into fruiting pots about the middle of January, and expect them to succeed the first lot of Queens that will show fruit by the beginning of the new year, and ripen their fruit from May onwards, and be closely followed in July and August by the plants just now top-dressed, and which in turn will be succeeded by a batch of Smooth Cayenne early in the autumn, most of the latter being already in their fruiting pots, as this variety—from the sucker stage—takes from two to three months longer to mature its fruit than does The Queen. Soil digging for fruit tree planting, and cutting turves of short Heath from common, that are to be used as a groundwork or

setting for small shrubs in the flower-beds that are now being cleared of summer-flowering plants.

PLANTS.

## HARDY FRUITS.

*Pruning and nailing.*—Where fruit trees are extensively grown, pruning and training forms a heavy item in the autumn and winter routine, and trying work it is when the feet are chilled with snow and the fingers bereft of feeling by constant contact with cold iron. And yet these operations must be performed, generally by young assistants whose slender incomes barely suffice for food and comfortable raiment. But why put off this work until the earth has lost its summer warmth, when nearly every kind of well managed fruit tree is fit for pruning, if not for nailing, in October and November, when, with some degree of comfort, a man can do more in one day than later on he can do in two?

### CURRENTS

on north walls may now be pruned, washed with soapsuds and nailed in, provided the walls are sound and clean; if otherwise, and infested with Moss, the latter as well as the trees will be the better for scrubbing down with a wash composed of soot, lime, and a little common salt, mixed together in a large tub, and allowed to stand until the water is clear. A cheap home-made wash of this kind should always be kept on hand, as it is an excellent thing for use on the stems of old Apple and Pear trees, which in course of time get covered with Moss and Lichen, forming the best of all breeding and hiding grounds for destructive insects. When the Currant trees and walls have been cleansed, remove all leaves and prunings, likewise a few inches of the surface soil and mulching to the refuse yard, and let it be burned to destroy the larvæ of insects which prey upon the wood and leaves. Dust the border with quicklime, and give the roots an equivalent to that removed in rich top-dressing.

### PLUMS AND CHERRIES

will be the next, if taken in the order of ripening and shedding their leaves, and as these occupy some considerable time, Apples and Pears will be fit for pruning by the time they are finished. In all cases let the walls and trees be well cleansed, and thoroughly clear the paths of leaves, prunings, and loose mulching, not only to get rid of insect pests, but also to expose the borders to the influence of frost during the winter. Take advantage of wet days, or rather turn wet days to account by keeping the men employed in the preparation of shreds, nails, ties, and stakes, in order that there may be no delay or traversing the walks in search of materials when the weather is fine. Look well to espaliers, remove all old ties and doubtful stakes, and replace them as the work of winter dressing proceeds. Espaliers are of old standing in this country, and are admirably adapted for small gardens, where every yard of room is of importance.

### RASPBERRIES

from which the old fruit-bearing canes were removed in September may now be overhauled; if trained to stakes replace all that snap off under sudden pressure, and tighten up the wires where modern trellises are employed. The thinnings from young Larch plantations make clean, desirable stakes, and look better than sawn timber. Having overhauled the stakes, thin out all weak and twisted canes, and secure the best to the stakes with durable ties. Some allow one stake to each stool, but where wood is plentiful three to each stool will answer better. These we place triangular fashion, a foot apart at the base and a little more at the top. All are cut off to one uniform height when two or three canes are tied to each stake, an arrangement which enables us to fruit a greater number of canes, while the division favours the free circulation of air and the upward ascent of the young growths. The tops should not be cut off the canes until the buds begin to swell in the spring, for the obvious reason that frost and wet being let into the pith are apt to kill back the canes, while their retention prevents the lower buds from swelling in mild winters to be cut off by late frost in low situations in the spring. Raspberry plantations should never be touched by spade or fork from the time they are planted until they are broken up and destroyed; but the first frosty morning after they are



dressed should be devoted to the application of a plentiful supply of rich mulching, not merely round the stools, but over every part of the ground. Plantations so managed soon become one impenetrable mass of surface roots which cannot be tampered with by the absurd practice of winter digging.

### FRUITS UNDER GLASS.

#### PEACH HOUSES.

If not already pruned, if the final trimming off of imperfect cuts can be called pruning, has not been performed in the early house, lose no time in getting the work finished; wash and cleanse the trees and structures in accordance with former directions, and push on the tying when unfavourable weather interferes with outdoor operations. Having tied in all the main branches, let the fruit-bearing shoots be spread out evenly, not less than 6 inches apart, over every part of the tree; always endeavour to protect the old wood from sunstroke by laying foliage-producing shoots above it, and avoid drawing the leaders straight for appearance sake by attaching pieces of matting to the points and securing them to the wires. If the roof lights have been taken off for painting and repairs, the heavy rains we have had will have penetrated through the internal borders; but if, on the other hand, they have not been removed, err on the side of safety by giving them copious supplies of water. If well drained, it is a difficult matter to over-water Peach trees, as we have recently proved during root-pruning operations on an open wall border where an unlimited supply from the hose had been given throughout the past growing season. Although the border had been heavily mulched and the soil is heavy and deep, we found the lower stratum drier than we expected or wished; but this defect has been corrected in time, and the newly-laid roots, aided by the ripening foliage, are now healing and recovering in properly moistened compost. Follow up pruning in succession houses as soon as the foliage has fallen from the trees, and complete all border operations in later structures, as the roots of healthy trees are never at rest, and the sooner this work is finished after the buds are up the finer will be the succeeding crop of fruit. As soon as this work is finished, fill up all vacancies with recently secured young trees. It may be that the space allotted to them will only suffice for one year's training, but young trees are improved by annual lifting, as the roots as well as the shoots are trained in the way they should go; moreover, trees that are formed and thoroughly ripened under glass make the best that can be secured for future forcing.

#### VINES.

By this time pot Vines will be resting on the pedestals or drainage ready for starting; early houses will be pruned and in an equally forward state, and, provided the roots are in a satisfactory condition as to moisture, they will not require further attention until the time arrives for shutting up for forcing. If during the month of November the fermenting material should at once be prepared for giving internal warmth and moisture, otherwise it will not be in the best possible condition for the purpose, as it is important that it be well worked and turned over to free it from noxious gases before it is taken into the house. Make a final examination of the internal and external borders to remove all doubt, as we have had two remarkably dry seasons, and it is just possible that a dry stratum of soil may exist where it is least expected. I say external advisedly, as I have recently found a layer of dry compost resting on the drainage of an outdoor border, through which all the rains we have had this autumn and thousands of gallons of water through the hose had not penetrated. Never, perhaps, in the annals of Grape culture have so many complained of mildew, notably in early and midseason houses, and it is more than probable they will have to repeat their complaint if the lower roots are not properly moistened. When this most of all dreaded of fungoid growths attacks late Vines, its origin can generally be traced to a low, damp atmosphere induced by cheeseparing economy in fuel and bad ventilation. Heat, fresh air, and sulphur generally save the crop of fruit, and a thorough winter dressing may banish the mildew for years or a lifetime. But when it attacks early Vines,

and springs into new life time after time, notwithstanding the application of heat, fresh air, and the usual remedies, the cause must be sought below the surface of the border, where, nine times out of ten, dryness will be found the moving power. Warm water in abundance applied at a temperature of 80° or 90° will soon cut off the cause by feeding and stimulating the roots, but it will not stay the effect; the mycelium once in active growth must be checked and killed by the application of sulphur or sulphide of potassium, a new remedy or antidote at once cheap, efficacious, and easily applied. One quarter of an ounce dissolved in a gallon of water makes a solution strong enough to destroy mildew, red spider and aphid without doing injury to the most tender leaf, and, although poisonous, it may be allowed to run down the stems of the Vines into the borders with impunity. Grape growers who have had such a virulent enemy to battle with in early vineries will have applied the most approved modes of cleansing and dressing, but if they have not satisfied themselves that every particle of soil in the borders and under the front arches is thoroughly moist and favourable to healthy root action, let them lose no time in doing so. If, as is not unfrequently the practice, the prunings from early Vines that have been touched are saved for propagation, they should be cast into a tub of the solution of sulphide of potassium for an hour or two before they are laid in for future use, for so subtle and destructive is the oidium, that it would be cruel in the extreme to allow anyone to use the cuttings before they are cleansed.

Eastnor Castle, Ledbury.

W. COLEMAN.

### NOTES OF THE WEEK.

**Vanda Sanderiana.**—A flower of a fine variety of this new Orchid cut from a spike of seven has been sent to us by Mr. G. W. Law-Schofield's gardener, Mr. Wise, of New Hall-Hey, Rawtenstall. It is a remarkably fine bloom, being so symmetrical in form and of such a rich colour. We shall hear, no doubt, of numerous good varieties of this Orchid flowering in different collections.

**Aberia caffra.**—This South African fruit has, as I see in a contemporary, been grown and fruited in England for some years by Lady Dorothy Neville both at Dangstein and also in her Sussex garden. This is most interesting, as when I sent my last note in reference to it to THE GARDEN I was under the impression that its fruiting at La Mortola was a novelty in Europe.—F. W. BURBIDGE.

**Apothecaries' Garden, Chelsea.**—This old established institution has for its primary object, as it has had for the last 200 years, the teaching of botany to medical students, and latterly also to young persons in training for governesses in public schools. We learn that during the present year the number of visitors, mostly students, has been 2784, of whom some 1200 were males, and the remainder females. The society gives annually a gold and also a silver medal, in both classes of students, to those who pass the most creditable examinations.

**Veitch Memorial Prizes for 1886.**—We learn that the trustees of the Veitch Memorial Prize Fund have decided to offer next year the following prizes, the dates for which and other necessary particulars will shortly be announced: At Stoke-on-Trent, a Veitch Memorial medal and £5, for a group of Orchids with Ferns intermixed. Also at the same place, a Veitch Memorial medal and £5, for a group of miscellaneous flowering and foliage plants. At Exeter a Veitch Memorial medal and £5 (subject not determined). At the Royal Botanic Society, Regent's Park, a Veitch Memorial medal and £5 for twelve *Amaryllis*. At the Royal Horticultural Society, South Kensington, a Veitch Memorial medal and £5, for a collection of forced salad plants.

**Rudbeckia californica.**—Although this variety is not so generally cultivated as *R. speciosa*, it is, nevertheless, a very useful plant; it is well adapted for planting at the back of herbaceous borders, or near the front of shrubberies. It grows to a height of from 5 feet to 6 feet, and produces a plentiful crop of bright yellow flowers for at least three months during the autumn. The flowers are very useful for cutting

purposes, and have the merit of lasting a considerable time in water. It is now in bloom, and has been for the last three months.—E. B. L.

**Tropæolum pentaphyllum.**—Of this rarely seen plant Mr. Tillet, of Sprowston, Norwich, sends a beautiful gathering of flower-sprays, and with them the following note: "*Tropæolum pentaphyllum* is, I think, one of the most beautiful of hardy climbers. It grows and blooms luxuriantly on an east wall in our garden. It is cut hard, but you will see there are still a good many blooms. In the height of the season some weeks ago it was a sheet of colour, which when the sun was shining on it was very striking. Its delicate foliage and graceful habit of growth are almost as interesting as the flowers."

**Tricyrtis hirta.**—I was sorry to see this old favourite of mine so slightly spoken of by "J. H. S." in THE GARDEN (p. 397). Both *T. hirta* and *T. nigra* make valuable plants for a cold house, and, barring sharp early frosts, bloom well in sheltered places when planted out; *T. nigra*, being at least a fortnight earlier in blooming than *T. hirta*, is the best for out-of-doors. We have sown seeds of *T. nigra* in the open. Some of the blooms of the seedlings have been like those of *hirta*. I had lately the pleasure of showing Miss North round our Oakwood garden; she fastened upon a *Tricyrtis* as one of the most interesting plants out.—GEORGE F. WILSON, *Heatherbank, Weybridge Heath*.

**The Tangiers Autumnal Narcissus.**—Messrs. Collins and Gabriel have just flowered the rare *Narcissus serotinus* (*Hermione serotina* of Haworth), an autumnal flowering sweet-scented species growing wild in Spain, through the south of Europe to the Barbary States, Greece, and Palestine. The plant grows in Spain in a red sandy clay soil, and throws up its naked flower-stalks immediately after the autumnal rains in September and October. The flowers appear before the leaves, which are rushy, like Jonquil leaves. Many plants have single flowers; some stalks have two, and I send a few three-flowered ones. The flowers smell very sweetly. It is the *Hermione Tangeri* figured by Herbert in his work "*Amaryllidaceæ*," t. 42, 6, 6. There is also a good figure in Burbridge's "*Narcissus*," t. 46, from authentic dried specimens in the Kew herbarium. It is an interesting little plant with white star-like flowers an inch across, having a shallow bright orange cup.—LEX.

**Testimonial to Mr. W. Ingram.**—It is proposed to recognise, by a suitable testimonial, the services of Mr. W. Ingram, which have been devoted to the science and practice of horticulture at Belvoir for the last thirty years. All who are interested in gardening, and have enjoyed the privilege of seeing the charming spring gardens at Belvoir Castle, will readily acquiesce in the propriety of a proposal that an acknowledgment, at least, is due to the author of a style of gardening that has tended so much to the increased cultivation of our most cherished hardy flowers, thus adding to the interest, and rendering our gardens more enjoyable in the early months of the year, which before the possibilities of spring gardening were demonstrated were often bare and cheerless. The following gentlemen have consented to act as a committee to carry out the above object, viz., Rev. Canon Twells, Rev. Canon Hole, Hon. and Rev. Canon Forester, Major Newton, Rev. Professor Blake, and Mr. H. Smith. Subscriptions for it may be sent to Mr. W. L. Emmerson, Hon. Secretary, Waltham-on-Wolds, Melton Mowbray.

**Late open-air flowers.**—In order to show us that alpine plants are still flowering, Messrs. Paul send from their rock garden at Broxbourne a gathering of numerous kinds now as fine as they were earlier in the season. The prettiest specimen is the trailing Knotweed, *Polygonum vacinifolium*, now in great beauty, being covered with spikes of rosy pink flowers. The elegant growth of the plant makes it specially desirable for growing in a rock garden, although it succeeds almost anywhere in the garden. The canary-yellow *Sternbergia lutea* is very fine this season, and with it comes the autumn *Cyclamens*, *C. græcum* and others. Among other noteworthy plants sent in bloom are *Erica Maweana*, one of the best of dwarf autumn Heaths; *Omphalodes Luciliæ*, which



seems to be almost a perpetual flowerer; *Veronica corymbosa*, *Androsace sarmentosa*, *Arnebia echioides*, *Campanula Scheuchzeri*, *Polygala Chamæbuxus purpurea*, *Bellium rotundifolium caeruleum* (the so-called Blue Daisy), *Sedum Ewersi*, and *Crocus Weldenii*, all of which are capital plants, worthy of being included in the choicest collections.

**Photographs of flowers.**—The annual exhibition of the Photographic Society of Great Britain, now on view in Pall Mall, contains many subjects which may interest our readers. There are photographs of flowers, trees, and landscape scenery of the highest merit. The subjects that most interested us were some exceptionally good photographs by Mr. Henry Stevens, of King-street, Covent Garden, who, as we have before stated, has devoted special attention for some years to flower photography. His subjects in this season's exhibition eclipse, we think, anything he has hitherto done; it is difficult to imagine how photographic illustrations of flowers could be better. There is a solidity as it were about them which looks like the real texture of the blooms. One subject is especially noteworthy, and as it has been awarded the society's medal, we may conclude that it is considered highly meritorious. It represents flowers of *Cypripedium barbatum*, intermixed in a beautiful way with Maiden-hair Ferns, *Fittionias*, *Cyrtodeiras*, and other fine-leaved plants. The flowers are represented quite life-size, and the texture is wonderfully developed. Mr. Stevens has also other flower subjects as well as portraits. Among other noteworthy matters are several glimpses of the river Mole, in Surrey, which are uncommonly picturesque. "On the Allen" (16) and "On the Greta" (17), both by Mr. J. P. Gibson, are also good. "Totteridge Ponds" (490) many would admire; "Wroxton Abbey" (351) is brought out beautifully soft; "Waterfall at Wharfedale" and a tree subject (92) are both excellent subjects, but "South Park, Wadhurst," is a good illustration of a bad style of landscape gardening. The grounds around the house represent the "embankment" style admirably. A good photograph of a ferny glade in Auckland, crowded with *Todeas* and other delightful New Zealand Ferns, makes one long to see the scene in reality.

**Nerines from Guernsey.**—We have received from Mr. Mansell, of Somerset Terrace, Guernsey, a beautiful gathering of various kinds of Nerines—Guernsey Lilies—which, as may be supposed, flourish to perfection in that island, where they are highly prized. A more valuable class of plants for autumn flowering does not exist and they are easy to grow. The colour of their flowers is either of extraordinary brilliancy, or of pleasing softness and delicacy, and they last a long time in bloom. No wonder, then, that so much attention is paid to them by those who know their real value; but, unhappily, few gardens possess them, and often it happens that the gardener has never heard of them. The flowers sent by Mr. Mansell are the following: *N. pudica*, flowers large, white, tinged or striped in the middle of each segment with deep rose; *N. crispa*, or as it should now be called *N. undulata*, flowers in a rather thin umbel, the segments narrow, recurved, undulated, and of a pale pink colour; *N. Planti*, an orange-tinted form of *N. sarniensis*; *N. O'Brieni*, sent as *N. elegans caerulea*, and which is a hybrid between *N. pudica* and *N. Planti*; the flowers are large, funnel-shaped, and have a tinge of blue running through the crimson-coloured petals. *N. atrosanguinea*, a hybrid from *N. Planti* and *N. flexuosa*; *N. sarniensis* var. *venusta*, which has been grown in Guernsey under the name of *N. flexuosa*, is the finest of the gathering. The colour of the flowers in this is a most vivid scarlet, quite dazzling to the eye. Mr. Mansell has succeeded in growing it very successfully, as the heads are larger and stouter, and the flowers are of more substance than we have seen before in this variety. It is very distinct from typical *sarniensis*, and should become a popular garden plant. Bulb dealers should note the name of this plant, and import it largely from Guernsey next year. With reference to what we said last week respecting the probable affinity of *N. Fothergilli* with *N. sarniensis*, we can only repeat our belief that there is no good character by which it can be considered specifically distinct from some of

the forms of the Guernsey Lily. Of course, there is some confusion in the nomenclature of the Nerines, owing to the want of reliable botanical information on the genus. We hope Mr. Baker's promised monograph of the bulb flora of the Cape will be soon forthcoming.

## FLOWER GARDEN.

### SPRING GARDENING.

THE time has again arrived for transferring summer bedding plants to their winter quarters and substituting something of a harder character to produce a display before the beds are required to be re-planted in May. Many spring-flowering plants are very beautiful when allowed to grow undisturbed, but the frequent lifting and re-planting of *Aubrietias*, *Alyssums*, and hosts of other things that should be allowed to grow into large masses in order to see their best effects, is never wholly satisfactory. A selection of free-flowering plants, such as Pansies and Violas, Forget-me-nots, and similar materials, should, therefore, be made for spring use; while for winter, shrubs of various kinds are really the most reliable of anything yet tried for giving a cheerful furnished look to the outdoor garden during the dark months. I have had ample opportunities of seeing spring gardening at Cliveden and in other good gardens; but in all cases the attempt to make many of the plants employed withstand frequent planting and re-planting utterly failed to produce anything like the effects of which they are capable when left undisturbed.

In gardens of any extent there is, however, generally space for both systems to have a fair trial, and during the present spring I came upon some beautiful effects produced by very simple and inexpensive means. Adjoining the well-kept lawns was a large space of undulating ground that had formerly been a brick-field; the surface soil having been piled up in irregularly shaped mounds for convenience of getting at the clay, the owner merely made footpaths in the hollows, and planted the highest elevations with shrubs, leaving the slopes for flowers. The latter were in great masses, and the effect certainly good, and without a tithe of the labour required under the usual lifting plan. Close to the walk one came upon colonies of *Gentians*, masses of lovely blue, and hard by were others of *Aubrietia purpurea*; then we had Primroses, and behind them *Lunaria biennis* and later-flowering plants, such as Foxgloves. In the highest and driest places were masses of rock Roses, and in dells in the low ground, where water stood in pools after heavy rains, were large clumps of *Osmunda regalis* and other moisture-loving plants. These grew in wild luxuriance; in fact, all seemed happy and at home; and I doubt not that if in many gardens where the plan of frequent replanting goes on year after year with but indifferent results some more permanent site could be found, many a bank, now overgrown with a tangled mass of shrubs or weeds, would with very little labour yield beautiful effects if cleared, broken up,

and planted with such things as do not well conform to spring bedding as usually practised.

Hardy bulbs, such as Daffodils, Snowdrops, and Crocuses, are beautiful in well-established masses, but when ranged in single file, like soldiers on parade, they are by no means effective. In a permanently planted garden the failures one constantly hears of in growing such plants as the common *Gentian* would vanish. Flowers like the white and yellow *Alyssums*, the lovely pink vernal *Phloxes*, or the white *Woodruff*, allowed to extend for years on rugged soil, would be most striking; even the commonest *Stonecrop* makes a grand display if left alone. The right thing to do is to give such lovely gems a good start by planting them in well-pulverised rich soil, and then allow them to take care of themselves. J. GROOM.

*Gosport.*

### GUNNERAS IN BATTERSEA PARK.

IN all the public parks of London there is not a more beautiful spot than that occupied by a group of fine-leaved plants to be seen on one of the lawns in Battersea Park, an illustration of which is given on the opposite page. Battersea Park, above all others, abounds in pretty features of this kind, for the most part created by the tasteful hand of the late John Gibson, to whom we owe so much in the art of true landscape gardening. Just the right spot was selected for a group of bold-leaved plants such as the *Gunnera* is. It lies almost in the middle of a broad sweep of lawn in a little hollow, where, no doubt, the surface water collects, keeping the ground moist in which such plants as this and others delight. The group itself is picturesquely arranged. The *Gunneras* are not planted in one mass, but they are made to extend lengthwise, so as to avoid a lumpy look, and it is this breaking up of the mass that makes it so beautiful. Other plants mixed with the *Gunneras* harmonise with them, and near them are noble specimens of the hardy *Bambusa Metake*, which thrives uncommonly well in this park. From early summer, when the huge leaves of the *Gunnera* are pushing up, till late in autumn, when cut down by frost, this identical group is admired by all visitors who have an eye beyond scarlet *Geraniums* and carpet beds. This part of the park—the lawn whereon is placed this group of *Gunneras*—is to many the most beautiful. There is a repose about it which does not exist in other parts. There is not too much colour, as a rule, in summer, and the trees are allowed to sweep the turf in a natural way. If we could concentrate all the beautiful spots in this park in one garden, with none of its blemishes, it would represent a perfect example of artistic landscape gardening. There is much progress being made, it is pleasant to note, in creating in it picturesque features such as this group of *Gunneras*, and which are greatly appreciated by many among the throngs of visitors that frequent this park in summer. W. G.

**Transplanting white Lilies.**—To other causes of failure in the culture of this Lily may be added that of moving the bulbs at the wrong time of year. Most people do not think of transplanting them till autumn is far advanced, but if removed so late they require a season or more to recover their normal strength. I happened to transplant some at the beginning of last winter; they looked tolerably



well until the dry weather came in spring, and then they died off, evidently not having sufficient hold of the soil to enable them to resist the drought. I think that as soon as the flower-stems begin to wither they should be moved, as they then become settled in the new soil before new roots issue from the bulb.—J. C. B.

### NEW GLADIOLI.

MR. GUMBLETON having discoursed upon Le-moine's hybrids, about which, as I have said, I do not very much care, and having grown a goodly number of the new hybrids of *gandavensis* raised by Souchet, Kelway, and others, an account of them may not be uninteresting to those who have watched the development of this grand autumn flower—a flower so valuable both for its beauty and for the length of time during which, from a small collection, a number of good flowers may be obtained; thus, I have to-day, October 9, cut three spikes which I should not be ashamed to put on to a stand for exhibition, and this after the beds, which do not contain more than 400 bulbs, have had flowers in them since the first week in August. There are still others to come out should the weather be favourable, but the continuous rains which we have now are very detrimental to their beauty. Of those of MM. Souillard & Brunet (M. Souchet's successors) I have the following notes: *Amitié*, a large well-opened flower, spike good, and the plant apparently vigorous; ground colour a flesh-coloured rose, difficult to describe; the lower petals are shaded with yellow, streaked with purple, and the edges flamed with bright rose; this, I think, is likely to be a valuable flower. *Eugène Souchet*, a fine rose coloured flower of great freshness of colour, with a large white blotch and white line on the petals; I hope it may prove worthy of the name it bears. *Ganymede* I do not particularly care for—either for the colour or character of the flower; the former is dull, and although described as rosy-carmine with amaranth sheen, I should myself be inclined to characterise it as slaty; the edges of the petals are said to be fringed. I did not observe this, but if so, I do not think it could be any recommendation. *Gordon Pasha*, a fine long spike of well-shaped and open blooms, ground colour rosy carmine, bright carmine blotch, edged with white; altogether a novel-looking flower. *Stanley*, a beautiful rosy salmon flower, somewhat of the colour of one of Mr. Kelway's—*Lord Darnley*; the colour is very fresh, flowers very open and expanded, petals flamed deep rose, centre of flower rosy yellow, a very bright flower of a pleasing shade of colour.

Of eighteen sent out by Mr. Kelway, I have only seen the following, viz., *Duchess of Albany*, a large rosy lilac flower, flaked with dark lilac; *Maori Chief*, a very striking flower, mulberry shaded with maroon, and a large crimson blotch on the lower petal; Mr. A. Jackson, rosy carmine, large blotch on the lower petal, a good sized flower of good substance; Mr. Stridinger,

flesh veined carmine, a very robust and sturdy flower.

I now come to some of Mr. Dobree's seedlings, which have been put into commerce by Mr. Campbell, of Gourrock, a well-known grower. These are *F. Bonamy Hankey*, a long spike of bright carmine flowers, with light centre, very hardy, and perhaps the forerunner of a hardier race less liable to disease; *Herby*, fine long spike of rosy carmine flowers well open, white lines on all the petals, and the centre light; *Jane Mary Dobree*, fine spike of large flowers, petals good shape, colour salmon-rose, a little inconstant, but when caught, very excellent; *Maggie*, a fine flower, good and best petal white, tinged at the edges with purple, and marked on the lower petal with the same colour; *Miss H. Pulman*, white, very slightly streaked with purple at the edges, a good flower and vigorous; *Soldier of Bath*, bright red, centre well lighted and streaked with yellow.

I have mentioned the name of Mr. Campbell, and I cannot do so without referring to the magnificent collection he exhibited on Tuesday last, October 13, at the Royal Horticultural Society's exhibition at South Kensington. It



A hardy fine-leaved plant (*Gunnera scabra*) in Battersea Park. From a photograph, September 1, 1885

attracted, and deservedly, universal attention, for whether the visitor was a connoisseur or no, such a display must have rivetted his attention. To see such a grand bank of flowers of such varied and brilliant hues in the middle of chill October was indeed a sight; and evidently there was much distraction between the claims of the splendid collections of Pears and Apples and this beautiful collection, while to the connoisseur it was simply wonderful that such a collection should be exhibited in the middle of October with flowers of such excellence and purity of colouring. Mr. Campbell, it is true, hails from the north, and consequently is a little bit later than we are, but then he exhibited equally well at the Crystal Palace on September 4. Unquestionably the character of the season has prolonged the bloom. I have myself cut good spikes later than I before recollect doing, and although heavy rains and frost have been against the blooms, yet (whereas in Mr. Campbell's case they were protected) the coolness of the weather was in favour of his being able to exhibit so well.

There were many of the spikes exhibited that had ten and twelve expanded flowers on them, and what I remarked on his exhibit at the Crystal Palace was true also here, that many of the older varieties, some of which I had myself discarded long ago, have shown in such excellent form that I must withdraw my veto and

take to them again. Amongst his finest flowers were *Adolphe Brogniart*, rose, tinted with orange; *Africain*, slaty blue on scarlet ground, large white centre, a remarkable flower; *Amalthée*, a very old flower, pure white tinted violet, with large violet blotch; *Baroness Burdett Coutts*, delicate lilac with rose, a very large flower; *Belladonna*, white, shaded with lilac; *Bicolore*, large flower, rosy salmon, lower petals ivory white, suffused with rose at the edges, a very remarkable flower; *Cameleon*, a flower of 1880 of which I thought little, but it was well shown, lilac, flamed orange, white lines, a striking flower; *Caprice*, bright rose, broad white bars; *Crepuscul*, long spike of well expanded flowers, but to my mind it is defective, owing to the flowers being too much one above another; *Delicatissimus*, white, flamed and edged carmine-lilac; *Dumont Durville*, long spike, bright cherry, pure white blotch; *Flamboyant*, beautiful spike, brilliant flowers of the very brightest scarlet, a very grand flower; *Hesperide*, white, striped with lilac and carmine, white blotch with violet streaks on it; *Lacépède*, rosy violet tinted with white striped lilac; *La Perle*, pure lilac; *Leandre*, lilac, slightly shaded carmine, white lines, large white blotch, very fine; *L'Unique Violet*, dark lilac, tinted violet, flamed with carmine; *Dalila*—there were some beautiful spikes of this lovely flower with ten expanded blooms, and it was wonderful to see it in such condition at this season; *Murillo*, rosy cerise, white lines, very beautiful; *Tour de Monde*, dark cherry red, white blotch spike somewhat too narrow. Mr. Campbell is not only to be congratulated, but to be thanked for affording lovers of Gladioli such a treat at this late season.

DELTA.

**Primroses.**—It may be very much a matter of fancy whether we call semi-Polyanthuses Primroses or not. I know very well that in common parlance all forms of the *Primula* family are termed Primroses, but I dislike this generalisation, because it conflicts with our common designation of a well-known and thoroughly distinctive member of a great family. Very often, indeed, have complaints been made that such and such strains of these spring flowers widely designated Primroses have proved disappointing, because the purchasers expected to find in them true Primrose habits; whereas the majority proved to have Polyanthus stems and scapes and umbels of flowers. For these reasons I prefer to call a Primrose a Primrose and a Polyanthus a Polyanthus. We must remember that the great mass of the people have but restricted ideas concerning plant nomenclature. We know to a certainty what a Primrose is and also what a Polyanthus is, but if all kinds and forms of Primulas are to be termed Primroses, people will naturally be bewildered. We speak and write of certain forms of *Chrysanthemums* as Daisies, but the popular mind knows no such nomenclature. To it the only Daisy is the "wee modest crimson-tipped flower" of the field and the double garden Daisy.—A. D.

—If the flowers figured in *THE GARDEN* (p. 374) are Primroses, I should like to know what are Polyanthuses, and by what distinguished. I grew for several years both forms represented in the plate alluded to. They were raised from seed supplied as Polyanthus seed, and they were always looked as



Polyanthuses and so called. I have seen Primroses with two or three flowers on a stem, but I never knew that character fixed in any of them, nor do I desire to see any change in the form of the Primrose. In its normal state it is beloved by all, and any attempt to alter it would be a step in the wrong direction.—J. C. C.

### SUMMER CHRYSANTHEMUMS.

THESE are becoming favourites, and, indeed, they deserve to be grown in all gardens, being easily managed and exceedingly showy. They require no more attention than Phloxes, with which and other hardy plants they well associate. The year before last we had only a few of them, last year they were increased, this season we have more still, and I intend to further increase their numbers. They will not be confined to the flower garden; on the contrary, quantities of them will be planted about the kitchen garden borders and in the shrubberies. In such positions they are very showy and give no trouble. Our varieties consist of the best of those now known as summer and autumn-flowering sorts, and if I have a favourite amongst them, it is Madame Desgrange. This attains a height of 15 inches or 18 inches, produces very strong stems and bushy heads of buds, which expand into flowers from the middle of July until November. The blooms are of a good size, pure white on the outer petals, and yellowish white in the centre. This dwarf, free-flowering character is the type of whole lots of this class of Chrysanthemums. We had excessive heat and drought in the summer time, but our plants of these never flinched. Lately, we have had a great deal of wet, and still they bloom and bloom as brightly and freshly as ever. Calceolarias are quite over, but not so the yellow Chrysanthemums. The latter are a capital substitute for the former. When they finally stop blooming, we simply cut them over close to the ground, clear away all the refuse, and allow the roots to take care of themselves throughout the winter. It will be noticed that there are some young shoots coming up from the roots now, and these should be allowed to remain. Many more will come up in the spring, and it is these which should be taken to increase the stock. We lift each piece carefully with a root attached to it, and plant it in its flowering quarter without any of the taking under glass, or boxing or potting off, in a general way accorded to flower garden plants.

CAMBRIAN.

**Sternbergia lutea.**—This has been in flower with me against a brick wall facing the south for the past month. I find no difficulty in flowering it; at Mr. Gumbleton's, Belgrove, Queenstown, it also seems to succeed and increase. When there last November I saw great patches just going out of bloom. On referring to Parkinson's "Garden of Pleasant Flowers" I find (p. 75) three varieties illustrated. One called the Persian Daffodil (*Sternbergia lutea*, according to him, is *Narcissus autumnalis major*) and the other two the lesser and greater winter Daffodils. The major variety is pretty common, being offered in nearly every trade list of bulbs, but the latter, which we call *Sternbergia angustifolia*, I never yet have seen catalogued. It is much more dwarf and later in blooming, and can be seen only in botanical collections. It succeeds admirably with me; a large bed containing over 2000 bulbs, against a south wall, just now is producing hundreds of bloom. Here in the south of Ireland there are numbers of delicate subjects in the way of bulbs which we can bloom and mature to perfection. White and yellow Hoop Petticoat *Narcissus*, *N. juncifolius*, *rupicolus*, and triandrus I have planted in the same position, and they bloomed in perfection, with the exception of the

white *Bulbocodium*. If the latter succeeds, I shall have something to say about it in the spring.—W. B. H., *Temple Hill, Cork*.

### AUTUMN KNIPHOFIAS.

LATE-FLOWERING Kniphofias or Tritomas are just now at their best, and a grand show they are making. The majority of them, for we have now something over a dozen different forms of *K. aloides* (*Tritoma Uvaria*) alone, are long since past; it is, therefore, most advantageous to have others coming on in succession to fill up the gaps exactly when most wanted. Many prefer to have early and late kinds in the same clump, and in gardens of limited area this may not be altogether amiss, but where other things have to be taken into consideration, late-flowering varieties may be quite out of place after the plants that helped to give effect had become unsightly. Where possible Kniphofias should have a dark background, such as that afforded by a Yew or Evergreen Oak in order to set them off to advantage. They are also more useful for planting underneath trees than people are aware of; even in the vicinity of Elms they flower exceedingly well, unmindful apparently of the matted Elm roots amongst which they are set. Of course where well treated, and the number of flower-stalks limited, much larger and better coloured flower-spikes are the result. They may be increased to almost any extent by division, but they may be also raised from seed, and in that case the chances are always in favour of something good being produced, especially if different sorts have been growing close to each other. The distinct species described number fourteen, and of these probably not more than six are to be found in gardens; and, indeed, five would almost comprise them, as *K. Rooperi* is no more distinct from typical *K. aloides* than many of its varieties are, notably *K. aloides* var. *nobilis*, an early-flowering kind of special merit. *K. aloides* and its many varieties, of which *nobilis*, *grandis*, *erecta*, &c., are amongst the best, are in full bloom at the present time. The varieties just named, and others, including *Rooperi*, differ from the type chiefly in their time of flowering. I have watched them for over half-a-dozen years, and have not found them to vary in the slightest degree in this respect. It is, therefore, no freak depending on the season. *K. Macowani* is, perhaps, one of the most interesting of the group; it differs widely from all the others in its segments being recurved and set at right angles with the tube. It grows about 2 feet high, and has narrow, Grass-like leaves, bright green and smooth, not unlike those of *K. pumila*. The flowers are arranged on loose spikes about a foot long. They are yellowish and bright orange-red. This Kniphofia is perfectly hardy in our gardens, at least in the south, and will no doubt prove hardy in the north if surrounded with loose litter, as is done in the case of Globe Artichokes during severe winters. It is a native of the Boschberg Moun-

tains, at elevations of from 4000 feet to 5000 feet. It is the *Tritoma corallina* of gardens. *K. Leichtlini*, named in honour of Max Leichtlin, of Baden-Baden, who introduced it four or five years ago, is a dwarf species like the last, distinguished by its obtuse spikes and sessile flowers. Though a native of Abyssinia, it is perfectly hardy with us; it thrives best, however, in a sunny spot in rich, light soil. *K. Burchelli* is a robust species, not unlike some of the forms of *K. aloides*, but differs in being lax in habit and in other minor details. It is a most useful plant at this season, being now as beautiful as the common one was a month ago. *K. comosa* is a very rare species, more curious than beautiful; it has a short, inconspicuous flower-tube, beyond which the stamens are exerted more than an inch. *K. foliosa*, or *Quartiniana*, is also a native of Abyssinia, but apparently from a lower elevation, as it always gets partly destroyed by frost. It commences to flower now, and, but for severe weather, would probably continue for a month in full bloom. K.

### SEEDLING DAFFODILS.

MR. BARR'S contribution to this discussion (pp. 424 and 425) seems to leave it very much where it was. That most of Leeds' Daffodils were seedlings is probable enough, as has already been granted, but it is scarcely proved by Mr. Barr's argument, which contains that curious assumption of his with which we are so familiar. To reason, as he does, that the Longford Bridge flowers were seedlings because among them he can find only three of Haworth's plants, is to say that all Daffodils not described by Haworth must be novelties raised since his time. Mr. Barr holds with strange tenacity to the belief that Parkinson and Haworth knew all the wild and garden Daffodils which existed in the world in their times, and if a new variety comes to light he always tries to force it to fit one of their empty, but labelled, pigeon-holes. The truth seems to be that Haworth for the most part followed Parkinson, taking him largely on trust, and did comparatively little in the way of searching for living plants. But Herbert made extensive enquiries about Daffodils not only at home but also abroad, and is exceedingly likely to have collected forms unknown to these older writers, and to have passed them, together with his own seedlings, to his contemporaries or successors. According to Mr. Barr's reasoning, if such Daffodils as Sir Watkin, *spurius coronatus*, or some of the Irish forms of white Ajax, which were certainly unknown to Haworth, had appeared in the Longford Bridge collection, their presence there would have proved them to be new seedlings.

Mr. Barr would, perhaps, ask why, if some of these "new hybrids" are only old garden forms, can we not still match them in old gardens? One answer to this is, that it is precisely in the forty or fifty years which have passed over our gardens since Herbert was working at Daffodils that such old plants have been exterminated wholesale in favour of *Geraniums* and *Calceolarias*. I can quote a garden not far from here in which, some forty years ago, the double *cernuus* flourished in the greatest abundance; now there is not a trace of it to be found. It has not died out, for the soil suits it perfectly, but was simply dug up and



thrown away. I have this on the authority of a friend who is conversant with such plants, and whose home the place was. This is only an instance of the work of extermination which has undoubtedly been carried on throughout the country.

It is far from my desire to detract wantonly from Leeds' reputation, of which Mr. Brockbank is so stout a champion; he certainly turned the handle very successfully of the Daffodil machine which Herbert invented. The question, however, remains, What became of Herbert's plants? and the fact remains that it is from the two counties in which Herbert lived that the two chief collections of hybrid *Narcissi* have been distributed.

As to Mr. Barr's identification of Herbert's six seedlings, I am not prepared to accept it as proved, or even very probable. I have seen the coloured plate in question; it is most atrociously executed. It need only be stated that in one of the figures the red edge of the tube is absurdly continued, in defiance of Nature and perspective, in a loop round its profile and junction with the perianth, to prove that the picture is a purely fancy one.

Mr. Barr makes No. 2 of the plate, *Ajax* var. *pallidus*, to be equivalent to *N. Ajax albicans*. But Herbert states that this flower was the product of *N. minor* × *N. moschatus*. Now, I have some reason to believe that the white form known as *albicans* will shortly be proved to be a truly wild Pyrenean plant (I do not confound it with the *N. cernuus* or *moschatus* recently found there), but *N. minor* is not known to exist in the Pyrenees; moreover, such a cross would produce a flower smaller than *albicans*. Again, Herbert's description of No. 6, a hybrid between *N. minor* and *N. p. stellaris*, does not sound at all like the brilliant Mary Anderson with which Mr. Barr seeks to identify it. He is led away, I suspect, by the strongly-daubed red of the plate.

I think Mr. Barr a little exaggerates the time required to raise a fair stock of a seedling Daffodil. The Dutchmen would probably have managed to multiply Leeds' bulbs a good deal faster than he did. As to the merits of certain seedling flowers, *de gustibus non disputandum*; but in my garden, which grows Daffodils somewhat unusually well, as Mr. Barr knows, the Burbidgeis are a feeble folk, and the uninitiated greatly prefer even a second-class poetical of the old sorts—*angustifolius*, for instance—when they seek a "button-hole."

*Appleshaw, Andover.* G. H. ENGLEHEART.

#### NARCISSUS MAJOR SUPERBUS.

MR. ENGLEHEART refers to my stock of this as if lost; this is not so. I had flowers last spring, and judging from the healthy appearance of the bulbs, all who are interested in this really distinct and beautiful Daffodil may see it by visiting Tooting in April, 1886, when it will be in flower, and they will find it is quite unlike *N. spurius* or any of its forms. The flower exhibited at the Daffodil Conference in 1884 Mr. Engleheart took home with him to compare with what he supposed to be the same variety in his garden, and promised to send his specimen to convince me that both were alike; but instead of the flower I received a letter saying his specimen was out of character, and he promised to send it the following Daffodil season. The 1885 Daffodil season came, but not the flower. I presumed from this that Mr. Engleheart was convinced of his error, or that his plant had retired into the "ewigkeit," as Hans Breitmann would say. In passing, it may be remarked

that it would be an interesting feature in our Daffodil shows to see contributions from the Appleshaw garden; we could then judge of the richness and variety of Mr. Engleheart's collection. Mr. Brockbank's name has often been associated with *N. major superbus*, and I confess that, after years of waiting, we have some claim to see his flowers, and it is to be hoped the spring of 1886 will bring proof beyond question that Mr. Brockbank really has this Daffodil. It is a curious coincidence that 1880 should be the year in which Mr. Brockbank and I paid our first visit to the late Mr. Leeds's garden. I went at the Daffodil season to see if I could get any information from the old gardener as to Mr. Leeds' work, and as I had to wait for him several hours I amused myself examining the rockwork and tracing out the paths, beds, and borders, for the place was a wilderness, and with the greatest care I examined every part to see if there were any *Narcissi*, and there were none, except in a small part of the garden which was cultivated for the production of cut flowers. There I found a bed of common *Narcissi*—I think single and double poetical. My surprise was, consequently, great when I learned from the pages of THE GARDEN that in the wreck Mr. Brockbank had found *N. major superbus* and other fine things not in my collection. It is very curious what has become of the stock of *N. major superbus*; I did not find it where it should be, but in cleaning stock found a stray bulb or two, and this has led me to follow Mr. Burbidge's surmise that some of Mr. Leeds' Daffodils escaped somehow out of his garden, and it is quite possible that this fine Daffodil may turn up some time or other near Manchester. Mr. Leeds, in two of his letters, assured me that I had received all his seedling Daffodils, and that he had not parted with any, but reserved them, so that they should pass into one hand.

PETER BARR.

#### IRIS KÆMPFERI.

WHEN is the best time to plant this *Iris*? is a question asked in THE GARDEN some little time ago. If by that is meant the dividing and replanting of clumps of this fine species which have become well established, and which it is necessary to divide, then I answer, it may be done at any time in the autumn or spring. If it is a question of planting dry roots, then the reply is, in the spring. Cases are known in which dry, newly-imported bulbs were planted as soon as received in the autumn with the result that a very large proportion of them perished; therefore, it is best to keep the roots in a dry cool place until spring, and as soon as they begin to show signs of swelling, thus indicating that the time for action has arrived, they should be planted in suitable soil. As to kind of soil, this fine species may be grown successfully treated as a marsh or half-aquatic plant. It is desirable that the soil be rich, deep, and moist, and when the weather is very dry the plants should be kept well watered; a slight shade from the hot sun is also necessary for their successful cultivation and strong growth. I have known this *Iris*, and others of a similar character, to be planted in a kind of basin without water, but in a rich, deep moist soil, made up of heavy loam and peat, freely enriched with manure. I have recently heard of some very fine clumps of it existing in one of the eastern counties, on ground that can be occasionally flooded during summer from a neighbouring ditch. As they have formed massive clumps, the plants reach a good height and flower magnificently. This supplies a good suggestion as to the best posi-

tion for this *Iris*. Some of the flowers are double, others single. A few varieties that can be obtained will be found in *alba-plena*, pure white; *Cleopatra*, deep purplish violet; *Edward Mucklow*, lilac-blue with yellow stripes; *E. G. Henderson*, deep purple and gold; *Ernst M. Arndt*, pale pink; *Humboldti*, pure white and yellow; *Joseph Broome*, amaranth-blue and gold; *Lemoinei*, pale pink, veined with rosy purple; *Louis Van Houtte*, bright orange veined with white; *Mdme. Chas. Van Eckaute*, sky-blue, marbled with lilac-rose; *Mdme. Legrelle d' Hanis*, white, rosy centre; *Migeli*, bluish purple, orange centre; *Othello*, deep blue; *Rutherford Alcock*, rich purplish blue; *Souvenir*, carmine-rose and yellow; and *T. B. Masson*, light blue, with good deep well-defined stripes.

R. D.

#### EXHIBITIONS OF WILD FLOWERS.

MANY of the readers of THE GARDEN will, I feel sure, be much interested in hearing what has been done in Tunbridge Wells in trying to make persons more familiar with our wild plants and other objects of natural history, and to induce persons to study them more than they have hitherto done. I am not aware that the plan adopted has been tried elsewhere, but here it has proved a great success. Our Literary Society's rooms, which are much frequented, are entered from the well-known promenade, "The Pantiles," through a long vestibule, in which a collection of local wild flowers has been exhibited since the beginning of July. The flowers are placed in vases on shelves on either side, and are replaced when necessary. Each kind has a clearly written label attached to it, giving its English and scientific names. Now the wild flowers are supplemented with a collection of fungi found in the neighbourhood. The public have free access to this little exhibition, and it is difficult to say in which they take the greater interest—the flowers or the fungi; the latter have astonished most persons who have seen them, and many have expressed great surprise at their ignorance in not knowing that such a variety were to be found. Over the fungi are hung the two coloured plates of edible and poisonous species, drawn by Mr. Worthington G. Smith, published by Hardwicke. The shelves now present a remarkably effective appearance, covered as they are with a great variety of species, among which are some very fine specimens of *Agaricus muscarius*, *Pholeota squarrosus*, and *Boletus edulis*. Mr. Abbott, one of our resident medical practitioners, is the originator, and has been up to the present time the collector and curator of this botanical exhibition. Three afternoon excursions a short distance out by railway have already been organised by him to collect fungi, which have been very well attended. Last week we went, a party of twenty-three, to Withyham Station, and walked through Buckhurst Park, the woods in which Lord Delawarr's steward had kindly given us leave to ramble through. We met at one of the lodges afterwards, where tea had been provided. We compared our spoils, packed them carefully in baskets, and returned home well laden. It is hoped that this beginning, small as it is, may develop into a regular natural history club, which may have more than a mushroom existence. When flowers and fungi are no longer available for exhibition, cases of insects, shells, birds' eggs, &c., will take their place. No plates or dried specimens can ever give such a good idea of what a plant really is as a well-chosen specimen of the plant itself, so that a collection of this kind ought to be invaluable to beginners who



are unacquainted with many plants. Since July upwards of 150 different species have been exhibited, and another season, when we hope there will be more collectors, no doubt this number will be very largely increased.

G. S. S.

## ROSE GARDEN.

### EVILS OF CLOSE PRUNING.

THE Rose season is drawing to a close, and here at Beckenham, Kent, to which my observations on Roses this season have been almost confined, I may confidently say that it has not been an unqualified success. It opened well, but since then Rose blooms have been conspicuously absent. The first bouquet of Roses collected in early summer from gardens around Beckenham was perhaps the grandest it has been my fortune to behold. The blooms of which it was composed were marvellous as regards number, size, and variety of colour, from which I judge that the dry, warm, ripening weather experienced here last autumn had much to do with the matter. Each plant, too, bore an exhausting health-impairing abundance of blooms, but dry weather set in, and then there was an end to their production. For weeks, even months, the drought continued, and, but for recent overdue rains, we should not now be enjoying the autumnal blooms we have. Had the Rose-knowledge of the proprietors of many pretty little gardens in Beckenham been proportionate to their evident love for Roses, they would, I imagine, have done something within their power, notwithstanding protracted drought, to ensure a few blossoms late in the summer. A judicious disbudding of some plants would probably have gone far to ensure this. They would have watered freely, and occasionally drenched with liquid manure the roots of the needy plants. Here the annual death-rate amongst standards, which are chiefly grown in Beckenham, is very great. A friend of mine, owner of a small garden, purchases annually about a dozen Rose plants, in order to make good the vacancies caused by death. By way of a probable explanation of this sad circumstance, I may mention that the common practice of Rose plant proprietors (amateurs) and hired jobbing gardeners is to prune strong and weak growers alike severely. I sometimes wonder how standard Rose trees manage to live so long subjected to such treatment. The pruners, judged by their practices, seem to believe that it is for the ultimate good and longevity of the plants to be annually pollarded like Willows. By the way, one of your correspondents recently writing about the Huntingdon or White Willow (*Salix alba*) stated, "It is only a short-lived tree, and after thirty years' growth its life is very uncertain unless it be pollarded, then it may live to a good old age." Perhaps so; but, unfortunately, he brought forward no proofs in support of his assertion. Garden Roses are, unfortunately, subjected to much uncalled-for abuse in this particular way and otherwise; but, notwithstanding that they nearly all seem to be possessed of as many lives as the proverbial cat, they cannot, however, be close pruned (pollarded) annually with impunity. I do not wish it to be understood that I unreservedly condemn the system of close pruning. On the contrary, I am aware that excellent results have followed its adoption in the case of Rose plants; but, be it recorded, so also has death, at the hands of unskilled pruners, to countless thousands of standard Rose trees. The death rate among Rose plants here, and perhaps else-

where, might be very much reduced were cultivators to restrict the system of close pruning to healthy, vigorous plants. And with regard to weakly plants, cultivators would be well repaid were they to desist for once from pruning them at the usual winter or spring pruning season. Such plants, aided by a well-timed liberal supply of manure and water, would in the majority of cases acquire strength and vigour sufficient to justify their being severely pruned, even "stumped back," at the proper time early in the following spring. Were I asked to write an epitaph on countless thousands of standard Rose trees that have prematurely died within the present century, it would be thus: "Died of functional derangement, the result first of close pruning annually; secondly, starvation, or the thoughtless denial of proper food; thirdly, excessive floriferousness, superinduced to some extent by impaired vigour; and, fourthly, from untimely and severe, usually late spring, frosts."

GEO. SYME.

**Chrysanthemum Mandarin.**—I was pleased to see that the Chrysanthemum Society recognised the merits of this important addition to early-flowering Chrysanthemums. It will, in my opinion, when better known, prove as great a favourite as Madame Desgrange. No more lovely Chrysanthemum was ever raised than Mandarin, and it is quite distinct. It is exceedingly free, each plant producing, when not required for exhibition, twenty-five or thirty good and handsome flowers. It can be had in flower by the middle of September, or perhaps earlier. Another useful variety in the same set is *Roi des Précoces*, a kind which produces medium-sized flowers of a rich reddish maroon. It is very floriferous and dwarf.—W. CLARK, *Ferne Park-road North, Hornsey.*

**Liliputian Pelargoniums.**—Allow me to in form "J. C. B." (p. 401) that both Princess Clementine and others belonging to the same series may be obtained in this country, having been distributed quite two months ago. In addition to the series named by "J. C. B." there are several others raised by French florists—namely, *Mlle. Lili* and *M. Bébé*, a pair of lovely little gems, hybrids between *Pelargonium peltatum* and *zonale*; their colours are most delicate, the former being a pale rosy lilac and the latter cherry-carmine. Both are exceedingly floriferous and very double, and their foliage deep glossy green and very distinct. These were raised by M. Bruant, of Poitiers; several of the same class have also been raised by M. Délaux, and two—*Louis Leurquin* and *Hortense Leurquin*—by Van der Heede, the raiser of Princess Stephanie, &c. All are very beautiful and well worth attention.—W. CLARK, *Ferne Park-road North, Hornsey.*

**Utilising fungi.**—In *The Queen* of October 17 (p. 389) it is stated that articles in the Austrian Court of the Inventions Exhibition are made of *Spongio lignine*, which has the appearance of leather, but is a wood made soft, and which has been found valuable for hat linings and chest protectors, &c. Kindly tell me what this *Spongio lignine* is? Is not the substance referred to a fungus which grows on decayed old bushes? It is general, I believe, in the woods of Hungary, and is found also in small quantities in the south of Scotland, where it is used for sharpening razors on.—W. H. M.

\* The material alluded to by "W. H. M.," under the name of *Spongio lignine*, is *Amadou*, or German tinder, the inner substance of *Polyporus fomentarius*, a common fungus on tree trunks in all parts of Great Britain, as well as on the Continent. It is prepared for tinder by beating and soaking in a solution of saltpetre, or by rubbing gunpowder into it. The material exhibited at the "Inventions" is very good and remarkably well prepared—not, of course, prepared for tinder. The fungus sometimes used by rustics for razor strops is a different plant, viz., *Polyporus betulinus*; it only grows on Birches. Like the last, it is common.—W. G. S.

**Bladder-worts.**—The interesting article on these plants in *THE GARDEN* (p. 403) reminds me that now

is the proper time, and quite late enough, to think about the cultivation of the British species. It is quite useless to collect it in summer, because it is impossible to take the whole plant, and severed branches will not re-establish themselves. Apart from seeds, the British kinds naturally propagate themselves by winter buds, which form at the ends of the branches in autumn, and are ovoid or more or less spherical in shape. This is the line to follow, and now by collecting branches with these fat-looking buds upon them, it is easy to ensure a natural start next year. *U. vulgaris* and *U. intermedia* form these buds, and though I have not seen those of other species, they are probably produced by them in the same way.—R. IRWIN LYNCH.

## GARDEN FLORA.

### PLATE 516.

#### THE WELSH PEERLESS DAFFODIL.

(*N. INCOMPARABILIS* VAR. *SIR WATKIN*.)

THANKS to the courtesy of the Rev. Canon. Ellacombe, I have now before me a perfect and well-preserved copy of a rare old book—viz., the "*Hortus Floridus*" of Crispian de Passe, junior, published at Arnheim in the year 1614. This book is interesting as containing many good plates of *Narcissi*, and among them (plate 4) is a good engraving of what is there called in Latin *Narcissus omnium maximus*, and in French *Narcissus Nonpareille*, whence no doubt our own popular name of Peerless or Incomparable Daffodil is derived. The variety represented by C. de Passe is afterwards copied into Hale's "*Eden*," or a "*Compleat Body of Gardening*," as were many other plates in this work, and also from Bessler's fine thick-paper edition of "*Hortus Eystettensis*" (A.D. 1613). On page 194 of the last-named work a large form of *N. incomparabilis* is figured under the name of pseudo-*Narcissus pallidus calice amplo*, but it is different from that originally illustrated in the "*Hortus Floridus*," and both are different from our present variety, which is, however, no doubt a descendant of typical incomparabilis crossed with some variety of Ajax or true Daffodil. The Welsh Peerless or Sir Watkin is, in truth, one of those comet or meteor-like flowers which all at once flash on the flower-loving public from whence no one appears to rightly know. It is so distinct and beautiful, however, that it is likely to remain long in our gardens, especially as it increases quickly by offsets and grows most vigorously. Its history is a most interesting one, the half of which has not as yet been told, and I hope that Mr. Pickstone, in whose garden it first seems to have found a resting-place, will some day tell us how he obtained such a distinct and striking variety. I am the more anxious that its authentic history should be given, because there are floating stories in circulation as to its origin, which attribute this fine variety to another source altogether. Only last spring, when Sir Watkin's grace and vigour astonished everyone here—even with N. Emperor and N. maximus (true) quite near to it—I was speaking to a past-master in Daffodil lore as to the origin of this new form. "Oh, well," he replied, "in my own mind I am perfectly assured whence Sir Watkin originally came; the only thing I am in doubt about is whether it came through the hedge or over the garden wall." This incident shows how necessary it is that Mr. Pickstone should tell us how he came possessed of this variety. It seems incredible that with all the hunting and poking about after Daffodils which has

\* Drawn from flowers sent by Messrs. J. Dickson & Sons, Chester, the last week in April, 1885.











taken place during the past twenty years, that this noble form should have existed first near Manchester and afterwards in a Merionethshire garden, undiscovered by experts for fifteen or sixteen years. Even at last its discovery was accidental and unromantic. A Manchester dealer purchased cut flowers, and so they were seen in Manchester by lovers of these beautiful spring blossoms. Even then there was a doubt about its originality. One observer thought it was N. Emperor; another said it resembled N. Princess Mary of Teck, and in noble port and beauty the latter was not such a bad shot after all.

The known history of this plant, however, really began at the Narcissus Conference held in London on April 1, 1884. Flowers were obtained from Mr. Pickstone by Messrs. J. Dickson and Sons, of Chester, who sent them in a box to me. On opening the box I was at once sure of having a fine new variety before me, and I immediately showed it to Mr. Barr and to others, none of whom seemed to recognise its novelty. Certainly, the flowers I then had were not at their best, having long been cut, and, besides, they only reached me after at least two long journeys by post. In thanking Messrs. Dickson for the flowers I mentioned my belief that the variety was a new one, and the result was that other flowers were sent by them to the floral committee of the Royal Horticultural Society the week following the conference (April 8), and it then received a first-class certificate under the name of N. incomparabilis James Dickson. At Mr. Pickstone's request the name was changed to Sir Watkin, and so may it long remain, in memory of the late Sir W. W. Wynne, a most remarkable man, whose name will long remain a household word in the principality he loved.

As to the form and beauty of this Narcissus I need say nothing, since the artist has so gracefully and truthfully depicted its port and colour in the accompanying illustration. I may, however, add that with us the flowers are larger and the leaves much broader than here shown. Some people have objected to the soft, pale yellow of the perianth, calling it "charlocky," but as a rule all who have seen the plant well grown are anxious to add it to their collections. Those who make a close study of the varieties of this Peerless race or section should compare flowers of Sir Watkin with those of Hudibras and Edward Hart, which would appear to have been of the same, or at all events of similar, parentage. As the full translation of its name, Sir Watkin's Incomparable, or Peerless Narcissus, is rather too long and cumbersome for popular usage, I venture to suggest that this plant be in future known as the Welsh Peerless Daffodil, a name which is short and expressive in all ways. F. W. BURBIDGE.

**Chrysanthemums under glass.**—When the majority of open-air flowers are over it affords some comfort to know that our greenhouses and conservatories can be made gay with Chrysanthemums. It is difficult to keep them late, *i.e.*, much after Christmas or the new year, but they may be had earlier than they are generally made to flower. About three weeks ago we placed some of our plants in a warm conservatory, and now they are in full blossom and excessively pretty, while their neighbours in the open air have not yet begun to unfold their blossoms, nor will they do so for a fortnight or three weeks yet. We have plenty of plants to make a good show during the ordinary Chrysanthemum season, and by simply placing a few of them in heat a few weeks before housing time we have managed to add three weeks at least to our Chrysanthemum show. Flowers are

by no means so plentiful now as they were a few weeks ago; indeed, at the change of the season they are often rather scarce, and those early Chrysanthemums are very acceptable.—CAMERIAN.

## INDOOR GARDEN.

### TUBEROUS BEGONIAS.

It seems rather late in the day to write about Begonias, which are now (October 21) just going to rest; but before their sun sets finally for the winter a few notes concerning those which have proved extra good with me may not be uninteresting. I may say that I grow about 10,000 plants, including most of the best novelties sent out by Continental and other raisers; yet the bulk of my collection has been raised here from seed. Since I first began raising seedlings, about five or six years ago, wonderful indeed have been the strides made by this attractive flower. Then we had hardly any double varieties, and those were comparatively small and poor; now good doubles are almost as plentiful as singles, while their shape, size, and colouring leave hardly anything to be desired. The single ones, too, have progressed at almost the same rate, improving rapidly every season in shape, size, and quality. I know of no grander decorative plant for the conservatory than the Begonia. Good tubers started in March will make plants 4 feet high and 3 feet through by the end of July—plants which are a joy to the beholder, smothered from top to bottom with lovely blossoms, hanging in clusters from gracefully arching stems like showers of jewels. There is no plant which gives us such a diversity of shape and habit with such a delightful combination of colours as the Begonia. Look at those doubles! Some shaped like a large Cactus Dahlia, some like an Anemone, others like Roses, Camellias, Gardenias, Pæonies; and then the singles, some drooping with half bell-shaped blossoms, others erect on stiff stalks, like Christmas Roses, others like great four-winged butterflies, white, yellow, crimson, blush, scarlet of every conceivable shade. Then how beautiful is the foliage, which differs in each variety almost as much as the flowers, no two kinds even being exactly alike. Truly, I know of no more charming sight in the kingdom of Flora than a house full of well-grown Begonias. Another advantage with them is that they are so easily preserved during the winter. They need no heat and no house-room. Quite content to be packed away, just like Potatoes, in any dry outhouse or shed safe from frost, you will find them keep plump and sound, and ready in March to do duty once more.

THE DOUBLE VARIETIES sent last, from which the labels became detached, were Antoinette Guerin (Crousse), a most beautiful white, of large size and good substance, flowering very freely, habit pendulous; Cameron (Beachey), fine salmon-coloured flowers, large, full, and globular, retaining their doubleness all through the season; Countess of Kingston (Crousse), nankeen

and apricot colour, a good distinct variety flowers erect; Felix Crousse (Crousse), a dazzling light scarlet, very brilliant and telling, flowers beautifully shaped and imbricated, quite the best of its colour; Gladstone (Beachey), flowers rich crimson and very double, good in shape and substance, holding their form all through the season, habit erect and branching; Gabrielle Legros (Crousse), flowers pale yellow, not very large, but free and good; Jean Soupert (Crousse), flowers bold, of a salmon-red colour, very large, with stiff stalks; Livingstone (Beachey), flowers crimson-scarlet, of the Bouchet type, but much finer, a very free bloomer and good grower; Madame Crousse (Crousse), flowers large, but rather loose, of a peculiar yellowish apricot colour shaded with salmon, very striking and distinct, habit erect; Marie Crousse (Crousse), beautiful blush white bordered with rose, very good; Blanche Duval (Arnoult), very fine, tinted white, well shaped flower; Léon de St. Jean (Crousse), flowers scarlet, something in the way of Gladstone, but brighter; Louis d'Or (Lemoine), the purest double yellow I have yet met with, likely to prove good; Mons. Chevreul (Lemoine), dazzling light scarlet, flower-stalks very stiff and erect, a bad grower; Mr. William Bealby (Crousse), soft ivory rose, petals of peculiar texture and quite distinct in shape, very beautiful and free flowering; Model (Beachey), flowers small, but very double and rosette-shaped, colour a pretty fresh salmon-rose—as a plant maker this is unrivalled, branching in all directions and covering itself with blossoms; Louise de Goussaincourt (Crousse), flowers evenly imbricated and of a tender rose colour, extra good; Tennyson (Beachey), flowers a lovely indescribable glowing salmon colour, very large and pendulous, remaining in perfection for a very long time—this variety as a rule attracts more attention than any other; Rose Beachey (Beachey), flowers very large, rosy crimson, beautifully shaped, the largest double in my collection; Mrs. Captain Thompson (Laing), this, though not new, is very lovely, and as it grows freely, it forms a beautiful specimen or basket plant; Princess of Wales (Laing), a free flowerer, creamy white, of fine branching habit, the strongest grower among the whites.

THE SINGLE VARIETIES now sent are mostly seedlings of my own raising. I have sent them a month too late, and many of them have gone back in size and substance; still there will be found amongst them blooms which measure  $5\frac{1}{2}$  inches in diameter, and I think of fine quality; but a month or two ago we had many measuring between 6 in. and 7 inches across of every shade, from white to deepest crimson.

R. W. BEACHEY.

*Fluder, Kingskerswell, Devon.*

\*.\* The flowers sent fully bore out all that Mr. Beachey has said in their favour. The reds, which predominated, were very showy, and the whites and yellows clear and effective.—ED.



## EARLY CHRYSANTHEMUMS.

ANOTHER season of the early-flowering Chrysanthemums has come and gone, and upon the whole it has been a good one; for, though the summer was too hot and dry, where the plants have had water enough the sun has well ripened the wood and perfected the plants, so that when damp weather did come, they were ready to take full advantage of it. At the Crystal Palace last year only two showed early-flowering Chrysanthemums. This year there were four, viz., Mr. Davis, Mr. James, Mr. Luff, and myself. The schedule offered prizes of £4, £3, and £2 for a collection of early-flowering Chrysanthemums sufficiently in flower for decorative purposes, not less than six varieties, three plants of each, and grown in pots not exceeding 8 inches, that is, measured across the top inside the rim. These are what are called 8½-inch pots, and are really too small to do full justice to the plants; still, a rule is a rule, and ought to be complied with, so that all may run fair, but many of Mr. Luff's pots were too small and some of Mr. James's were too large; the latter showed a very fine lot of Madame Desgrange, far finer than any of us, but then his other sorts were very inferior plants in comparison with Mr. Davis's or my own. Mr. Luff was simply nowhere, chiefly perhaps because he had too small pots and the wrong sorts of plants, for no one in future must expect to win in this race who does not possess the best new kinds, the varieties being in a rapid state of transition from very poor to very good. What may be fit to win a first prize one season may very likely not be so the next. Eighteen plants only would comply with the requirements of the Palace schedule; but Mr. Davis last year not only showed eighteen, but many more, and he obtained the first prize, and as no objection was raised to his doing so, and as I only on that occasion had the second prize, this year I showed not only eighteen plants, according to regulation, but sent nearly fifty. Of course, from last year's experience, I thought that the Palace authorities not only were willing to give the prizes to larger numbers, but were desirous to make a good show, and as we had no pot larger than an 8½-inch, we thought we were right, and so far we were, for I was awarded the first prize; but there was much dispute about the others, although Mr. James had second and Mr. Davis third. This show was chiefly remarkable for the fact that Mr. Davis exhibited plants of the yellow sport of Madame Desgrange, a beautiful kind, deeper coloured in the open air than under glass. The winning varieties on this occasion were Madame Desgrange, Mrs. Cullingford, Madame Jolivat, Lyon, Early-late Flora, and nanum. We were also able to put up for show the new varieties, La Bien Aimée, Surprise, Salter's Early Blush, Mons. Dufoy, Fiberta, Bronze Early Cassy, White St. Crounts, Frederick Marronet, Yellow Zenobie, and Petite Marie. These will probably be added to next season by at least two sorts—viz., Blushing Bride and Piercy's Seedling.

One of the most important incidents connected with the early-flowering varieties this season has been the general appearance of the Yellow Madame Desgrange, for yellow it is, not golden, as some say it is. I have grown two distinct sports of it this season, and can see not the least difference in them; they are of exactly the same shade—viz., bright, though pale, yellow. I know, also, of two more separate sports. I have no doubt that we shall have a deeper sport in time, one that we can call truly golden. Mrs. Rundle produced George Glenny before Mrs. Dixon, so we may feel almost sure that a

deeper Desgrange will come, especially as the yellow is already so widely distributed and largely grown, as well it may be, it is so good and robust a plant in every respect, and very beautiful. Salter's Early Blush, upon a second season's experience, proves to be as good as I thought last season it would be; it is certainly the best in its line and colour. Fiberta, too, has in no way fallen from its place as the very finest pale bright yellow early pompon. It was said of this last season that it was sometimes labelled, incorrectly, Jardin des Plantes, but I do not think it ever was. The one called Jardin des Plantes was wrongly named Madame Damage, or a yellow Madame Dufoy, for the white Madame Dufoy was called White Jardin des Plantes. These names were, and are, quite wrong, for neither sort is a bit like the proper late kind called Jardin des Plantes. Early-late Flora is a very excellent yellow pompon. It came here with the title Late Flora, which was so absurd, that I gave it the prefix of "Early," because it was difficult to preserve its identity in any other way. Now somebody has called it simply Flora, and as I can hear of no other Flora, there can be no objection to the simplification. It is a truly excellent plant. Market growers are beginning to think so, and it has made its first appearance in the shops in and about London both in the shape of plants and cut flowers. All, indeed, of the early-flowering Chrysanthemums are favourites in the market. Mrs. Cullingford, too, is still growing in public estimation, as is also White St. Crounts, but Petite Marie is generally found to be a very weak plant, and somewhat difficult to keep.

THE NEW EARLY SORTS of this season are very various in colour, merit, and earliness. The most important is Blushing Bride. This came from the Continent late in the season, much damaged by packing, and among a worthless lot of wrongly named plants. We are, therefore, not sure of its proper name. Doubtless in due time we shall discover its original designation. I say all this in order that no one may think that there is any desire either on the part of Mr. Davis or myself to re-name plants unless unavoidable. This Blushing Bride is a valuable discovery, a fit companion for Lyon, Flora, and Desgrange, unless some as yet undiscovered fault turns up. It is always necessary to speak with some reservation when one has only one season's experience of a foreign sort, as they do not always behave equally well the following years, though I have little doubt that this kind will be better next season and not worse. As to its earliness, the second growth came into bloom on September 15, the first having come very imperfectly through injuries received in transit. At that time the plant was 2 feet 4 inches high, stiff and stoutish in habit, the flowers being held well apart on separate stalks, so that each flower had room to expand without any trouble in the way of disbudding, and this is eminently necessary in garden plants, or where they are grown in large quantities for decoration or cutting. The flowers, which measure 2½ inches across, are of a bright transparent blush or pinkish colour, very much like those of old Auréole, but in form much better, being more full. A flower counted had 394 petals in it, each one curving inwards, and of a long spoon-bowl shape. I regard it as one of the finest pompons ever seen in this country either early or late. Of course, it will be scarce the first season, there being only two plants of it in England as yet as far as I know. It is a profuse bloomer, a real beauty, and, as far as can be seen at present, good in the way of propagation, so that with

its excellent growing qualities it is about as good as it can be. Piercy's Seedling is the first good kind I ever raised, and up to this season, I think, I have had about 500 seedlings. The seed from which the seedling was raised was sown in heat on March 1. It came up in six days, and Piercy's Seedling was in bloom on September 11, a fact that disposes of the assertion that seedlings do not bloom till the second year. The plant under consideration grew 21 inches high. It was stout and bushy in habit and very floriferous, the top being a solid mass of flower, all good and showing no eye. The flowers measure from 2 in. to 2½ in. across. They are slightly reflexed when full out, the petals being short, stout, and thick. The colour varies from red-orange to yellow; it is really good. La Bien Aimée is a pretty little pompon which grows 17 inches high. A plant from a top cutting put in on March 13 came into bloom on June 22; in form of flower it resembles Model of Perfection, being very full and a little reflexed. It measures 1½ inches across and is red-violet in colour. It makes a valuable small pot plant. Roi des Précoces (King of the Earlies) does not by any means deserve that name. It is a crimson Japanese sort of very bright colour, but not quite pure. Cuttings of it put in at the beginning of May came into bloom at the end of September, so it is quick in coming to perfection. It was then 2 feet 6 inches high. The flowers measure 3½ inches across. The petals are narrow and reflexed. It is valuable on account of crimsons being scarce, but it is improved by disbudding. It is stout in habit.

SURPRISE is a pompon much like the late variety called laciniatum superbum, only not so tall. It produces very stout flowers full of short thick petals of a pink colour, thus giving the flower, which measures from 1½ in. to 1¾ in. across, a button-like form. It is a quick, robust grower, though rather slender in habit, and it reaches a height of about 32 inches. A top cutting put in in March 13 bloomed on July 29. Its foliage is very dark. About Petit Mignon there must be some mistake. It was sent here from France this spring as quite new, but when it came into bloom it turned out to be one which we had last season under the name of Mons. Dufoy. It came into flower at the end of September. It grows about 3 feet high; its flowers, which are about 2 inches across, are composed of short, thick petals forming almost a ball of a lilac colour. Bouquet Estival, a Japanese kind, grows about 32 inches high and has flowers of a ragged appearance, measuring 3 inches across. They come in clusters on slender wood, so that it wants careful supporting. It would be all the better for disbudding, being a profuse bloomer. In colour it is a deep lilac, but some are much darker than others, assuming a kind of bluish crimson hue. A March-struck cutting came into flower on September 15. Jeanne Cousinié flowered on September 18 when 15 inches high. Its flowers, which are red-violet in colour, measure 1½ inches across. L'Immortelle and Madame Prilleux both turned out to be old Illustration, syn. Marie Longarre. Toréador is red in colour and a valuable plant, reds being scarce. It resembles F. Pelé in habit, but is, I think, rather better than that kind and redder. Its flower is 2 inches across, and the plant, which is rather slender in habit, grows about 2 feet high. The flowers are so disposed that every one can come out well. It bloomed September 6, but will, I think, flower earlier next season. Mdme. Blanche Pertuzés is very dwarf, growing only about 1 foot or 18 inches high. It bears a white flower about 2 inches across, and exquisite in form, the petals being short



and thick. Mignon I did not receive till late in the season, but it appears to me to closely resemble Fiberta, except that it does not grow more than half its height, being only 18 inches high, and having flowers only  $1\frac{1}{2}$  inches across of a bright pale yellow. It bloomed September 12. If it should grow no higher next season it will be one of the best small pot plants yet imported. It is a most profuse bloomer, and I think of stouter habit than Fiberta. Bronze Early Cassy is a sport from the yellow, which is itself a sport from the pink. It only becomes yellow when it is fading. Higham is a blush sport of St. Mary, and resembles it in every way except in colour. White and Yellow Bedders are both poor varieties.

West Road, Forest Hill.

W. PIERCY.

### NERINE FOTHERGILLI.

At The Dell, Baron Schroeder's beautiful place near Egham, so celebrated for its Orchids, there is just now a truly magnificent display of this plant, the trusses produced by which measure from 6 inches to 8 inches across, and deservedly elicit the admiration of all beholders. If one takes into consideration the small amount of trouble that is connected with its culture, and the enjoyment to be derived from its beautiful flowers, which are endowed with a more than ordinary lasting power, at a time when nearly all summer-flowering plants are over, its great value, I think, will be apparent. It serves to fill up a gap always difficult to tide over, between the last of the summer flowers and the first of the Chrysanthemums and a few other autumn-flowering plants. At The Dell quite a couple of hundred plants of this Nerine are now in flower in 10-inch and 11-inch pots, and each of them bears from eight to a dozen spikes of flowers. There are also some single bulbs with solitary flower-spikes; all these are the produce of one common stock, a single bulb presented to Baron Schroeder some twenty years ago by the late Mr. Sigismund Rucker, in whose place at Wandsworth the plant was then grown in perfection by Mr. Pilcher, who seems to have been amongst the first to appreciate its value. It will thus be seen that its propagation is not so slow as is generally believed.

AS TO CULTURE, at The Dell and at Belvedere House, Wimbledon, as well as at Hatfield, where it is a special favourite as an autumn-flowering plant, the treatment required to induce it to flower as freely as a Vallota or a Belladonna Lily is of the simplest description. Like most Amaryllids, the Nerines make their growth during winter and early spring, viz., from November to May. About the middle of that month when their growth is finished the plants are turned out-of-doors, set on hard ground and exposed to full sunshine; there they remain until the end of July or the beginning of August without receiving any water whatever. At that time they usually begin to show flowers; they are then taken either into a cool airy house or placed in a cool frame and watered only when the flower-spikes have made their appearance. This is of the greatest importance, as otherwise they develop luxuriant foliage at the expense of flower production. During the whole of the time that they are in flower, it is necessary to keep the atmosphere of the house in which they are placed perfectly dry by means of liberal ventilation, which enables the flowers to remain fresh much longer than in an atmosphere saturated with moisture. After flowering is over they are simply placed amongst common greenhouse plants and treated accordingly, receiving water regularly and in quantity sufficient to keep the

soil in a moderately moist condition till growth is finished towards the middle of May, when the resting and drying process is repeated. Nerines do not require much pot room; indeed, the system of leaving well alone seems to suit them best. They never grow so luxuriantly nor flower so freely as when pot-bound.

THE SOIL which they prefer is a compost consisting of two parts good fibrous and substantial loam and one of leaf-mould and coarse silver sand. There is no need of reminding those who intend growing Nerines that to do so successfully they must provide abundant drainage and grow them under perfectly cool conditions. They may be raised from seed, but the process is rather a slow one, and preference is given to offsets, which are generally produced in abundance. The much-appreciated Guernsey Lily (*N. sarniensis*) may fairly be given as the type of the genus, and, singularly enough, the same species was known to European travellers in Japan as far back as 1659. Some Nerines flower before their foliage appears, but all are decorative and come from temperate regions characterised by a particularly dry season. With the exception of the species named above, and also the yellow-flowered *N. aurea* and the pink *N. undulata* and *radiata*, which come from China, all other species are natives of the Cape of Good Hope, whence different coloured forms have from time to time been imported into Europe since 1777, when the scarlet *N. corusca* was first brought over. This was soon followed by the purple *curvifolia*, several pink species, such as *filifolia*, *flexuosa*, *pulchella*, *rosea*, &c., the pretty red *humilis*, and the particularly handsome scarlet *venusta*. Several attempts have been made to cross Nerines with *Amaryllis*, *Vallota*, *Zephyranthes*, &c., but up to the present without success.

SEVERAL HYBRID VARIETIES, however, have been obtained by Mr. James O'Brien; one of the most striking (*N. elegans*) may be considered to be a really valuable addition to December-flowering plants. Its large showy blossoms are borne amidst abundance of foliage, and in that respect it differs from most other kinds. Its flower-spike, which is about 2 feet high, is surmounted by a head of bloom 8 inches in diameter, and the individual flowers are nearly 3 inches across; these are bright pink, and are rendered very striking through their having a peculiarly clear white centre. To Herr Max Leichtlin, who has for many years made bulbous plants not only a speciality, but an all-absorbing study, we are also indebted for *N. amabilis*, a hybrid resulting from a cross between *N. pudica* and *humilis* major. Among a batch of plants raised at the same time there is also a variety with much larger flowers, of a very bright rose colour. It is likewise very floriferous, and valuable on account of the late season at which its lovely blossoms are produced.

S.

**Mussænda theifera.**—This, a pretty little stove plant of recent introduction, has slender creeping shoots and pure white fragrant blossoms, the latter about an inch in diameter, and reminding one strongly of the flowers of the lesser Periwinkle. The plant is seen at its best when grown in a suspended basket, or allowed to ramble at will over a shallow pan of soil, into which it does not root deeply. Its whole aspect differs widely from that of the better known *M. frondosa*; the long slender stems are partly herbaceous in character, and the plant is all the better for a decided rest during winter. If repotted as soon as growth commences in spring and kept in a genial temperature, it will commence flowering soon after midsummer, and will continue till the autumn is well advanced. Good rough peat, with a little silver sand and loam mixed with it, is a gold compost for this *Mussænda*.—T.

## TREES AND SHRUBS.

### BERRY-BEARING SHRUBS.

OF berry-bearing shrubs attractive just now the most conspicuous are the following: Some of the Barberries, of which the common *Berberis vulgaris* is second to none in the brightness and profusion of its fruits, besides which, from their sharp nature, they are not so much sought after by birds as are most of the autumnal fruits. The Sea Buckthorn (*Hippophae rhamnoides*) retains its silvery foliage well on into the autumn, and at the same time the berries, which are produced in such numbers, assume their bright yellow colour. A moist soil is best suited for this shrub. The Bladder Sennas (*Coluteas*) do well in hot and dry soils, and their large inflated seed-pods give them a distinct and curious appearance in early autumn. *Cotoneasters* of different sorts are very attractive autumn and winter shrubs, the principal being *C. bacillaris*, a large vigorous growing kind, with small brown berries; *C. frigida*, a large spreading bush or small tree, with bright crimson fruits that remain on a long time; and the smaller growing *C. Simonsi*, which is, however, somewhat late in the autumn before the berries assume their bright tints. The evergreen *C. microphylla* fruits freely, and though the berries are small and by no means brightly coloured, they at all events afford variety. The broad-leaved Spindle tree (*Euonymus latifolius*) is more attractive than the commoner *E. europæus*, and altogether it is one of the most showy of autumn shrubs. It forms a large upright bush, a dozen feet or more in height, thickly studded, if in a good open situation, with its bright-coloured fruits. They are composed of red pendulous capsules, which when ripe open, and the orange-coloured seeds hang suspended therefrom by slender filaments. The various single Roses are all very attractive by reason of their bright-coloured fruits, and in the case of *R. rugosa* the large rosy crimson blooms are generally produced till frosts set in, so that ripe fruits and blossoms are often seen on the same plant. The berries of this Rose are large and orange-scarlet in colour; *R. lucida*, crimson; *R. cinnamomea*, crimson; *R. spinosissima*, dark; and *R. villosa*, bright red with long prominent bracts, are among the most showy. *Skimmia japonica* is a pretty little red-berried shrub that does best in shady spots. The European Box Thorn (*Lycium europæum*) is a slender scrambling bush, with crimson fruits borne for some distance along its slender shoots. Maule's *Cydonia*, that is so thickly laden with flowers in the spring, is in the autumn equally showy, having bright golden fruits tinged with red on the sunny side, that is, where it fruits freely, but such does not always appear to be the case. The Snowberry (*Symphoricarpos racemosus*) with white fruits is distinct among other berry-bearing shrubs.

W.

**The Stone Pine.**—Possibly I have never seen a good tree of this species—at any rate, from such as I have seen, I am not prepossessed in its favour for ornamental planting, and, with respect to timber, we have too many trees already. What I take to be the chief point of recommendation in the generality of the Conifers is the horizontal or drooping character of their branches. If fastigate trees are wanted, we have the Yews, the *Arbor-vitæ*, and others which possess the required character of growth without the coarser qualities of this Pine. So far as I know it, it neither possesses the attributes of majesty nor modesty; it seems best adapted to make a huge stable-broom if there was a modern Hercules to use it. From many engravings showing its mature growth at home, this criticism may appear unjust, but what is



true of Italy may not be true of this country, and, so far as the Stone Pine goes, I think it is not.—  
RUSTIC.

### LARGE WEEPING ELM.

THERE are several very old and remarkable trees in the neighbourhood of Bury St. Edmunds, such as the very old examples of Oriental Plane (*Platanus orientalis*) at Hawstead. This species was introduced to this country from the Levant about 1548, and to judge from the appearance of the trees of it here they must have been planted soon after their introduction. There is a remarkably large and fine purple Beech at Hardwick; also very ancient English Oaks near Barton Hall and in Rougham Park, an ancient Oak in Culford Park supposed to be at least 1000 years old, and several fine old trees of various species in Hengrave as well as in Fornham Park. The annexed illustration is that of a very remarkable English Elm (*Ulmus campestris*), which overhangs the public road, and which seldom fails to attract the attention of all who may leave Bury St. Edmunds by the Northgate or Fornham road. The landscape here, although somewhat flat, is historically interesting, as about 300 yards from the railway arch on the right hand side of the road is the ruined gateway of St. Saviour's Hospital, where Humphrey, Duke of Gloucester, was supposed to have been murdered in the year 1446, the eminence, or rising ground, on the left being Thing How, or the hill of the council of the Anglo-Saxons. From this the Hundred of Thingoe derives its name, while the low-lying meadow land to the north, stretching towards Fornham St. Martins, is the scene of the celebrated battle of Fornham, fought in the year 1173, when Beaumont's (Earl of Leicester) foreign troops in the interest of Henry II.'s rebellious sons were defeated by the royal

troops under Robert de Lucy with terrible slaughter. A small coin known as Nuremburg tokens, of no value, may still be picked up in the locality, and are supposed to have been the property of the slaughtered Flemings. Some years ago a very old Oak was blown down in Fornham Park, and near its stem at a short distance from the surface was found a number of human skeletons arranged in a circle

this tree consisted of two distinct trunks or stems, so closely united at the base, that it could not be ascertained if they were the production of one seed or of two; they were in all respects so much alike, that they were known as The Sisters. A fierce gale, however, from the west about the time referred to unfortunately prostrated one of them, but the survivor continues to flourish and to droop gracefully over the public road. At all seasons of the year it is greatly admired—even in the depth of winter, when its branches of drooping spray are so encased in ice as to suggest the idea of a huge tree formed of frosted silver. It is now upwards of 60 feet high and 16 feet in circumference at 4 feet from the ground. There are no means of ascertaining its exact age, but it is probably not less than a century and possibly more. It is evidently a somewhat distinct drooping variety of the English Elm, most likely self-sown and reared in a hedge-row. I find that there are other and younger trees in the neighbourhood with similar foliage and with more or less of its weeping or drooping habit of growth. It is, therefore, likely to be preserved. Some years ago on the occasion of the land on which it stands changing hands, stipulation, it is said, was made for the preservation of this tree.

P. GRIEVE.



The Weeping Elm at Bury St. Edmunds.

with the tree for a centre; they were supposed to be the remains of persons of note who had fallen in the battle. The Elm in question is about 200 yards from the ruin just mentioned, and is on the same side of the road and some 50 yards from the margin of the little river Lark, which here flows towards the north. Until within the last thirty years or thereabouts,

form branchlets prevent the appearance of lumpiness, and give it a very elegant appearance. It attains a height of from 10 feet to 15 feet, and is extensively cultivated in Japan, its native country, on account of its graceful habit. Some years ago, Messrs. Loddiges, of Hackney, claimed it to be a hybrid raised at their nursery between a Red Cedar and common Arbor-vitæ, but as Dr. Siebold found the plant in a wild state in Japan, it was proved to be a mistake.—A.



**The Aronian Thorn.**—This species of Thorn, the large yellow fruits of which are now attractive, is a distinct-looking handsome tree of about 25 feet in height. It has a very densely branched, rather erect habit of growth; the leaves are wedge-shaped at the base, deeply lobed, and toothed at the edges; the young shoots and under surface of the leaves are slightly pubescent. The flowers, which generally expand in June, are white, followed by yellow fruits as large as marbles, and very ornamental. It is an interesting park or avenue tree.—G.

## ORCHIDS.

### AUTUMN-FLOWERING ORCHIDS.

**VANDA SANDERIANA**, like most Orchids, differs considerably in the character of the flowers produced by individual plants. Amongst several examples recently in bloom in the Clapton Nurseries, no two were exactly alike. One plant in particular bore the finest flowers I have yet seen; in addition to their being larger than usual, the marking on the lip was much deeper than any I have hitherto met with, affording a better contrast to the ground-colour than in the plants of this *Vanda* that first bloomed. Amongst a number of other Orchids in flower was *Aerides Lawrenceanum*, a fine kind that comes nearer in the character of the flowers to *A. quinquevulnerum* than any other which I have seen. Of *Cattleya maxima* some unusually fine forms were blooming from the first growths which the plants have made since imported; some of them had six or seven spathes each. *C. Schilleriana*, a beautiful variety, was in flower, also a *Lælia elegans* of the dark-lipped type. *Odontoglossum Roezli* grows much freer here than usual; of this distinct and charming species there was one in which the purple and the orange marking stood out prominently from the ordinary forms.

Amongst *Cattleyas* imported during last spring, there is an immense lot of *C. gigas Sanderiana* and also of *C. gigas*, the last from a different locality from that from which the old shy-flowering kind came. Of *C. Mossiæ*, which, though old, will doubtless ever be a favourite with the public, there are here thousands of plants, amongst which there is a variety with white flowers; *C. Arnoldiana* is another fine form of *C. Mossiæ*. The rare *C. Wagneri* and the still rarer *C. Reineckiana* are also well represented; the last is one of the most lovely of all *Cattleyas*—unequalled for the contrast which its ruby lip presents to the pure white ground colour of the sepals and petals.

The stock of *Cattleya Skinneri* has a large house to itself; the largest plants of this species are in baskets, and some of the specimens are quite 3 feet across, each having as many as forty bloom-sheaths. *C. amethystoglossa* is in excellent condition; the greater part of the stock of this beautifully spotted kind is furnished with bloom-sheaths, although this is the first growth the plants have made since their arrival in this country. Quantities of *C. Dowiana*, not yet a year imported, have made growths as strong as are often seen in old-established plants, thus showing the difference between the treatment of imported Orchids now and that to which they used to be subjected. Cultivators often differ in the way in which they treat imported Orchids, *Cattleyas* especially. In most cases the plants are spread out on the stage of a house in a suitable temperature, and after they have begun to make some roots are potted. I never yet could see the wisdom of such a course. Any one who has had to do with Orchids knows that it is next to impossible to do anything in the way of potting when the roots are moving without injuring the tender points. There are

no plants existent that, from their nature, have such a dislike to their roots being injured as Orchids, and there are none so long in making good any injury to which they may in this way be subjected. Even in the case of plants that are established this is so, and still more is it so in that of such as have recently gone through the trying ordeal of removal and transit from their native habitat. In the case of these, the least damage done to the first roots which they make must necessarily be very hurtful in its effects. My own practice with imported plants has always been, after removing the dirt from the leaves and bulbs, to secure them to pieces of wood, Bog Oak if obtainable, long enough to admit of the bottom end being wedged fast with corks in the pots, by which means the injury, inseparable from potting after roots are produced, is avoided. A case in point in confirmation of this may be seen at the Clapton Nurseries. Last May a very large number of *Cattleyas* came to hand; part of them were potted as they were taken out of the cases, but the press of work made it impossible to so treat the whole, on which account many were not potted until later on, when they had begun to grow; the result is that the growth made by the plants first potted is quite double in strength that of those where the work was delayed. *Thunia Bensoniæ* and *T. alba* grow like weeds.

**DENDROBIUMS**, of which there are immense quantities, comprise *D. Wardianum*, *D. crassinode*, *D. primulinum giganteum*, *D. Dearei*, and *D. anosmum*, the last like *D. superbiens*, but without the objectionable Rhubarb scent; these have completed their second growth since they came into the country, and in most cases it is quite up in strength to that which is usually met with in plants that have been longer under cultivation. To enable anyone to form any idea of the demand there is at the present time for Orchids, it is necessary to now and again see some of the principal establishments to which they are imported in quantity. Those who saw the stock of *Phalænopsis* at Clapton two years or less ago would have thought that there were enough of *P. Schilleriana* and *P. amabilis* to supply all the growers existent for an indefinite time, yet all that now remains of these occupy a few feet run of stage in one of the houses. Of these two favourite species as many have recently come to hand as fill a house 60 feet by 18 feet as close as the plants can be placed; they are in good condition and are moving freely. Fine dark coloured forms of *P. Esmeralda* and *P. violacea* were in flower. *P. Stuartiana*, imported last May, was pushing up its bloom-spikes.

Of cool kinds, *Odontoglossum crispum*, as a matter of course, holds the first place; the stock of this species is very large, and not represented by less than six figures; the older established portion as well as those that are making their first growth, are in excellent order. The same may be said of *O. Pescatorei*, which, next to *O. crispum*, is generally looked on as the most useful Orchid where a lengthened supply of cut flowers is required. The principal matters in the cultivation of Orchids with Messrs. Low are to keep the plants well up to the glass, so that they receive plenty of light, as much air as can be given without over-drying the atmosphere of the houses in which they are grown, no more shade than is absolutely necessary, and no stint of water to the roots. Syringes and water-pots are here things of the past; a hose-pipe now does the work that used to be effected by the old methods which the present extent of stock has made unequal to. Those

who were accustomed to see the Orchids here before they were subjected to hose watering will have no difficulty in seeing the improved condition that the plants collectively present; they get enough now, which, by the use of pots and syringes, was not possible with a reasonable amount of labour. T. B.

## SOCIETIES.

### ROYAL HORTICULTURAL.

OCTOBER 27.

THE show on this occasion consisted chiefly of vegetables, which were uncommonly fine throughout; indeed, it was the best vegetable exhibition that has been held in London this year. Classes were set apart for groups of *Chrysanthemums* and collections of cut blooms, but neither were numerously represented, the date being full early for them. There was, however, some extremely fine specimens shown. But few exhibits were placed before either of the committees. The following seven plants received first-class certificates, viz. :—

**CATLEYA AUTUMNALIS**, an extremely pretty Orchid, reminding one at first sight strongly of *C. Skinneri*, but differing from that species in its style of growth as well as in the size and colour of the flowers. The bulbs are taller and more slender than those of *Skinneri*, the leaves are different, and the flowers, too, are smaller and their colour brighter, particularly that of the lip, which is very deep and rich, and intensified by the pure white throat, as in *C. Skinneri oculata*. The flowers are produced in clusters of from five to nine, and therefore highly attractive. We regard this as a most valuable addition to cultivated Orchids, inasmuch as it flowers just at the period when most wanted. Exhibited by Messrs. J. Veitch and Son.

**CALANTHE COOKSONI**.—A new hybrid variety, obtained by intercrossing *C. Veitchi* with the red-eyed variety of *C. vestita*. It may be best described as a pure white-flowered *C. Veitchi*, inasmuch as it partakes of the character of that hybrid in a remarkable degree. It has the same tall, almost erect, spike, the large finely formed flowers, and the same form of bulb. The chaste beauty of the flowers of a pure white *Calanthe* of the *vestita* section may be well imagined, and it must be regarded as a most welcome acquisition. Exhibited by the raiser, Mr. Norman Cookson, Wylam-on-Tyne.

**SARRACENIA BUCHANANI**.—A hybrid variety between *S. rubra* and *S. purpurea*. It is exactly intermediate between the parents. The pitchers are not so tall nor so stout as those of *S. purpurea*, but they have the exquisite form and high colour which characterise *S. rubra*; indeed we have not seen a *Sarracenia* with pitchers of such a bright tone of red. It is a neat grower, and doubtless easier to grow well than *S. rubra*. Shown by Mr. B. S. Williams, Upper Holloway.

**CALANTHE ALEXANDERI**, a companion plant to *C. Cooksoni*, but just the reverse in colour, for while one is the lightest the other is the darkest of all the seedling *Calanthes* yet raised. The colour of *Alexanderi* is a deep carmine-crimson shaded with a lighter tint. Both spike and flowers, both in size and form, resemble those of *C. vestita*, the red-eyed variety of which (*rubro-oculata*) was one of its parents, *C. Veitchi* being the other. Shown by the raiser, Mr. Norman Cookson.

**NEPENTHES ENCELSIOR**.—An extremely handsome Pitcher plant, obtained by intercrossing *N. Rafflesiana* and *N. Hookeriana*. In form the pitchers most resemble those of *N. Hookeriana*, while their colour is as fine as that of the best forms of *Rafflesiana*. In growth the plant is dwarf, and, judging by the specimen shown by Mr. B. S. Williams, it is very productive in the way of pitchers.

**CHRYSANTHEMUM VAL D'ANDORRE**.—One of the Japanese race, and very little different from hosts of others of a similar stamp. It has large flower-heads consisting of long, narrow, and twisted florets. Their colour is a deep cinnamon-red above, orange-yellow below, and the curling intermixes the two



colours in an interesting way. Shown by Mr. Wright, Middle Temple Gardens.

**CYMBIDIUM ELEGANS.**—A rare, but not a very showy Orchid, and we cannot but think that the committee has over-estimated its value as a garden plant. The growth is like that of *C. Mastersi*, but the flower-spikes are of a dull greenish white and, moreover, do not fully expand. No one but a specialist would think of growing it in preference to its lovely congener, *C. Mastersi*, now tolerably common. Shown by Mr. B. S. Williams.

The following were among the more noteworthy objects exhibited besides the above: Mr. Cookson showed three other *Calanthes* in addition to those certificated. These were *C. Normani*, a cross between *C. vestita rubro-oculata* and *C. Veitchi*. It is like the first-named parent, but the eye is pink instead of red; *C. Sedeni*, another seedling, was shown. This was raised years ago by Messrs. Veitch, and Mr. Cookson has produced the same variety by intercrossing the same parents. A variety of *Sedeni* called *candidula*, with a white centre, was also in this group. It is distinct from the original and very pretty. The value of these hybrid *Calanthes* can scarcely be overrated, as they are so easy to grow and flower in the winter. Mr. Cookson has been singularly fortunate in thus raising no fewer than five beautiful and distinct hybrids. Other Orchids shown included *Oncidium Forbesi* Borthwickianum, a variety differing but slightly from the original. It came from Mr. Smee's garden at Wallington. From Baron Schroeder's garden at Egham was shown the distinct looking *Peristeria pendula*, which resembles, if not identical with *Acineta Humboldtii*; the flowers are about 2 inches across, of fleshy texture, dull white, copiously spotted and agreeably perfumed. The foliage is large, like that of *P. elata*, but the flowers are produced on short, drooping spikes from the base of the bulbs. A botanical certificate was awarded.

Messrs. Veitch had a few choice plants, including a plant of the new *Amasonia punicea*, which had been in bloom since August. The long, gracefully arching spike, beset with brilliant crimson bracts and long tubular sulphur-yellow flowers, was still in perfection, and had a beautiful appearance. The great value of this new stove plant, therefore, lies in the long-enduring properties of the flower-spikes combined with their brilliant appearance. It is destined, no doubt, to become highly popular. Some spikes of the new *Begonia John Heal* (certificated at the last meeting) were shown. These had been in flower for a fortnight and were still in perfection—a proof of the lasting qualities of the flowers. *Sarracenia Dormeriana*, a variety imported with *S. purpurea*, and no doubt a form of it, was shown by the same exhibitors. The pitchers are larger and of different shape from the typical *S. purpurea*. *Davallia retusa* and fruiting bushes of *Eugenia Ugni* were also shown by Messrs. Veitch, together with a group of fine specimens of various sorts of *Bouvardias*, which produced an extremely pretty effect. The most conspicuous kinds were those named *President Garfield*, double pink; *Alfred Neuner*, double white; *Maiden's Blush*, single pink; *Priory Beauty*, single rose-pink; *Vreelandi* and *B. leiantha*. Mr. B. S. Williams showed a new *Sarracenia* named *Flambeau*, a cross between *S. psittacina* and *S. variolaris*, but was not so fine in colour as the *S. Buchananii* certificated. He also showed a noble *Bromeliad*, *Æchmea imperialis*, a near ally of *A. Marie Regine*. It has a short thick cone of flowers, not blue as in the latter species, but green, while the large membranous bracts surrounding the flower-head are of a bright rose-pink and very showy.

**NEW NERINES** were shown by Messrs. Henderson, of Pine-apple Nursery. The best of these were *N. elegans cerulea*, with a purplish shade in the flowers; *N. humilis rosea*, soft rose-pink; *N. elegans carminata*, with large flowers of a beautiful cherry-rose. The latter was the brightest of the group, and different from any in colour. The New Plant and Bulb Company showed *N. venusta*, one of the brightest-coloured varieties of the *N. sarniensis* group.

**TREE CARNATIONS** were shown admirably by Messrs. Hooper, who had a large number of sorts, for the most part new seedlings. Some of these were very fine, and we made particular note of the follow-

ing, all being bright in colour and with large finely-formed flowers. These sorts were named *Dr. Raymond* (deep crimson, like the old Clove in colour), *Irma*, *C. A. Hooper*, *Zouave*, *F. Raspail*, *Jean Sisley*, *Pitava*, *Madame C. Conté*, and *Chevalier*. These intermixed with other plants, among which some beautiful *Tydeas*, *Gesneras*, and *Nægeliæ* were conspicuous, made an attractive group. Messrs. Cannell, of Swanley, contributed a brilliant array of single *Begonias* in many varieties, single and double *Dahlias* (fine, considering the late date), new single and double *Chrysanthemums*, and two splendid zonal *Pelargoniums* (*Henry Cannell* and *Swanley Gem*, both with large trusses and flowers, and perfection in every way). Mr. Stevens, of Walton, Stone, sent what he calls a new hybrid *Eucharis*, an alleged cross between *E. Sanderiana* and *E. candida*. He states that it has larger flowers than either parent, and from seven to nine are borne on a stem. He proposes to call it *E. Stevensi*.

**NEW CHRYSANTHEMUMS** were shown by several. An attractive series of Japanese varieties was shown by Mr. Forbes, from Dover House, Roehampton, the most noteworthy sorts among which were those named *Mr. John Laing*, crimson-red; *Beauté des Jardins*, deep plum-purple; *Mdme. de Sevin*, also deep plum-purple; and *M. Léon Brunel*, a beautiful buff-tinted sort. Mr. Owen, Maidenhead, showed several beautiful new sorts, the best being *La Purété*, a large snow-white Japanese sort; *Gloire Rayonnante*, with peculiarly quilled florets; *Margot* and *M. Harman Payne*, orange-red. Messrs. Veitch had a few new sorts; the best we thought was a reflexed variety of a delicate silvery pink, and named *Lady Rosebery*. It is one that no doubt will take the popular fancy on account of its pleasing colour. It is one of Mr. Salter's raising. They also showed *Souvenir de Haarlem*, Mdle. *Melanie Fabre* and *Lakme*—all Japanese sorts. Mr. Wright, of Middle Temple Gardens, showed *Mons. Freeman*, a Japanese sort with purplish florets; and Mr. Boyce, of Holloway, showed a bunch of the new *Pomponium*, one of the best of the pompon race, the colour being a bronzy yellow.

**CHRYSANTHEMUMS.**—There were two classes set apart for these, one for the best group, the other for the best collection of twenty-four cut blooms. Three groups were shown—all very creditable, having regard to the rather early date for *Chrysanthemums*. The first prize group, which was shown by Mr. Stevens, of Putney, was an uncommonly fine one, and as it was effectively arranged in a prominent position, it attracted crowds of admirers. There were numerous sorts comprised in it, but there was a preponderance of whites and light-tinted sorts. *Elaine* was exceptionally fine, and so was the new *Lady Selborne*, the pure white sport from James Salter. This was shown to perfection, as, indeed, were most of the others. There was also a pale pink seedling Japanese sort which promises well. The whole, on the whole, did the exhibitor much credit. Mr. Hyatt's gardener at Streatham contributed the second group, which contained many fine blooms; and in the third, the most noteworthy blooms were of the large white Japanese sort, *Mrs. Marsham*, one of the finest of all, and one that deserves greater prominence for general cultivation.

There were some eight collections of cut blooms, mostly good, none decidedly bad, though inferior blooms were shown in some of the boxes; the chief prize-winner was Mr. Haywood's gardener (Mr. Ridout), of Woodhatch, Reigate. His collection was uniformly fine, and as the sorts he showed are undoubtedly good ones for early flowering, we append the names, as they may be useful to some of our readers. Of Japanese sorts he had *Rubra striata*, *Mdme. Rendaller*, *Mdme. Augustine Gautier*, *Mdme. Lecroix*, *L'Incomparable*, *Margot*, *Chang*, *Mdme. C. Audiguier*, *Soleil Levant*, and *Mdme. de Levin*. Of Chinese or named sorts, *Nil Desperandum*, *Empress of India*, *Mrs. G. Rundle*, *Mrs. Dixon*, *Baron Beust*, *White Venus*, *Queen of England*, *Lady Harding*, *Mrs. G. Glenny*, *Prince of Wales*, *Mr. Bunns*, and *Jeanne d'Arc*.

**Fruit and vegetables.**—There were but few exhibits placed before the fruit committee. The

chief were the following: A large culinary Apple from Mr. Earley, of Ilford, named *W. Earley*; it is a distinct looking sort, but the committee came to no decision about it; they wish to see it later, and also in June. Mr. G. F. Wilson sent a dish of *Beurré d'Anjou* Pears, gathered from an orchard house tree, which had not been re-potted for twenty-eight years. Mr. J. Feed, Roupell Park, sent a late Plum (fruiting branches), which the committee considered prolific, and wish to see it later and also next year. Mr. Prichard, Sittingbourne, sent fruits of Apple *St. Christopher*, but as there were not the stipulated number (six), the exhibit was passed over. Mr. Smee, of Wallington, sent fruits of his Apple *Smee's Seedling*. Various others were shown, including some from Messrs. Townsend, of Fordham, Suffolk, among which was a fine-looking sort called *Fordham Seedling*. Mr. Jones, of Carshalton, showed specimens of a Celery, *Plein Blanc Dorée*; and Mr. Wills, of Edgecote, sent samples of his new Brussels Sprouts, *The Edgecote*. A large collection of Apples and Pears, a selection of the best sorts of each, was shown by Colonel Lowe's gardener, Mr. Dance, of Gosfield Hall, Halstead, who was appropriately awarded a medal.

#### Vegetable Show.

A most worthy conclusion to what has proved a valuable and interesting series of shows of garden produce was seen in the truly wonderful display of vegetables presented. Certainly better average quality allied to good size never has been seen at South Kensington or elsewhere, and any better could scarcely be hoped for. If some of the visitors to this show of garden products did ask whether or no the drought of the past summer was not, after all, a myth, they had ample justification in the grand vegetables there shown. Certainly a more kindly season could not have been more generous of its garden bounties.

**COLLECTIONS OF VEGETABLES** in eight varieties were largely staged, no less than sixteen, a marvellous competition, being presented, and it is to be deplored that with such superb quality only three prizes should have been awarded. A veteran exhibitor, who not only stages well, but knows what to select for showing—Mr. Miles, of Wycombe Abbey gardens—was a worthy first, having beautiful new Intermediate Carrots, superb Walter's Exhibition Onions, splendid Chancellor Potatoes, huge Lyon Leeks, handsome and well blanched, Stamfordian Tomatoes, Brussels Sprouts, &c. In other lots were very good Incomparable White Celery, Maltese Parsnips, Perfection Tomatoes, Reading Onions, and grand Autumn Giant Cauliflowers. Not a few of the unnamed collections would have taken high place at provincial shows, and all merited high commendation. Single dish classes were productive of marvellous competition in many cases, as, for instance, there were twenty lots of *Celery*, six heads of each. The best, a beautiful, clean, solid, and almost perfect sample of Wright's White came from Mr. Richards, of Somerley Park gardens, Ringwood; whilst the second best was Sulham Prize, good samples, and a coarser kind, named Luckhurst's Giant White, came third, whilst Major Clarke's Red and Sutton's Dwarf White Gem were largely shown. Then there were no less than twenty-two lots of six *Parsnips*, and a grand lot of this favourite winter vegetable they were. The judges had the option of choosing from stout massive fleshy roots or from some exceedingly long and tapering; indeed, some of the latter were quite 4 feet in length—more tail than body. However, the prize lots, of which Mr. Richards had the best, were about 14 inches long, solid and tender, also handsome, and as good as could be desired. These were called Elcombe's Improved, whilst the second and third prize lots, of exactly the same character, were named Improved Student. Carrots followed, with eighteen lots, generally very handsome, the new Intermediate, of Sutton and Sons' selecting, predominating. Mr. M. Lye, of Newbury, who was placed first, had superb samples, as also had Mr. Slarke; of Brackley, whose samples were more even and perfect than were those placed second. As only nine lots of *Turnips* were staged, and many of these poor in quality, it seems evident that drought has at least affected that vegetable adversely. Snow-



ball was the best, and the samples of it handsome and clean. *Onions* made a remarkable class, no less than twenty-five dishes being staged. Whilst size was predominant, beauty was not wanting, Mr. Neal, of Bampton, Mr. Wiles, of Banbury, and other Oxford growers coming out strong. Both these growers had Deverill's Anglo-white, a fine white Spanish form, and if a good keeper should have a meritorious selection. Rousham Park Hero was very like the preceding. Nine lots of four plants or stems of *Brussels Sprouts* were set up, making an interesting class, because quality of strain was better displayed. Mr. May, of Northaw House, Barnet, had really handsome specimens, the stems 2 feet in height, erect, and well covered with solid medium-sized heads. The variety was May's Selected Northaw. The second prize lot were dwarfer, and the sprouts more than twice as big, indeed, were too big; but they had a solid, massive appearance. There were, however, no less than twenty-two dishes of Brussels Sprouts, handsome, medium-sized samples being selected for the honours, and coarse samples set aside. *Endive* was fairly well shown and blanched, but we have seen that much better. In all cases, heads of the curled and broad-leaved kinds were shown. Then followed twenty-one half-dozen of *Beet*, Mr. May having the best in very handsome samples of Pragnell's Exhibition, rich in colour and perfect in form; Dell's Crimson and Improved Dark Red were also good. No less than twenty groups of three heads of *Cauliflowers* were shown, a fine lot indeed, and many big as well as solid. The awards, however, favoured quality as found in the pretty moderate-sized samples of Autumn Giant, put up by Mr. Haines, of Colehill gardens, but it was noticeable that with the second and third prizes the size increased. Some nineteen lots of *Leeks* were shown; huge stems, beautifully blanched, of the Lyon strain, coming from Mr. Haines, with Mr. Miles and Mr. Richards close up with the same kind. We may soon expect to see Leeks as big as elephant's legs. *Cabbages* were very good for the season, Mr. Osman having the finest in Sutton's All Heart, whilst the same grower had the biggest Drum-head in a monster some 20 inches over and solid as a rock. There were some ten lots of Pickling or Red Cabbage all round, clean, solid, and rich in colour. Mr. Osman, who seems to be a most successful grower of this vegetable, was again first here with very handsome heads. Next came some fifteen dishes of *Tomatoes*, of which the best in these cases were Trophy, the samples rich-coloured, fine, and handsome; Hackwood Park and Hathaway's Excelsior were also good. These fruits were set up with much taste, and introduced a pleasing hue of colour into the exhibition. *Gourds* were well shown, though in many cases the samples wanted size, but colour and form were admirable. There were three collections of not less than twenty-five sorts, Mr. Osman having the best, including some of the warted bottle-shaped, round Turk's-cap, and other pretty, though useless, kinds. Some pretty forms also were in the other collections, and there was also a very representative one from the Chiswick gardens, which included fruits of the Giant Gourd, Red Etampes, white Italian, and other more desirable varieties.

*Potatoes* made up a big display in the competitive classes, certainly the best show of this popular esculent seen at Kensington for many a day. There were five lots of thirty dishes each to begin with, that famous grower, Mr. Hughes, of Eydon Hall, Byfield, coming first with superb samples. His collection included of coloured kinds Reading Russet, The Dean, Vicar of Laleham, Rufus, Cardinal, Edgecote Purple, and Purple Perfection, the latter a seedling of round form and good looking. Of white kinds there were Captain and The Colonel, both flat white kidneys, Chancellor, Prime Minister, Snowdrop, London Hero, Fidler's Prolific, Schoolmaster, M.P., and Cosmopolitan, all first rate. In other collections were Lady Truscott, Fillbasket, Early Regent, Radstock Beauty, American Purple, Prizetaker, Red Flake, &c. Of twelve dishes there were ten lots, Mr. Ellington being first, having Defiance, Vicar of Laleham, Grampian, Edgecote Purple, Lifeguard, and, of whites, Snowdrop, Magnum Bonum, The Doctor, Chancellor, &c. The class throughout was excellent and excited much admiration. Then with six dishes, of which there

were fourteen lots, Mr. Robins, of Aylesbury, was first with fine, clean, fresh samples of Schoolmaster, International, Reading Hero, Radstock Beauty, Mr. Bresee, and Vicar of Laleham. In other collections were good Cosmopolitan, Edgecote Purple, Early Regent, Snowdrop, &c. The only Continental collection was one from MM. Vilnorin & Son, of Paris, who sent over 100 sorts, generally small samples. Some of these were well-known English and American kinds, and some few of those peculiar finger-like French sorts which are not much grown here.

#### Special Prizes

Were offered by the Messrs. Sutton & Sons, of Reading, for dishes of their Reading Ruby and Early Eclipse, but only four competitors responded, Mr. Donaldson, of Keith Hall, Inverurie, N.B., having the best. This same grower was also placed first in the class for nine kinds, of which there were twelve collections, for prizes also offered by the same eminent firm. This collection comprised good Magnum Bonums, Lady Truscott, Reading Hero, Fiftyfold, Reading Russet, Favourite, and Prizetaker. Two otherwise capital collections were disqualified, because in one case the exhibitor had Lady Truscott untrue to name, and in another Red Regent for Red-skin Flourball.

The prizes offered by Messrs. Fidler, Reading, were for four dishes, all named, Prolific, Success, Enterprise, and Reading Russet, Mr. Hughes having the best samples. There were eight collections in this competition.

Mr. Deverill, of Banbury, offered prizes for his four kinds of Onions—The Wroxton, fine oval shape, and handsome, Rousham Park Hero, Main Crop, and Anglo-white Spanish, the latter three of the fine flat, round form so familiar in good strains of the White Spanish. There was good competition, some thirty dishes being staged, and the leading samples were all very fine and handsome, the best in all cases coming from Banbury or its district, which seems to be the favoured Onion locality of the kingdom.

MISCELLANEOUS COLLECTIONS OF POTATOES, &c., were staged by the Messrs. Sutton and Sons, who had some tubers of the *Solanum Maglia* species, not very handsome certainly; also several fine-looking white seedling kinds not named; also fine dishes of their Magnum Bonum, Reading Russet, Reading Hero (some seventeen kinds in all), and thirty dishes of other standard sorts. Their remarkable display of produce included some fine samples of their new Intermediate Carrot, good White Gem Celery, Prizetaker Leek, &c. Mr. W. Kerr, seedsman, Dargavel, Dumfries, staged 100 dishes of Potatoes, all good clean samples, and including most of the best known varieties. Messrs. Fidler and Sons, of Reading, had a very fine display of tubers also, including some good dishes of White Elephant, General Gordon, Magnum Bonum, Reading Giant, &c.

A full list of awards will be found in our advertising columns.

#### EXETER APPLE AND PEAR SHOW.

The second annual exhibition of this kind was held on October 22, and was an unqualified success. The principal object of the show is to attract attention to the best sorts of Apples and Pears, and thus to conduce to an improvement in the special culture of these fruits in the west of England. The early part of this year was most unfavourable for Apples, but the sorts, for which the rains came too late, made up for a deficiency in growth by exceptionally good flavour. There were 95 exhibitors as compared with 80 last year; the number of classes 53, as against 38; and the number of entries 734, against 522. In the competing classes, 1690 dishes of Apples were arranged, representing 10,000 single fruits; and 338 dishes of Pears, representing 1680. Besides these, there were numerous exhibits not for competition. Among them the magnificent fruits exhibited by Messrs. Lucombe, Pince, and Co. were conspicuous for their excellence. They had on view 335 dishes arranged on three large stagings in groups of dessert, kitchen, and other sorts. The collection of dessert kinds was of great beauty and variety. In the group of kitchen sorts were

many new varieties, full of merit, and others of good reputation. This firm's collection of Pears contained some of the choicest varieties grown. Amongst them were such sorts as Flemish Beauty, Duchesse d'Angoulême, Pitmaston Duchess, Louise Bonne of Jersey, Williams' Bon Chrétien, Beurré Diel, Beurré de Capiaumont, Marie Louise, Glou Morceau, Chaumontel, Vicar of Winkfield, Souvenir du Congrès, Huyshe's Victoria, Huyshe's Prince of Wales, Huyshe's Prince Consort, Durondeau, Easter Beurré, Gansel's Bergamot, Knight's Monarch, Uvedale's St. Germain, Catillac, and Bellissime d'Hiver. Amongst Apples adapted either for kitchen or dessert use were Blenheim Orange, Emperor Alexander, Peasgood's Nonsuch, Dredge's Fame, London Pippin, Kirke's Lord Nelson, Reinette du Canada, Winter Pearmain, Herefordshire Pearmain, and Winter Peach were very fine indeed; and in the group of kitchen sorts Mère de Ménage, Dumelow's Seedling (Wellington), Warner's King, Tower of Glamis, Cellini, Hawthornden, Grand Sultan, Hoary Morning, Alfriston, Annie Elizabeth, Lucombe's Seedling, Gravenstein, Rymer, Brown's Caroline, Cat's-head, Gloria Mundi, Nelson's Glory, Norfolk Beaufin, Golden Spire, Broad-eyed Pippin, Waltham Abbey Seedling, Northern Greening, Striped Beaufin, and Yorkshire Greening were, perhaps, the most noteworthy. Their dessert kinds consisted of such fine sorts as Ribston and Cox's Orange Pippins, Gidley's Pearmain, Adam's Pearmain, Cornish Gilliflower, Court of Wick, Court Pendu Plat, Cornish Aromatic, Pince's Golden Pippin, King of the Pippins, Kerry Pippin, Lamb Abbey Pearmain, Newtown Pippin, Old Nonsuch, Pearson's Plate, Reine des Reines, Ross Nonpareil, Royal Russet, Sturmer Pippin, and Scarlet Nonpareil. Messrs. Veitch had 130 dishes; other exhibitors (not for competition) were Mr. Stokes, St. Thomas, who sent thirty boxes of French Pears, and Mr. Bunyard, of Maidstone.

A full list of awards will be found in our advertising columns.

**National Chrysanthemum Society.**—At the first committee meeting of this society the following varieties of new Chrysanthemums received first-class certificates, viz., Pomponium (pompon) and Mandarin (Japanese), from Mr. Boyce, Holloway; to Mr. Davis, Camberwell, for Lakme (reflexed) and Mandarin; to Mr. Forbes, Dover House, Roehampton, for Brise du Matin; to Messrs. Cannell, Swanley, for Fiberta (pompon); and to Mr. Wright, Middle Temple Gardens, for Belle Navarraise (pompon). At the second committee meeting, held on the 28th inst., Mr. Wright was awarded certificates for Val d'Andorre and Mons. Freeman (incurved), both shown at South Kensington the day previous.

## BOOKS.

#### GUIDE TO KEW GARDENS AND ARBORETUM.

A SERIES of new guide books are now being prepared and issued by the authorities at Kew, and in them there is a great deal of information of an interesting and instructive character for the every-day visitor, and more especially for gardeners and plant lovers generally. Notices of the guides to the "North" gallery of pictures and the collections of vegetable products in Museum No. 1 have already appeared in THE GARDEN. Perhaps we may call attention here to the inconvenience of an important portion of the collection of pictures in the "North" gallery being at present without proper labels, and omitted altogether from the catalogue. We refer to the pictures of African plants and scenery, and the recently added beautiful representations of Chilean plants. It is to be hoped that a supplement will soon be added to the present catalogue, so that visitors may be able to find the names of the many interesting plants contained in these two collections. The guide book to which attention is here



directed contains short accounts of all the most interesting and noteworthy objects in the houses, the botanic garden, and the arboretum, and consists of 184 pages, 12mo, with 54 woodcuts, and 16 pages of index, and is sold at the gates for the reasonable charge of sixpence. It commences with an historical account of the origin of the gardens and the formation of a botanical collection which was commenced by Lord Capel, who occupied Kew House and grounds about 130 years ago. In 1759, Mr. W. Aiton, a pupil of the celebrated Philip Miller, was placed in charge of the gardens, and thirty years later His Majesty George III. purchased Kew House, and Queen Charlotte evincing an interest in the increase of the collection of plants, the gardens of Kew soon became celebrated all over the world. Aiton's "Hortus Kewensis" was published in 1789, being a descriptive catalogue of all the foreign plants then introduced into English gardens, amounting to 5600 in number. Soon after this the establishment suffered for want of encouragement, and in 1838 it was proposed to abolish it altogether. "Throughout the country, however, an opinion existed which soon began to be loudly expressed, that the gardens should be placed upon a very different footing and rendered available as a great instructive and scientific establishment, for the advantage of the public," and on Lindley pointing out how immensely valuable they might be made by devoting them to botanical and educational purposes, it was finally decided that they should be handed over to the nation, and to this end Sir W. J. Hooker was appointed director in 1841. In 1844 the noble Palm house was begun, and took four years to complete. Soon after this the museum collection was founded, being the first museum of economic botany ever established. In 1850 the arboretum was commenced "on a scale worthy of a nation whose landowners have long been conspicuous for the ardour with which they have pursued arboriculture whether as a source of wealth or of pleasure." The large museum (No. 1) was erected in 1854, and in 1863 the temperate house was built. Since then the most important additions and improvements have been the erection of the T range of houses, the acquisition of the "North" pictures, and the rock garden, made in the spring of 1882. Such is a brief account of the growth and development of the world-wide renowned gardens at Kew, which now occupy nearly 300 acres and contain by far the richest collection of living plants in the world.

Guided by the book, we are taken through all the houses, the plants of interest in each having short notices devoted to them, and it is in these that the horticulturist will find useful information. Take as an instance the following: "The species of Heath (*Erica*) are exceedingly numerous at the Cape, and, like the species of many other large genera belonging to that peculiar flora, are nearly all endemic. In no part of the world are the ornamental productions of the vegetable kingdom so varied as over the arid sands of South Africa. Amidst all the beauties of that kingdom the Cape Heaths stand confessedly unrivalled. Nature has not restricted these elegant shrubs to one particular soil or situation. You meet with them in the marshes and on the banks of rivers, in the richest soil and on the bare mural cliffs, on the acclivities of the hills and the tops of the highest mountains. It is curious to contrast with this abundance of species of Heaths in South Africa the small number of species native in North Europe, where, however, from the great multiplication of individuals of two or

three species, wide tracts of moorland are almost covered by them." Here again is an interesting note on Cactuses: "The Cactuses are natives almost exclusively of the New World, from whence the Prickly Pear (*Opuntia Ficus indica*), now abundantly naturalised in India, the Atlantic Islands, and generally on the shores of the Mediterranean, where it serves to form impenetrable fences, was originally introduced. Notwithstanding the uncouth and often grotesque forms assumed by the fleshy, leafless, and usually spinous stems of these plants, the flowers are often of great beauty, and in some genera of very large size." With chatty information like this we are taken through all the indoor collections, and then on through the riches of the outdoor departments. The director's great knowledge of the Coniferae is revealed in the information given on the habits and peculiarities of many of these plants, to which, however, we cannot do more than call attention here. The arboretum, now a great feature in these gardens, and destined to popularise hundreds of noble and beautiful hardy trees and shrubs which are now hardly known, has thirty-two pages of matter devoted to descriptions of and short notes upon some of the most important plants in the collection, and for this information alone this little manual ought to find a place on the book-shelf of every gardener and nurseryman. Here is a note upon the large old specimen of the Chili Pine (*Araucaria imbricata*) at Kew: "This specimen—one of the first introduced—was brought to England by the late Mr. Archibald Menzies, surgeon and naturalist to Vancouver's voyage to North-west America in 1788. Mr. Menzies, when dining at the table of the Governor of Valdivia, had the seeds offered him at dessert. On being told that they were those of a great Pine of the Andes, he took some away in his pocket and sowed them in a pot on board ship. He tended the young plants carefully during the remainder of the voyage, giving them a share of his allowance of water when that was reduced to little more than a pint a day. On arriving in England in 1792, Mr. Menzies presented the young plants to Kew, whence four were distributed and one remains."

So important is the arboretum at Kew likely to become, that we think the following short account of its formation of sufficient interest with which to conclude this notice. In 185c-1 a collection of no less than 2325 species, and 1156 varieties of hardy trees and shrubs were got together, chiefly through the liberality of English and Continental nurserymen. Unfortunately, the poorness of the soil at Kew was unfavourable to many of these, so that a great many of them soon languished and died. In 1870 another effort was made, the remaining plants of the first effort being taken up and replanted in prepared beds, or with a quantity of good soil about them, and the gaps made in the collection through death were filled up. This was effected by means of exchange and a few purchases, "that is so far as was possible, for, owing to the rage for planting Conifers which has enslaved proprietors of estates and their gardeners, the rearing of rare, interesting, and beautiful deciduous trees and shrubs had been to a great extent abandoned, and kinds that were common in nurseries a quarter of a century before were no longer to be had." It was not without much difficulty that specimens were found in English nurseries of the common Aspen, Liquidambar, and Oriental Planes, whilst most of the American Oaks, Birches, Maples, Hickories, Ashes, &c., were only procurable from Continental sources. Happily, the taste for these beautiful trees has revived

since then, and we now meet with them in many nurseries and newly-formed private gardens.

B.

## OBITUARY.

MR. W. H. LASCELLES, well known in the horticultural world, has been removed from our midst. He was generally recognised as a man of exceptional ability, and greatly respected by all who knew him. Although not an exhibitor of flowers, he was passionately fond of them, as those who knew him best and had the opportunity of seeing his glasshouses can testify. Failing health induced him, several years ago, to retire from the business of horticultural builder at Bunhill Row; therefore no change will take place there in consequence of his death. He was fifty-three years of age.

## LATE NOTES.

**Hardy flowers for exhibition.**—Will some experienced exhibitors tell me what they consider to be the six best hardy herbaceous plants for showing about the middle of August?—T. F.

**Seedling Apples (*J. O. B.*).**—Nice looking, and not bad in flavour, but nothing remarkable in that way, and therefore however interesting in the place raised they should not be sent out on name.—ED.

**Dendrobium formosum giganteum.**—This in a 6-inch pot has two pseudo-bulbs carrying respectively five and six flowers, which have been in perfection for upwards of a month; the bulbs themselves are about 10 inches long. I understand that this variety seldom flowers satisfactorily.—J. A., Digswell House, Welwyn, Herts.

**Dessert Apples.**—The following do well on the Paradise stock as pyramids, viz., Gladstone, White Juneating, Irish Peach, Red Astrachan, Early Harvest, Kerry Pippin, Quarrenden, Pine Golden Pippin, Cox's Orange, King Pippin, Golden Harvey, Golden Pippin, Old Nonpareil, Scarlet Nonpareil, Braddick's Nonpareil, Northern Spy, Claygate Pearmain, Syke House Russet, Sturmer Pippin, and Court Pendu Plat.—W. TAYLOR, Hampton.

**Gloxinias (*J. D.*).**—Your Gloxinias are attacked by thrips, which are, I believe, the sole cause of the injuries to the leaves. The immature thrips is of a pale yellowish green colour, and being so small and inconspicuous in colour, is often overlooked until it has done considerable mischief. Fumigation with tobacco smoke is a good remedy, or if the plants will not stand smoke, dip or wash them in soft soap and tobacco water, washing them clean before they are quite dry. Neither smoking nor dipping will destroy the eggs, so repeat the operation in a week. Keep the house well ventilated and the air moist.—G. S. S.

**Pyracantha not fruiting.**—We have three large Pyracanthas trained horizontally on the front of the hall facing north-west; each covers nearly 200 square feet of wall; they grow well and every summer are covered with flowers, but very few of the flowers set, and now there are but few berries to be seen. There are several cottagers in the village with plants trained against their houses facing the north-west and they are covered with fine red berries, but they are only trained roughly against the walls. Can the training have anything to do with their not fruiting? if not, to what other cause can it be attributed? Perhaps some of your readers may be able to tell me where the fault lies.—A. MCK.

**Eucharis mite (*C. B. Mansfield*).**—I could not find the maggot-like insects on your bulbs; they have evidently been attacked by something, probably by one of the bulb mites, but except on the one you mention having these mites on it, I could not find any. It seems impossible to destroy these creatures without uprooting the bulbs, unless the soil was thoroughly saturated with some insecticide; this would probably prove injurious to the plants. I have suggested immersing the bulbs in hot water at a temperature of 115° Fahr. for ten minutes, which would kill the mites, but I am uncertain if this would injure the bulbs. Clean the roots and brush the affected parts with soft soap and tobacco water; be careful to throw away any soil which may contain any mites, so that they may not be able to find their way to other bulbs.—G. S. S.

**Names of plants and shrubs.**—*Anon.*—1, *Saponaria officinalis*; 2, *Physostegia imbricata*; 3, species of *Artemisia*, probably *argentea*; 4, *Epimedium* species; send in flower.—*G. F. G.*—1, *Euphorbia cyparissias*; 2, *Aster laevis*; 3, apparently *Napea dioica*; 4, *Solidago canadensis*.—*W. F.*—1 and 2, both specimens too small to name; 4, appears to be natural decay in the leaves.—*F. L.*—1, *Taxodium sempervirens*; 3, *Pinus excelsa*; 4, *Thuja Lobbi*.—*P. G.*—*Morodes Cartoni* of Hooker.—*W. R.*—1, *Cyclamen hederifolium*; 2, *Linosyris chrysocoma*; 3, *Nepeta Mussini*; 4, *Veronica speciosa*.—*H. S.*—*Clethra alnifolia* (white), *Osmanthus ilicifolius* (Holly-like); answer to question next week.—*B. J. B.*—*Sternbergia lutea*.—*Collins and Gabriel*.—*Crocus Clusii* (Gay), Portugal; *Aster punctatus*, *Galatella punctata*.—*A. Scott*.—*Lastrea elegans*.—*Old Sub.*—Poor variety of *Sedum spectabile*.—*T. M. F.*—1, *Helianthus giganteus*; 2, *Pyrethrum serotinum*; 3, *Chelone obliqua*. Names of fruits next week.

## BOOKS RECEIVED.

"Fruits and Fruit Trees," by Leo A. Grindon. Simpkin, Marshall & Co.

"Bible Flowers and Flower Lore." Hodder & Stoughton Paternoster Row.



## WOODS & FORESTS.

### THE ASH AND ITS USES.

SOMETHING has been said in these columns as to the claims of the Ash for planting; it may, therefore be well to look a little into some of its uses. These uses will, of course, vary to some extent in different localities, as the manufactures in which the wood is employed differ. There are, however, certain uses which are common to most places, and although the amount consumed in them may not be so great as in others of a more special character, it may be well to look upon them first. It generally happens on estates where only a small quantity of Ash grows that such trees as are annually cut down find their way into the yard of the local wheelwright, and when the wood is really good these men as a rule will give a very fair price for it. It is true that in many instances it does not make so much difference to the owner as may at first appear whether he gets a few pence more or less per foot for it, as it is seldom the value comes back in money, but is more often worked out in repairs to the wagons, carts, and other vehicles in use on the estate, for which the man who does the work is open to charge more or less according to the cost of the material. Such uses as these are in themselves small, but when it is considered that new vehicles and repairs to the old ones are constantly required on every estate and farm in this country, the aggregate amount of Ash annually consumed by country wheelwrights would probably total up to as large a figure as any other individual use to which Ash is put. For this class of work the sizes most in demand are trees with clear butts to a length of from 10 feet to 12 feet and upwards for shafts. Smaller sizes, if good, can be turned to account, but for this purpose trees under some 9 inches quarter girth are not so economical. For the smaller sizes, from 7 feet to 14 feet or 15 feet, there is a demand not less important, viz., for building the raves of carts and wagons. For the shafts the thicknesses in general use are from 3 inches to 4 inches, and for the raves 2 inches to 2½ inches. For such trees as will cut these two kinds of planks there is always a market at a good price, and no difficulty will be made about the rougher portion commencing where the first limbs spring out from the trunk. The numerous short pieces of Ash and the fellows which go to make up a vehicle will afford an outlet for it. In country districts Ash fellows are, however, seldom used for anything stouter than a market cart, as Elm is employed in the heavier kinds of work. Hitherto we have only referred to the country wheelwright as a user of Ash, but there is another class of wheelwrights, if we may use the term, which consumes a lot of Ash, and that class is coachbuilders.

In this trade, which is essentially a separate one, the corresponding cry to that of the wheelwright for shafts is that of poles, as in buying Ash the coachbuilder is always on the outlook for pole-plank, as he well knows that if he can secure this, all his other requirements will be easily enough supplied. There is another class of vehicle builders who use a quantity of Ash, who cannot in the ordinary acceptance of the word be termed either wheelwrights or coachbuilders, and this is the railway companies and other large carrying companies, who build only for their own work, and, taking into account the present ramifications of the trade, the annual wear and tear of such companies' road vehicles is something enormous.

Following next in the order as regards the

similarity of the purposes to which the wood is put come the makers of agricultural implements. In one sense these, too, may be looked upon as wheelwrights, but in practice, as is well enough known, the manufacture of such implements is a distinct trade. It is one, however, in which Ash is largely used, and the one in which, perhaps of all others, the best wood should be used, as, partly from force of circumstances and partly from habit, agricultural implements, as a class, are more exposed to the damaging influence of wind and weather than any other manufacture. In busy centres of trade, the wood used in vehicles comes to the end of its career through actual hard work, but in the case of the agricultural implement, the end is hastened quite as much by lying about and exposure to the weather as by the amount of wear and tear it gets.

For all the uses to which we have above referred a certain proportion of good-sized timber is absolutely necessary, but with one of which we are now about to speak size is a secondary consideration so long as the wood is good; in fact, the maker of edge and other tools, who is a large user of Ash, if he had his choice, would go in for moderate-sized wood only, as he would on getting this stand a better chance of securing in it the all-essential quality of toughness. From the very low price at which some tools are made and sold, it frequently happens that wood of the very reverse kinds gets employed, and broken and otherwise defective handles are the result; but with the better class more care is taken that only suitable material is used. Pieces smaller than one's wrist and a few inches only in length can be turned to account, so there is for this work no occasion to waste more than the merest atom of good wood.

THE RAILWAYS are other large consumers of this sort of wood for their pick and shovel and hammer shafts, and it is really surprising to see the amount of small Ash which annually goes into consumption at one of the works with which I am acquainted. Although we are a long distance inland, a considerable proportion, I believe, comes from Ireland. Wood down to 5 inches quarter girth will answer for this as well as any, but the buyers do not care to take it beyond the spot where the branches begin and where it consequently becomes knotty. This is a drawback to the producer in selling direct to the user, as if he cuts off his trees at the first or second knot he will have the tops upon his hands, and these are things merchants or others will not care to buy when the best is gone. In colliery districts I believe such wood may be cut into pit chocks, and a line may occasionally be obtained for railway sprags. These, however, are things more in the province of the merchant, and this latter individual when he undertakes the cutting up of hammer and other shafts, can in the case of this rough wood pick between the knots, and thus turn to account wood which would go for the fire where there were no means of working it into something more valuable.

THE FURNITURE-MAKER is another user of the Ash. For the best cabinet work, wood clear in the grain and of a good size is necessary, and when it possesses these qualities that of toughness is secondary. Indeed, for cabinet-making wood which has lost some of its toughness is perhaps the more suitable, and Ash such as this sometimes displays fine markings. The best class of work is always finished so as to show the grain and colour, and it is only in the inferior work, in which the nature of the wood can be concealed with a dark stain, that anything but bright clear Ash can be used. Besides

these things on which we have touched, Ash of still smaller dimensions, which then, of course, would be merely poles, is used for bending for hoops, for making crates, and open hurdles. It is also turned up into bobbins, spinning-tops, and other common toys. There are also, no doubt, many other purposes which for the moment have escaped us, and others still of which we do not know, for which Ash is more or less largely used. We think, however, that although we have looked but imperfectly into the way in which Ash is used for a number of purposes, when it is taken into consideration that the great scarcity of the wood is admitted, we have fairly established a case for the placing of the tree in the very foremost rank of those which it is desirable to plant.

D. J. Y.

### THE SPRUCE AND SILVER FIRS.

THE common Spruce and Silver Fir are both important trees, and of value for timber production in this country. Both are naturalised exotics, and now perfectly acclimatised. The common Spruce is capable, moreover, of successive production without help on the ground in which it grows. Both trees are rapid and free growers, and when planted in suitable soil produce large, fine, clean timber, suitable for all kinds of estate buildings. In order to grow any sort of trees to perfection they must be planted in soil conducive to their requirements. It is a mistake to leave plantations to the course of Nature. What man has to do is not to permit Nature to act alone, but to assist her. Nature never has produced, nor ever will produce, the maximum of quantity and the maximum of excellence unaided.

Recurring to the subject in question, matured timber of the Spruce and Silver Fir when thoroughly seasoned may be applied to any purpose in building. On the other hand, green timber never should be used in building, and used as seldom as possible in the most common erections. The employment of green timber has led to disappointment and doubt as to the value of home-grown timber in the construction of buildings, and the durability and quality of the wood is condemned and excluded from our building under false and unfair impressions.

Estates that can produce timber trees of such quality and size as the Spruce and Silver Fir become should be very little indebted to the foreign timber trade for anything in the way of building and mining, &c.

If proprietors would consider this, and could appreciate the value of their own timber production for most of estate purposes, very little foreign wood would be used by them, and none if they have any regard to economy. If the word economy has any meaning to us, foreign timber would not be bought and used in preference to our own excellent home-grown timber. It is not easy for the curious observer to comprehend why and wherefore so much foreign timber and so little home timber is used in country estate building construction. Much splendid timber goes to waste for want of being used, and often for want of being sold; and much more sometimes because there is not any sale for it, at any rate in the rough state. There is something wrong, very wrong, in this. If proprietors were to discourage the practice of purchasing foreign timber, they would be gainers. They have it in their power to enhance the value of their own home produce. How so? Well, by utilising home-grown timber in the construction of estate buildings. By doing this that would raise the timber to the same level of



worth as foreign timber. For durability and quality I hold that home-grown wood is as good as foreign wood of the same kind; and where only the home wood comes short is in dimension and smoothness of quality. But with proper care and control that could be improved, even to equality.

If those writers who derogate the value of the common Spruce and Silver Fir as timber trees would endeavour to name trees better fitted to fulfil all the conditions of tree growth in these islands than the trees they condemn, their opinions truly would be of some service. As it is, their power is misdirected, is pithless, and futile, and cannot disturb the result much one way or the other. It is in vain to run down the value of trees for which, at present, there are no better substitutes. The money value of a tree—of any tree—is not its sole attribute, nor always its first quality. There are other qualities akin to the tree besides its money value; trees have an abstract value. Such, for instance, is its aptitude to suit itself to singular states of soil and positions that no other tree will do in a similar way. To that class the Silver Fir and Spruce belong. It is apparent that those trees have a ground value—that is, a disposition to inhabit lands which other trees object to do, and a disposition fitted to local areas.

It is clear that planting ought not to be performed without proper insight and respect to the necessities of the tree. But to find that out is part of the forester's business. In computing the worth of trees it should not be forgotten that the capacity of development is not alike in all, but varies greatly in a single variety—subject to various states. Wherever there are large areas of Spruce and Silver Fir trees, evidently these trees have been planted *en bloc*, because the soil in which they are and were planted is more suitable to their growth than any other kind of tree that could have been planted; or else they have been planted injudiciously.

GLENDYF.

**Oak palings.**—A little paragraph on this subject which appeared on p. 416 gives some very bad advice, and that is that in cleaving new timber the whole of the wood may be worked up, whether sap-wood or heart-wood. The writer says that "in cleaving old timber for palings the whole of the sap-wood which is decayed must be taken off." This is equivalent to advising one to carry an umbrella when it rains, which any reasonable person would most likely do, but to advise the using up of sap-wood simply because it has not had time to decay is a more serious matter. For certain purposes, where cut into large scantlings which are actually worn out rather than suffered to decay, a little fresh sap may be admissible, but where in a thing like palings natural decay is the principal factor to be reckoned with, there is little sense in advocating the use of sap-wood simply because it has not had time to perish before it was used.—D. J. Y.

**Timber trade vagaries.**—"A Wiltshire Forester's" statements on this head want amplifying. When I spoke of Oak, I spoke of Oak timber in the rough, not of timber "sawn up and sent by rail." I know some estates in England so situated that the timber cannot be disposed of profitably any other way than by sawing it up into planks or deals and sending it by train, but Oak trees in the rough, say, from 10 feet to 60 feet bulk, being transported from Wiltshire to Yorkshire is a thing I cannot credit, because the cost of transit and delivery would come to more than the price of equally good Oak timber here on the spot, and rotting for want of a customer. This is what "A Wiltshire Forester" has to explain, and I am curious to see how he will do it. As to buyers "going all the way to Wiltshire" for Oak, that is another matter, as it does not follow that they want it for Yorkshire; they may dispose of it elsewhere,

and nearer home. I know the biggest buyers in that part of Yorkshire nearest to Wiltshire, but I know none who do what your correspondent says. Special qualities of timber in the sawn plank may be occasionally bought by consumers at a distance, but these sales do not affect the general timber market. Besides, in the accounts of sales which I see advertised and reported, I notice that local buyers, or buyers not far distant, almost invariably buy the whole of the lots. "Wiltshire Forester's" case must, I fear, be quite exceptional.—YORKSHIREMAN.

### SHAKES IN OAK WOOD.

THERE is more or less of a heart-shake in every Oak tree, but in extent and direction they vary greatly. A writer on the peculiarities of the Oak (p. 440) remarks that when it is found on a gravelly soil, that "it will be found on felling to be little more than a bundle of laths, and utterly unsuitable for the uses to which Oak timber is generally put." That soil has much to do with the development of the shake anyone who has made observations on the subject will know is correct, and, further, that gravelly soils are not so suitable for the growth of good Oak as many others. Notwithstanding this, to imply that Oak will only grow on gravelly soils such timber as the writer describes is putting it into rather too unfavourable a light.

The direction of the shake has much to do with the effect it has on the value of the timber. The commonest shape which the shake takes is more or less that of direct lines from the centre of the tree, and nearly in opposite directions towards the circumference, the tendency being to form a rent dividing the tree into two equal sections. As a rule, these shakes occasion little trouble, as in cutting up a line is made to pass through them, or if the scantling is large and no cut is wanted down the centre, in a direction parallel to the shake. A more difficult thing to deal with is, however, the star shake, as this likes the direction of the rays of a star, which peculiarity no doubt gives it its name, and so divides the tree into several sections of very inconvenient shape to be sawn into boards and scantling. If the tree is perfectly clear in the grain in other respects, which does not often occur, something may be done in rending it for poles and other purposes, but at the best it is an imperfection which entails much waste. Another species of shake, the ring or cup-shake, is the most difficult of all to combat successfully, as, in addition to the openings in the direction of the medullary rays, a rupture also exists in the line of the concentric circles. The portion of wood within this ring may be taken for all timber purposes as being quite useless, and speaking of the tree generally, an Oak which has a ring-shake to any considerable extent is of very little use except for large scantlings for rough purposes where the presence of these ruptures of the wood do not interfere with its use in such places. So greatly do these things affect the worth of the timber, that it very often occurs that 3 feet of such material would be of less value than a single foot of really good wood.

J. N. B.

**Timely thinning of trees.**—The importance of this subject cannot be too often impressed upon owners of estates, particularly where ornamental planting has been carried out in new places. It often occurs that a plantation is allowed to grow year after year unmolested until the whole becomes a thicket of growth, quite destroying the effect that the planter probably had in view. I remember some years since, while looking over a plantation several acres in extent, planted about thirty years ago, and belonging to a large estate, I was surprised to find

the trees all very thick, although their appearance showed that they had been planted originally in a systematic manner, and therefore made inquiry, in order to ascertain if the contractor had left any written specification regarding their future management. After some trouble the specification was found, when it was evident that it had not been consulted since the period of planting. In consequence of this neglect the trees had got into a mass of confusion. Those planted as avenue trees, to stand at stated distances apart, were crowded up with Poplars and other nurse trees originally intended to be removed. As the trees in the avenue lines had in a great measure been injured by proximity to the nurses and other ornamental hard-wooded trees, the regularity originally intended to be maintained could not be preserved. OLD FORESTER.

### HUNTINGDON AND OTHER ELMS.

PROBABLY a more generally cultivated or a more enduring tree than the Elm does not exist. It is somewhat doubtful whether any of the species of *Ulmus* we are so well acquainted with are really indigenous to this country. If they are, it is very remarkable that, unlike all indigenous trees beside, they are incapable of ripening their seeds here, with, perhaps, rare exceptions, which must be admitted in favour of the Wych Elm (*U. montana*), and it is a strange fact in connection with this exceptional seeding of this variety that it rarely, if ever, produces suckers, though the Elms are generally so wonderfully prone to this mode of propagating themselves. Hence the Wych Elm is usually propagated from seeds, which germinate quickly if sown as soon as gathered, or by the exceptional process of layering.

Whilst referring to this species, it may be well to enquire into the meaning of the name "Wych" connected with this particular tree. I have ascertained that the term is imagined by country folk to be a corruption of the word witch, and that it has reference to the contorted form of limbs or bole certain trees are known to assume. That this is not so will readily be understood when it is explained that the species is, as a rule, a tall tree with long length of clear bole, and that such boles were, in olden times, used as troughs to convey the water from salt springs, where they existed, such springs being known as wynchies, hence the name.

My intention in these notes is to direct attention more particularly to the Huntingdon Elm, or *Ulmus vegeta*, of which the American Elm, Chichester Elm, and probably the Scampston Elm are probably synonymous. These Elms are well known to be perfectly free growing trees in all kinds of soils, though in good deep loams the growth is much quicker and the texture of the wood better. The Huntingdon Elm, raised from seed by Mr. Wood, of Huntingdon, in the year 1746, is by far the most vigorous. Indeed, it is so vigorous, that it has been known to attain a height of 30 feet in ten years' growth from the graft. This tree and its varieties have been used for ages in the formation of avenues both in this country and on the Continent, and still holds a high place for such a purpose. This Elm has besides the merit of growing in groups, so as to produce perfect symmetry, however thickly planted, without the need of pruning, which is a great advantage. Excellent timber is also produced more quickly in this way than is customary with other kinds of trees. As a belt for protection of plantations of a less hardy nature, this Elm is well adapted, though so seldom used. Probably few kinds of timber will withstand the action of water better, though whilst Pine timbers continue to be imported in such bulk the latter will continue to receive prior use. Should the supplies of Pine fall



short at any time, no doubt properly cut and matured Elm wood will again become useful. A few years since it was abundantly used for the keels of ships, and is to this day generally employed in making wooden pumps. Add to these the fact that the tree will bear pruning and will transplant well, and little beyond need be added in its favour. That Elm timber is not so popular as it used to be, cannot be gainsaid. It is nevertheless probable that as good returns may still be made from plantations of it planted with moderate thickness as accrues to much mixed timber wood at present existing, which only yields its occasional periodical crops of brush-wood and faggots, and generally, at rare intervals apart, a fall of moderate-sized Oak or mixed timber. Moreover, where, as is occasionally the case, attempts are made to renovate park lands by planting specimen trees on eligible sites, and in connection with which Elms are occasionally used, I would strongly advise the use of the Huntingdon, or even the Scotch or Wych Elms, in preference to the commoner kind, which in too general a way seems to obtain precedence.

Ilford.

W. EARLEY.

### TREE PLANTING IN IRELAND.

THE geographical position and geological features of Ireland are not only eminently suited for tree culture, but also for the removal of the timber to market at small cost. The principal mountains in Ireland, unlike those of Scotland, are situated around the coast line, and as they are pierced here and there by irregular indentations which form deep harbours, that in many cases run for miles into the interior, the facilities thus afforded for the removal and shipment of timber from the flanks and recesses of the hills in the vicinity are unequalled in any other part of the British Isles, and justly entitles the country in this respect to a distinction altogether its own. The flat ground in the interior of the country which may be profitably planted consists principally of peat bog, and here again the facilities afforded by water for carriage comes prominently to the front. The many navigable lakes, rivers, and canals, which may be said to form a network throughout the country, are all highly valuable for such a purpose, and it is rather astonishing that the owners of such lands have been so tardy of taking advantage of the facilities thus afforded.

In the improvement and planting of such land, the "arterial" drainage carried out by the Government some years ago has been of immense advantage to the country, as it affords an outlet for the surface water flowing from the minor and sub-main drains, and thus lessens the expense of thorough and efficient drainage to a large extent in its reclamation.

Proprietors who are not prepared to plant such lands would find it to their advantage to have them drained and sown with tree seeds—Birch and Scotch Fir, as these will thrive and grow on the spot from seed without incurring the expense of mixing the bog with clay or other soil at the outset. By making a start in this way the trees will gradually attain a useful size and turn into

money; and, besides, the bog will be improved by decomposition, and thus prepared for a crop of more valuable timber. In all cases, however, where clay or soil is accessible at an ordinary distance, such should be used for mixing the bog, and Larch and Scotch Fir planted at once, as I have found the Larch pay in such positions better than any other tree in the same period of time.

I have previously recommended the Ash to be planted on suitable soils and situations, as it is a useful tree, and gives a good return under ordinary circumstances; but for bog planting and Heather moorland it is unsuitable and not to be compared with the Larch; and as such forms the bulk of waste land which can be profitably planted in this country, we have no hesitation in giving the Larch the preference under such conditions. Although the price of land at present is below what we consider its real value, yet we anticipate better times and better prices, and capitalists purchasing land would do well to keep in view the facilities afforded in the locality for the removal of the produce therefrom.

J. B. WEBSTER.

### THE LARCH DISEASE.

I THINK it will be generally admitted that, given the Larch in a healthy state, we have not yet found any other tree that can, in its early stages of growth, be turned to such profitable account; anything, therefore, that can tend to throw light on the cause of what is known as the Larch disease cannot be without interest to your readers. This will be a sufficient excuse for my troubling you with the substance of a conversation I had lately with a very intelligent forester, whose experience extends over well nigh half a century. He said that he had never seen nor heard of any disease in the Larch previous to 1839. On May 15 of that year he went to act as forester and gardener to a proprietor in Fife, and when he set out in the morning there were 2 inches of snow on the ground, with sharp frost. The young leaves of the Larch, which were then, of course, fully developed, were destroyed, and the following winter a Larch plantation, which had hitherto been in a perfectly healthy condition, exhibited the disease in all its phases. I asked him whether he thought the disease was perpetuated by sowing seed from diseased trees. He said his experience was altogether contrary to that theory. In the first place, he had frequently gathered cones from diseased trees, but found that they contained very few perfect seeds, the numerous cones they yielded giving little but chaff. As further bearing out his belief that seed has nothing to do with the disease, he told me his experience during many years in which he had charge of extensive woods on a large estate in Ayrshire. There he had a home nursery in which most of the trees planted on the estate were grown from seedlings procured from public nurseries. Larch was extensively planted, and on one portion of the estate near to the sea, and free from spring frosts, there was no disease, whereas plants taken from the same plots in the home nursery, but planted on another part of the estate, which was not well adapted for the growing of Larch, were invariably attacked by the disease. Would it not be warrantable to infer from a well authenticated case of this kind that the disease is not hereditary, but is induced by some check the plants have received

from being planted in unsuitable soil, or amid unfavourable climatic surroundings?

There is one rather curious fact connected with the Larch, viz., the different value that nurseryman and their customers respectively place on young seedlings produced from home-grown and those produced from foreign seed. Until within the last few years Tyrolese were always priced in catalogues at a higher figure than native. Now the prices are, as a rule, the same. But while gentlemen for the most part prefer plants raised from Tyrolese seed, nurserymen in purchasing from each other pay double the price for one-year-old plants from native seed. We may be sure they do not do this from patriotic motives, but that they rather calculate that the risk of the Tyrolese being destroyed by spring frosts is so great as to warrant their paying the extra price for the native seedlings. We may be equally sure that the nurseryman does not sow native in preference to Tyrolese seed on the ground of economy, for although he may sometimes have to pay a trifle more for the Tyrolese seed, he will have to sow the native five times as thick to obtain a given number of plants. It may naturally be asked, "Were not all our finest old Larches grown from foreign seed, and why should it not produce equally healthy trees now?" I do not profess to be able to explain this, but I would suggest that it is a matter of common belief that late spring frosts have been more prevalent of late years than they formerly were, and in corroboration of this the stubborn fact remains that nurserymen pay to each other 2s. per 1000 for one-year native seedlings for their own planting when they could purchase Tyrolese at half the price. Although native seedlings are usually sturdier than those produced from foreign seed, that may be owing to the former being thinner in the beds. I believe, however, that the true cause of the greater hardness of the native seedlings is that they are later than the foreign in starting into growth, and therefore less liable to be caught by the late spring frosts. This, I think, can only be accounted for on the theory of acclimatisation, or, in other words, that trees that have been grown in this country have adapted themselves, to a certain extent, to the exigencies of the climate. I know it is easy to make this theory appear ridiculous, *e.g.*, why not acclimatise our stove plants? But I shall give you an illustration of what I mean. For the last three years I have watched with considerable interest a plot of common Thorns that were procured as one-year-old seedlings from France. In the same plot were planted seedlings of the same age that had been grown from haws collected in this country. The plants are, to all outward appearance, the same, but there is this important distinction: that the French have hitherto come into full leaf before the natives had burst their buds. What, I would ask, but climatic influences can account for the superiority of our Highland Pine over the much softer *Pinus sylvestris* grown on the Continent, seeing that they are botanically identical? If my premises are sound, the moral to be drawn from them is always to procure seed of trees that are liable to be injured by spring frosts from the latest districts.

J. W.

**The Corsican Fir.**—So far as I am concerned, I have given "Glendye" assurances in regard to this Fir and the way in which it thrives in Yorkshire, and offered him introductions, which he asked for, to see for himself, but of which he has not availed himself, for reasons best known to himself, and that being so, I see no need for further discussion. I believe that several of the Scotch and English nurserymen could furnish the information he wants. I am told that the Corsican Fir has been planted extensively by



the Marquess of Bath on the Mendip Hills, and is bearing out its grand character there. I am told also that at Lilleshall, near Donnington, on the Stafford and Shrewsbury Railway, they have fine specimens to show; and I believe Mr. McLaren, the forester there, can also report on the quality of the timber to "Glendye" if he desires such information. There were, or [are, also good trees of it on Corstorphine Hill, near Edinburgh, which were tall trees about ten years ago, if the late gales have not damaged them. No doubt there are plenty in other places also, and unless "Glendye" is one of those persons who objects to being "convinced against his will," he will, I hope, take some little pains, and more than he has done in the past, to inform himself on the subject. If Brown wrote that the Corsican Fir "does not prosper on high-lying situations in this country," all I have to say is that Brown is wrong, for I can show it at least from about five to seven years old on the most exposed spots in the county of which Brown wrote, and beating the Scotch Fir in every case in an extensive tract of plantation exposed to the most furious gales which we experience, and "Glendye" can see them if he will travel that far. Brown had some good points as an author, but he was partly a "book-maker." I fear "Glendye" practises under adverse circumstances.—YORKSHIREMAN.

#### RAISING WOODS FROM SEEDS.

THE question of the practicability of growing woods from seeds artificially sown is by no means a new one, says a writer in the *Field*, but there is a difficulty in getting much information from actual experience, from the simple reason that very little has been done in this country to prove the desirability or otherwise of the method. There is the case of the maritime Pine in the Landes of Gascony, and some other experiments on a small scale here, to which I will presently refer, but the evidence, though possessing a certain value, is not altogether conclusive. The difficulty the young plants would have in holding their own against the grass and weeds, which would inevitably grow up around them, naturally presents itself, but as the process of natural reproduction certainly does go on, and not under more favourable conditions in this respect than would be the case with artificially sown seeds, this drawback is not sufficient in itself to destroy the chance of success. Indeed, in the instance of the maritime Pine other seeds were sown at the same time, in order to provide shelter for the young trees. It is true the same conditions would not exist in planting in this country in such tracts as are occasionally found round our coasts, as was the case on those shifting dunes of sand, yet there are certain points in common to planting wherever carried out. The special means taken to fix the shifting sand until the young plants were fairly established is beyond our scope here, but the selection of the tree conveys an important lesson as to the necessity of observing the kind or kinds of trees natural to the soil it is intended to plant. This, of course, is essential to real success, whether weeds are to be grown from nursery trees or from the seed, but more especially so in the latter. There need be no great difficulty in gaining this information, as the trees already growing in the vicinity of the site which has to be planted will supply the cue. This was so with the Landes. The maritime Pine had existed for centuries under similar conditions in the district, and the wise decision was come to to plant the seed of this tree, with the result that these dunes, which less than a century ago were moving masses of sand, are now covered with vegetation. Had another tree been selected, the effort would probably have failed. As a proof of this may be quoted the comparative failure of this tree further to the north, although otherwise the character of the situation was the same.

Of all trees in this country suitable for growing from seed, where the soil is adapted to it, the Oak stands first. Some half a century ago a Scotch forester recommended the plan of growing this tree from the Acorn by first planting Firs as nurses. Then, after a lapse of four or more years, when these trees had grown sufficiently to provide shelter for the young Oaks, to trench patches between them 2 feet square and as nearly as may be 10 feet apart. From these all large stones were to be

thrown and the patches limed. Into these patches five Acorns were to be planted, so as to secure the ultimate retention of one good tree on each spot. Unfortunately, the only testimony of the success of his system is contained in the information he gives about four patches he prepared in a plantation, and which he subjected to various kinds of treatment. Two of these patches he limed, whilst the other two were merely trenched without the addition of the lime. One of the limed patches he planted with Acorns, and the other with young trees, the two without the lime being similarly planted. The result, shortly, was that at the end of the first summer the young trees had made scarcely any growth; but the trees on the limed bed seemed healthier than the others. The next summer the plants from the Acorns in the limed bed had some of them made shoots 18 inches long; but on the other bed they were not so high by some inches. The difference between the young transplanted trees in their respective beds was not so noticeable; but it was in favour of those with the lime. Observations were made yearly until the fifth year, when it appears the planter left the district, as he says this was the last year he had the opportunity of observing the growth of the plants. By this time the trees raised from Acorns in the limed bed were a foot higher than those grown in the same way, but without lime, and the smallest of those from the Acorn were on an average 18 inches taller than the most forward of the transplanted ones. Whether this relative rate of progress would continue until the trees reached maturity seems somewhat doubtful, as the experiments with seedling and transplanted trees in the Forest of Dean point to the opposite result. Here measurements have for a number of years been taken of Oaks left in the seed bed, and of others transplanted from it. The figures show a very considerable excess of contents in the case of the transplanted trees. The Acorns were all planted about a century ago, and the dimensions have been carefully ascertained every two years since the end of the first decade of the present century.

On the face of it, this would seem conclusive evidence that, although trees may be grown from the seed, that it is at the loss of a very material amount of increase of size. One remarkable fact, however, is that there is nearly half difference in the size of the transplanted trees themselves. This greatly impairs the case of the advocates of transplanting, as it goes to prove that the reason of the difference must be sought elsewhere than in the mere accident of the trees being transplanted; indeed, the difficulty of growing trees under absolutely the same conditions is so great that a great deal more evidence will be necessary before the merits of the two systems can be finally decided, but that the initial difficulties of which your correspondent speaks may be overcome when the circumstances are favourable to the growth of any particular tree I do not think admits of a doubt.

**Woods for fuel.**—There is a wide difference in the qualities of our common woods for this purpose. As to which kind is entitled to take the first place, there may be some diversity of opinion, but, judging from one's own experience, we are inclined to give the place to the Beech and the Ash. Oak makes a good firewood, but it has some points of objection to which the Beech and Ash are not open. Elm, too, makes a class of fuel which, if not so readily ignited, is more lasting than many woods. The Fir, perhaps, come next and the Poplar at the bottom of the list. This, of course, refers only to timber trees, as most of the species grown as underwood make more or less useful firewood. The use of the Thorn for this purpose is proverbial, and the Hazel makes good fuel. The Maple, too, is entitled to mention; even such things as the Bramble can be usefully employed for firewood, but this is mostly for heating cottage ovens and the like where the aim is to produce a strong heat for a short time only. The age of the wood when cut will have some influence on its behaviour when burning, as if it is in any sense decayed the combustion will be unsatisfactory. The question of how far it will pay to employ wood in lieu of coal for fuel will depend to a great extent upon the supply of either commodity, but there is no question that a proportion of each

makes the best fire. The greatest drawback to the use of wood undoubtedly is the expense of getting it into shape for use, but this objection is by no means insuperable, as the use of the circular saw for a couple of days will afford a winter's supply for a moderate sized house.—RUSTIC.

#### TIMBER CARRIAGE BY WATER.

The value of land for tree-planting is as much enhanced by locality, and the natural features of the country, as by the texture of the soil, all of which points are worthy of the planter's consideration in order to enable him to form a correct estimate of the prospective value of his undertakings. Larch poles and Fir trees of ordinary size, and suitable for railway sleepers and other similar purposes, are not only easily removed from difficult inaccessible places, but are likewise, as a general rule, in better demand than trees of a larger size; hence the advantage of cultivating them, more especially in such situations. In felling heavy timber in the natural forest, on rough and rocky ground, and on the slopes, angles, and recesses of the hills, I have found the removal of such attended with a great deal of labour and expense—so much so, that in some cases it is questionable whether the trees repay removal at all. In order, however, to facilitate such work and render it more easy, I have found it a good plan to have the trees dragged from such places during a time of hard frost and snow. The advantages of this system are obvious, and in all cases where the saw-mill is not at too great a distance from the forest, the better plan is to deposit the trees there at once.

Woodlands in the vicinity of water that can be used for floating the timber to market are an immense advantage, and add largely to the value of the ground and its produce. Vast quantities of timber along the upper reaches of the river Dee, in Aberdeenshire, are floated down the river to Aberdeen for disposal. Trees, however, of a large size, are never formed into rafts, but are left on the edge of the river, where they are allowed to lie till the time of a spate, when they are then carried away by the flood, and caught by expert boatmen, and landed when they reach their destination at Aberdeen.

I have also seen large quantities of railway sleepers occasionally floated down the river in a loose state, but these are always floated in summer, and not during a spate, otherwise they would run the risk in many cases of being carried out to sea. Woodlands penetrated by such a waterway are of great value.

J. B. WEBSTER.

**The Corsican Pine** (*Pinus Laricio*).—Apart from the controversy now going on in *Woods and Forests* respecting this Pine, I should like to say that I consider it the most valuable of the Pine tribe as yet introduced into Britain. Here it grows at a more rapid rate than the Scotch Pine, is equally well adapted for hill-side planting, and produces valuable timber. Further information regarding this valuable Pine will be found in the forthcoming transactions of the Scottish Arboricultural Society.—A. D. WEBSTER.

**Profitable tree planting.**—There is much in what Mr. Webster says about this, but I fear that the instance he quotes of making £150 per acre of wood of thirty-five years' growth is somewhat exceptional, and that planters reckoning on such a return would be disappointed. Would not half the sum be nearer the average? I have had to do with the buying and selling of timber of this class for several years and over a rather wide district, but I cannot recall any instance where anything approximating this sum per acre has been made of timber at thirty-five years' growth. This, of course, does not go to say that it has not been done, but it would be well to get a word as to the experience of others.—WILTS.



"This is an Art  
Which does mend Nature : change it rather : but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## FRUIT GARDEN.

### AMATEUR FRUIT-GROWING.

OF late years amateurs have made great progress in practical gardening—a result doubtless due in a great measure to the spread of knowledge by the horticultural press. At one time an amateur's greatest ambition was to have a glass house or two and plenty of flowers, but now an equal amount of attention is paid to fruit culture. Hardy fruits are always appreciated in either large or small establishments; the outlay necessary to stock a small garden with trees is by no means heavy, and what to select and purchase and how to treat them I shall now attempt to point out. There is such a thing as false economy in stocking a garden with fruit trees; only recently I have seen several instances of this. In one case a fairly large breadth of garden ground had been planted with standard Apple trees bought at an auction sale held in the open market of a provincial town in the west of England. The trees cost on an average about 3d. each, and the owner prided himself on the bargain made, especially seeing that they came from Kent—that famous county for Apples and Pears. Four years ago they were planted—wretched specimens, and those alive now are but little better. In all probability they had been dragged out of the ground weeks before they were planted, the roots in the meantime becoming injuriously dry. Besides nobody knew what sorts they were when planted, and from what I can learn and judge for myself the majority of them are of little real service to anyone, being such as nurserymen get few or no orders for. Last winter I attended a large forced sale of nursery stock which included many lots of Apple, Pear, and Plum trees, and considerable numbers of them were bought by "jobbers," or men who will buy and sell anything. These trees had not been moved for several seasons, but when the clearance commenced they found their way into bundles with surprising rapidity, and were carted straight to the markets in various surrounding towns. Being extra large they soon attracted buyers, but those who were unwise enough to have them will find that the majority will only just keep alive for a time, and but few of those that do fruit will be other than one or at the most two varieties. Quite young trees, or those that are frequently transplanted, may be moved safely enough, and will bear a little rough treatment at times, but any that have been undisturbed for several years must be lifted very carefully indeed; as many roots should be preserved as possible, and as much soil as can be got should be moved with them.

My advice, then, to amateurs is to let the cheap market trees alone, as it will always be found the truest economy to give a better price for trees supplied true to name and in good condition. Another mistake committed by enthusiastic amateurs, and, indeed, by many professional gardeners, too, is the introduction into their gardens of

TOO MANY VARIETIES. A good collection of sorts is doubtless most interesting, and for a time gives some sort of satisfaction, but when the novelty is worn off and it is seen how much superior some are to others, then the thought occurs that planting so many was a mistake. True, many sorts vary in quality according to the conditions under which they are growing, but there are a few, and enough for small gardens, that will do well nearly everywhere. Plant these first, and later on a few more may perhaps be added with advantage. Only last week I was asked to select a number of Pears for a moderately large and partially furnished garden. Twenty-four trees were to be ordered and as many varieties were asked for, but at my suggestion the number of sorts was reduced to twelve, and a good price was given for good trees in preference to buying cheaper ones, which would be so much longer in attaining a profitable size. Those who grow for the markets do not plant indiscriminately any sort they can cheaply procure; on the contrary, they select a few well-tried varieties, and plant these in long unmixed rows. Amateurs need not attempt to imitate them, beyond limiting the number of each sort to be grown; in fact, it is not always wise to group them, as I find, this season especially, that some varieties in some positions failed to bear, while in another site they have done well. By this it will be seen that it is a good practice to scatter the sorts, and besides thereby having a better chance of obtaining a crop there is also a possibility of securing a longer succession of some favourite sort, more especially of such Pears as Williams' Bon Chrétien, Louise Bonne of Jersey, and Marie Louise. The popularising of the French cordon system of training fruit trees has had much to do with the encouragement of the mistaken practice of planting too many varieties. It must not be thought, however, that I condemn the cordon system, nothing can be farther from my thoughts; it is cultivators who are at fault when they plant sixty trees in sixty varieties where the same number of trees in about fifteen varieties ought to have been used. This is no imaginary blunder, as, unfortunately, we have an instance of it in our own neighbourhood.

WHAT FRUITS SHOULD BE GROWN in every garden must depend upon the tastes of the owners and the requirements of the establishment. Amateurs, and among these I would include a considerable number of farmers who ought to be more practical, are frequently in the habit of deciding too quickly what they intend to cultivate, and

the result not unfrequently is a comparatively extensive order of some one kind of fruit for which they have a partiality. Of this we have here a good instance—a farmer's rather large house being completely furnished all round with Plum trees. Nearly every season he secures fine crops of fruit—more than he wants, in fact, and his friends and neighbours are usually sharers in the abundance. This grower can now see that he planted too many Plum trees, and regrets not having substituted a few Pears, which he finds even more delicious than Plums. Peaches, Nectarines, Apricots, Plums and Cherries are all variously planted against walls with excellent results at times, but, on the whole, none of these are so profitable and generally popular as Pears, which may be said to be the very best hardy fruit in cultivation. I am writing of wall fruits at present, and do not overlook the great value of the Apple, but this invaluable fruit scarcely merits or requires the shelter of walls. The Pear will succeed on almost any aspect, not excepting a northern one, and well-established trees rarely fail to blossom well, a little timely shelter in the shape of blinds, sheets, or mats usually insuring a good set. They will very frequently perfect crops without any trouble in the way of protection, but those who have very few trees can frequently well afford to protect them when necessary. Pears may also be as successfully and as easily grown in the open as Apples, either as standards, pyramids, or bush-shaped trees. Then, with a judicious selection of varieties, a supply of grand fruit may be had from August till late in April, almost equalling the Apple in this respect. No one need hesitate to plant Pear trees on the ground that it will be many years before they obtain any fruit from them, as, thanks to the use of dwarfing stocks for miniature trees and the more intelligent methods of pruning and training now practised, the trees can be had in bearing in two or three years, and plenty of cases occur in which they have fruited during the season following planting, and to which I hope to again be able to allude. Plums are the next most profitable fruit to grow on walls, as these also rarely fail to bloom and fruit well unless the position be exceptionally bad, and they also afford a fairly long succession of delicious dessert fruit, while for preserving in different fashions some of the sorts are invaluable. They are fairly fruitful on a cold or nearly north aspect, and flower most abundantly on an east aspect, but are there somewhat liable to injury from late frosts and insects; while, on the whole, they may be said to be most at home in south, south-west, or south-east aspects. They also succeed well in the open either standard, pyramid, or bush-trained. Cherries I would not recommend amateurs to cultivate, as they rarely pay for the wall space they require. The only exception would be the Morello, which succeeds remarkably well—best, in fact, on a cold or northerly aspect. Morellos and nearly all other sorts of Cherries may be grown



as standards, pyramids, or as bush-shaped trees. The Cherry is one of the most ornamental of our fruit trees, and dwarf standard trees in orchards of such sorts as the Morello and Flemish especially are singularly beautiful both when in flower and in fruit. They are well adapted for planting in shrubberies, but unfortunately birds are almost certain to take all the fruit long before it is ripe. Our greatest pests, blackbirds, do not long exist among the large fruit growers, and I heartily wish the race would die out in this neighbourhood. Peaches and Nectarines must have a nearly or quite south aspect, as, unless the fruiting wood formed is nearly the size of slate pencils and well ripened, the trees will not fruit well, or withstand a severe frost. Peaches often succeed where Nectarines will not, and if there is only wall space for a very few trees, Peaches only should be grown. Apricots thrive surprisingly well in some of the midland counties, notably some parts of Derbyshire and Leicestershire, and are found more profitable and as easily grown as Plums. As a rule amateurs will not do much good with them, especially if no protection is afforded when in full blossom. A very sunny aspect is also needed for them.

If there is a very hot sunny corner in the walled-in garden this will frequently be found well adapted for Fig culture. As a rule, in many districts, apart from the Kent and Sussex coasts, Figs are apt to grow much too strongly to be either fruitful or hardy, but where they form stout, yet very short-jointed, growth, they yield a surprisingly heavy crop of luscious fruit. This, again, is scarcely an amateur's fruit. Of small hardy fruits, the most popular are Strawberries, Raspberries, Gooseberries, and Currants, but remarks upon planting these as well as the best forms of training the preceding kinds of fruit and Apple trees, with suitable selections in each section, must necessarily be deferred.

W. I. M.

**Exeter Apple and Pear Show.**—This was a great success, as far as the show went, but the weather was most unfavourable, especially on the second day—the consequence being that on that day alone there were 2300 visitors less than on the second day last year, an unfortunate circumstance, inasmuch as it is only the second year of the Society's existence. The exhibition of Apples and Pears was in all respects excellent, the latter being much more largely shown than last year. Pitmaston Duchess in the competition classes was very fine, the whole lot of it shown averaging more than 1 lb. each. Doyenné du Comice, Winter Nelis, Louise Bonne, Marie Louise, Beurré Diel, Chaumontel, and Beurré Clairgeau were all shown in fine form. Among Apples the handsomest dishes were Mère de Ménage, Peasgood's Nonsuch, Cox's Pomona, Warner's King, Devonshire Queen, King of the Pippins, Blenheim Orange, Lane's Prince Albert, Cellini, Emperor Alexander, Dumelow's Seedling, and Cox's Orange Pippin; the last-named sort, exhibited by Messrs. Bunyard, being wonderfully fine, so much so that many questioned the correctness of the name; but they were said to have been grown under glass during some part of the season, hence their large size and fine yellow colour. I doubt, however, whether in quality they would be equal to the dark bronzy red and russeted fruit of this

kind when fully exposed on healthy young orchard trees. As regards quality, I prefer the latter to the finer fruit grown in gardens. Cornish Gilliflowers, as a whole, were not at all equal in size to those shown last year, the crop being a comparative failure, and the dry season having adversely affected them. The exhibits from Messrs. Veitch and from Messrs. Lucombe, Pince, and Co. were of considerable extent, and attracted a good deal of attention.—J. G.

#### HARDY FRUIT CULTURE.

THE cultivation of good hardy fruits is a matter of the greatest importance, and one which ought to command the utmost attention. Many new varieties of hardy fruits have been introduced during the last quarter of a century, but, like new Grape Vines, most of them are likely in a few years to be forgotten. I have purchased, at a guinea and two guineas apiece, all the new Vines that have been introduced during the period just named, and have done my best to grow them well; but the results in most cases have been far from satisfactory. I often think of the words of an old gardener (now no more) when I told him that I had planted twenty-one varieties of Grape Vines in our five vineries. "You had far better," he said, "have planted two varieties only, viz., Muscat of Alexandria and Black Hamburg." I am of that opinion myself now; but the experience gained by cultivating so many varieties, and others introduced subsequently, has been useful. Some Vines succeed in some places and not in others. I well remember the late Mr. Pearson, of Chilwell, bringing up his fine white Grape called Golden Queen to a meeting of the fruit committee at South Kensington. I was on the committee at the time, and voted, with most if not all of the members, that it should receive a first-class certificate. I obtained a plant of it as soon as it was distributed, and inarched it on a Vine in one of our late houses. It produced large, handsome bunches and berries, but they never ripened well, although Black Hamburgs in the same house were first-rate, and ultimately we cut the Golden Queen out. It will be seen from this, that the best varieties of fruits to plant are those that have been proved to succeed well in all classes of soils and situations. If a new Potato or a Pumpkin should prove unsatisfactory after a year's trial, the loss is trivial in comparison with that sustained by the introduction of an inferior fruit. These esculents can be put right the year following, while the fruits may be a standing reproach for years. The production of new varieties of fruit is not only a pleasant, but a laudable pursuit; at the same time it may be well to warn those who would engage in this branch of horticulture that the prizes are likely to be few and the blanks numerous.

COLLECTIONS OF FRUIT seem now to be appreciated in proportion to the number of varieties which they contain, rather than because of their actual merits. It is better to be contented with a few really good kinds, such as will be productive in most seasons, than to plant many sorts (even if finer) for the sake of variety, but from which a crop is obtained only in very favourable seasons. Some grow a great variety for amusement; others, in order that they may be able to stage a large collection for exhibition. Such cultivators are well able to take care of their own interests; but those who have either formed a new garden, or are about to renovate an old one, require some definite information, both as to the preparation of the ground and the selection of sorts. Some soils are better fitted for the cultivation of fruit trees than others, and some districts, such as

the neighbourhood of Maidstone, have become famous for the excellent quality of the fruit produced there. The soil and climate of Kent are not, however, to be found everywhere. We must, therefore, take both soil and situation as we find them, and do the best we can with them. A deep, medium, clayey loam is best for fruit trees; and shallow, sandy soil, on a gravelly foundation, about the worst. It would be injudicious to select the latter for a fruit garden, especially for a market garden; but when on such soil a house has been built, with a garden attached to it, there is no alternative but to make the most and the best of it. I well remember my first experience with a garden of this kind; an old garden it was too, and full of fruit trees in all stages of decay; even young trees that had been planted to fill the places of those that had died of old age, fell very speedily into decrepitude. Some of the old trees could, by means of a vigorous push backwards and forwards, be torn up by the roots, owing to their advanced state of decay. I found that it would not do to root up all at once, as many of them were bearing fairly good crops, but poor in quality. The plan I adopted was to clear a portion of the ground and trench it, grubbing out all the old roots. I found the soil to be of various depths; some of it was 30 inches deep, and in other places the gravel cropped up to within 6 inches of the surface. To plant fruit trees in 6 inches of soil would be to court failure; but, as it happened, we required gravel, and so a foot or more of it was taken out and replaced with good soil, thus giving 18 inches in depth instead of 6 inches. There was not much of this sort of work done, but the whole of the ground was trenched and manured. This was not sufficient, and until the ground could be prepared by being re-trenched, the trees were only planted temporarily, close together at first, so that they could be made to fill a more extended area as they increased in size, and the old worn-out trees were gradually removed to make room for them. Another necessary and important part of fruit tree culture is to thoroughly work the ground after it has been trenched. The *modus operandi* is as follows: The ground should be trenched and manured as early as possible in the autumn. In November the trees should be planted. In doing so, dig out a hole rather larger than the extent of the roots, and before planting cut off any mangled roots which may have been bruised during the process of lifting. If the soil is of a light, sandy character, some good clayey loam ought to be placed round the roots at planting time. I place half a barrow-load round the roots of each. Some will, doubtless, think this an unnecessary expense. The trees, of course, will grow and thrive without it, but they do better with it, and there are people who do not mind a little extra expense in order to obtain the best results.

YEAR-OLD TREES—i.e., such as have made a season's growth in their new quarters—will be found to have formed a great mass of roots in the maiden loam. Not much young wood will have been made, but the trees will be well furnished with fruit buds. Such trees will sustain but little check if carefully lifted and replanted at once. That was the method pursued by me in the case alluded to. The ground at the same time was re-trenched, and some more fresh loam was placed round the roots. The ultimate distance apart for trees on dwarfing stocks should be about 8 feet each way, but at first they may be planted at 3 feet or 4 feet apart. These young trees bear exceedingly good fruit, and they sometimes escape spring frosts when large standards have their blossoms destroyed. Some few years ago a remarkable



instance of this occurred in the gardens at Chiswick. A quarter of the garden had been planted with bush formed Apple trees and the frosty wind nearly destroyed the whole of the blossoms on the tall standards, while the bushes on dwarfing stocks were loaded with fruit. Some prefer the pyramid form of tree to that of the bush. A good deal can be said in favour of both, and once the trees have assumed the desired form, the cultural requirements in each case are about the same. The pruning, such as it is, should all be done during the summer months. The end to be kept in view during the growing period is to increase the size of the trees as speedily as possible; but this cannot be done by allowing them to make a quantity of young wood, and then to cut it nearly all off. In habit, some trees are very different from others. Some varieties, such as Waltham Abbey Seedling, make a thicket of young wood; such trees should be disbudded early in the

the flavour of our most important fruits, and that many are flavour-blind, so to say.—PYRUS.

### THE MEDLAR.

ALTHOUGH the Medlar (*Mespilus germanica*) is rarely mentioned by practical writers upon edible fruits, and notes upon its culture never appear in calendars, it is well worthy of extended cultivation, if not for its fruit, which many appreciate, certainly for its beautiful flowers in the spring, the fantastic rusticity of its elbowed stems and branches, and the rich colouring of its foliage in the autumn. Some years ago, when planting groups of Conifers, struck by the rich orange and crimson tints of the Medlar, it occurred to me that a few standards of the Dutch and Nottingham Medlars dropped in near the margins would prove ornamental as well as useful during the spring and autumn months. In this I have



The Broad-leaved Dutch Medlar.

season. Those that make just enough, such as Cox's Orange Pippin, merely require to have the young wood cut back a little, and some of it not at all; but if there is too much, cut it clean out from the base. If an inch or so of the young wood is left, some three or four more growths will start from its base. In all cases the centre of the trees must be kept sufficiently open to admit light and air to the crop, and to allow the blossom buds to develop properly.

J. DOUGLAS.

**The Pitmaston Pear.**—I see "J. G. H." says in THE GARDEN (p. 389) that this Pear possesses, among other qualities, "good flavour." From careful comparison with the really few fine-flavoured Pears which I know, it is not deserving a place among them. Compared with the true Duchess, when properly ripened, it is nowhere; it has nothing to do with that fine fruit in form, and it may lead to confusion to continue to call it a Duchess of any kind. It is certainly a good bearer, and in our country does well, but it has a peculiar "tannic flavour" as compared with the best. However, when we see by the labours of the Apple Congress that King of the Pippins is the most popular Apple, one is led to suppose that few people really pay any attention to

not been disappointed, as the soil, a heavy calcareous loam, favourable to the *Pyrus* family, grows them to perfection, and the trees, on clean bright stems, are now one mass of nankeen and crimson, only met with, in my experience, in the colouring of the leaves of *Ampelopsis*.

**SOLITARY TREES** of the Nottingham Medlar are often met with in old gardens, and richly they deserve better care than generally falls to their lot, for whether we admire them most for the abundance of edible fruit which they produce, or their rough-barked, almost right-angled branches which no power can coax into orthodox fruit-tree fashion, they stand out conspicuously amongst all other fruit trees, and form pleasing objects where fitting companions like the Quince and the Mulberry are appreciated. But for picturesque beauty, although its fruit is not so good for the table, the broad-leaved Dutch certainly bears the palm, and, independently of its fruit, will well repay the planter for telling effect. The tree is perfectly hardy, and is by no means particular as to soil, provided it is neither too dry nor charged with stagnant moisture, but the soil, as I have previously observed, which suits it best is a rich

strong loam resting on a well-drained subsoil. Here we also have trees growing on a rocky ridge by the side of a long carriage drive, and although they do not attain very large dimensions, they make very handsome objects backed by large Yew trees, and create more inquiry from passers-by than any other trees in the neighbourhood.

**PROPAGATION.**—The Medlar, a native of Britain, France, Germany, and the south of Europe, can be raised from stones or seeds for new varieties, but this is a tedious mode, as they generally lie two years in the ground before they germinate, and then they require budding or grafting on the Pear, Quince, or White Thorn for making standards, otherwise much time will be lost in training the seedlings up to the proper height for forming good heads. When the varieties are worked at home, stocks suitable to the soil should be selected, as it is found that the White Thorn answers best where it is dry, while the Quince, a surface-rooting tree, succeeds best where it is cold and damp, and the Pear makes the cleanest and best stock for ornamental planting. Suitable stocks may be grafted in the spring precisely as we graft Pears with firm pieces of well-ripened wood of the previous summer's growth, but the neatest and best union, particularly for tall standards, is always secured by budding with plump dormant eyes about the middle of August. All the varieties can, however, be obtained at a very reasonable price from the nurseries, and as every man is supposed to be an adept at his own trade, the amateur or private grower who has not suitable stocks and scions to his hand will save time and trouble and avoid disappointment by patronising the trade, as well-formed trees can be purchased ready for planting. When the Nottingham Medlar is grown expressly for its fruit, standard training is not absolutely necessary, although this is the best mode of making handsome trees. It can also be worked low on the Quince, pinched and pruned into pyramids like Pears, as it is not quite so obtuse in its growth as the broad-leaved Dutch. When well grown, the fruit measures 1 inch to 1½ inches in diameter, and is fit for gathering about the end of October or early in November. A dry day when the foliage is quite ripe should be devoted to gathering, as it is important that the fruit not only parts freely from the trees, but that it is also perfectly free from moisture at the time of storing. A dry fruit room, in which the fruit can be spread out thinly on the bare shelves, will be found a suitable place for ripening. If laid on straw or any damp substance, a mouldy taste will be imparted, and a minute fungus will attack the stalk and render the fruit useless. When first gathered the fruit is hard and unfit for use, but after it has been stored for two or three weeks, it begins to decay; the colour changes, and crude acidity gives way to a slightly astringent flavour. In this state the fruit is generally eaten raw, or it can be converted into a very agreeable preserve by boiling in sugar. In addition to the two varieties I have mentioned, there is a third called the stoneless Medlar, possessing no particular merit either for planting as an ornamental tree or for use after the fruit is ripe.

W. COLEMAN.

Eastnor Castle, Ledbury.

**Pruning the Pear.**—May I be allowed a few words of explanation in reply to "J. S. W.'s" criticism of my notes, in a contemporary, on this subject? I have in the first place to say that the "twelve-year-old example of a natural pyramid with scarcely any pruning" is not growing at Heckfield, and that I



knew nothing of it till I saw it in the same form that "J. S. W." did, "J. S. W.'s" natural cuteness has for once deserted him, or he would have noted that there was no reference to any illustration in my notes of that date; the three cuts that did appear the week previously, and to which I referred in my notes, are the only pictures I can be answerable for. "J. S. W." or any other sceptic is welcome to a sight of the originals. The tree of Beurré Clairgeau on the Quince is a trained tree, and does require pinching to obviate winter pruning, for the terminal shoots are sometimes stopped back, and this I fancy "J. S. W." suspected, or he would not have taken so much pains to put the emphasis on the word "only." The fact is, having no fear of "J. S. W." before my eyes, I was simple-minded enough to think that when writing that sentence the word "only" would include the pinching out of terminals when such was needed as well as pinching back the lateral growths. Having made these explanations, I pay the highest compliment that can be paid to "J. S. W.'s" ability as a critic by declining any further discussion with him on the subject.—W. WILDSMITH.

### THE PEAR CONFERENCE.

IN the course of the correspondence in various directions which has grown out of this conference, many lists have been given of what are by the respective growers held to be the best kinds. These lists were provided before the conference and lack that interest which would have attached to any list, say, of a couple of dozen kinds selected from the various collections at Chiswick, and it would have been singularly interesting could the opinion of some twelve or twenty qualified judges have been obtained of what seemed to them to be the best twenty-four kinds shown, having regard to cropping, quality, and continuity of season. No doubt in such a list we would have seen not a few, perhaps a dozen kinds at least, in every selected list, whilst over the other dozen there would have been some difference of opinion. I made the following selection of twenty-four kinds, but including one sort which lovers of early Pears must include, Doyenné d'Été, because it proves so prolific and so welcome in the month of August. Some other early kinds usually ripe here in September were fairly well shown in some of the more northern collections, hence the value of the exhibition to those interested in Pears, because notes could be made of many kinds which in the south had been ripe and over previously. To Doyenné d'Été I would add Williams' Bon Chrétien, Souvenir du Congrès, Beurré d'Amélie, Marie Louise, Marie Louise d'Uccle, Louise Bonne of Jersey, Urbaniste, Doyenné Boussoch, Duchesse d'Angoulême, Alexander Lambre, Beurré Diel, Gansel's Bergamot, Fondante d'Automne, Maréchal de la Cour, Madame Treyve, Marie Benoist, Winter Nelis, Glou Morceau, Josephine de Malines, Durandau, Directeur Alphonse, Beurré Rance, and Easter Beurré. My knowledge of Pears, allied to the opportunities for observation offered at Chiswick, leads me to pronounce this selection a generally good one. Some of the kinds do fairly well as free-grown trees and the remainder on walls, or as bush, pyramid, and cordon trees on Quince stocks. Some few very fine showy kinds are omitted. General Todleben, Beurré Clairgeau, Beurré Bosc, Brockworth Park, Vicar of Winkfield, Flemish Beauty, Bezi Mai, and Calebasse are amongst big showy fruits very striking to the eye on the show table, but they are hardly meritorious enough for dessert. Even here we have too many autumn ripeners, but the difficulty with from some 50 to 60 per cent. of kinds ripening in October and November is to avoid a large representation of such kinds in any list. Again, this selection is hardly one

which would commend itself to those who have to cultivate Pears in a rough-and-ready fashion for market. They need smaller, more prolific, and hardier kinds; but with such a list I have nothing at present to do, nor was the conference exactly the place to look for them. It would be very interesting to learn whether any grower of high-class Pears for market has solved the important problem of how to make that form of culture pay. If that could be demonstrated, very much that is valuable would grow out of the present discussion. Probably no one has gone in for Pear culture for that purpose literally and solely. Still, there may be some who could tell us whether, fairly and systematically conducted, the growth of high-class Pears for sale had ever found its profitable side in this country. A. D.

### RIPE GRAPES IN WINTER.

DURING summer, and so long as Grapes are growing and the weather moderately dry, no one is troubled much with the berries decaying, but as soon as the short, damp days of late autumn set in, decay begins, and very often what were finely furnished bunches in September are mere skeletons by December. This arises from various circumstances, the most important of which are attempting to grow summer Grapes at mid-winter, not thinning the bunches sufficiently, having the roofs of the houses in such bad repair, that rain has ready access to the interior, and, finally, deficiency of heat to expel damp. With the exception of having the bunches too much in a cluster, we have had all the other difficulties to contend with. At one time we tried to supply Black Hamburgs at Christmas and the new year, and this might be accomplished in good houses, but ours were not, and the berries decayed so much in autumn, that we have substituted Black Alicante, Lady Downes, Gros Colman, and others for the Hamburgs, and now we hardly lose a berry. The Alicante especially is a capital Grape to resist decay. It will bear a more humid atmosphere in autumn and winter than any Grape with which I am acquainted. Others, however, are not so hardy, and the way in which they decay is exceedingly annoying. It is only with the aid of the very best appliances that any attempt should be made to grow summer Grapes for winter use, and, considering the numerous fine sorts which we have at command for winter, it is generally a mistake not to take advantage of them and have each in its proper season. At thinning time we are all rather liable to allow too many berries to remain on the bunches. Fear is often entertained that they will not swell up sufficiently to make the bunches complete, but it oftener happens that they swell too much, and the result is that they are so crowded in autumn, that if a drop of water falls on the top of the bunch it never reaches the other end, but lodges amongst the berries and causes decay. It is also impossible that air can circulate amongst the berries, and this is sure to induce decay, as the centre of the bunches will generate moisture during damp weather, and the dry air which would prevent this has no chance of gaining access to the inside of the crowded clusters to accomplish its work. This inefficient thinning is a fertile source of decay at this season. Let ask those whose Grapes are decaying from this cause to consider what loss results from bad thinning. By looking at their bunches decaying from this cause now, I will be mistaken if the amount of their loss does not recur to them at thinning time. Each berry should stand clear of its

neighbour in the case of all late-keeping Grapes, especially those grown in badly constructed houses. As to preventives for immediate appliance, dead and decaying leaves will foster damp as much as anything; these, therefore, should be picked up daily at this time. We do not always stop until they fall off before removing them; on the contrary, all which are partially decayed on the Vines are frequently removed. This allows air to circulate freely, and, if dry, it is very beneficial to the Grapes. As few plants as possible should be kept in vineries at this season, and when any which are there are watered, it should be done with much care, in order to maintain the aridity of the atmosphere as much as possible. Grapes will keep a great deal better on Vines which are only partially wet at the root than on those which are in a state of saturation, and although the Vines should not be kept "dust-dry" at the root, they ought to be kept on the dry side. When the roots are inside this is easily done, but when they are outside in the open border they must be protected by shutters or spare frame lights. As to the decayed berries, they do much harm, as one soon affects its neighbour, and a single rotten berry in a bunch to-day will often produce half a dozen or more in a day or two if not removed in time. For this reason we have great faith in looking over the bunches daily, especially in wet, extra damp weather. CAMBRIAN.

### TRAINED FRUIT TREES.

THE time is now at hand when those who intend to plant will be getting in the trees which they want. Those who are sufficiently acquainted with this kind of work are not likely to make mistakes as regards the character of the trees which they put in. But there are many who plant who, if they only get the sorts they make up their minds to have, think all will go well. Yet, there are trees and trees, and it does not follow from the fact of the kinds being good and adapted to the soil and situation that this is all that is needful. A large percentage of the trained trees that find purchasers have been so far badly managed in the training, that it is a mistake to plant them, even if one had them for nothing. It is scarcely necessary to say that the object in training a tree is to get it into the shape that will best adapt it for permanently filling the space on the wall or trellis which it is intended to occupy. Strong shoots, especially when in or near the middle of a tree, if left to take their course, rarely fail to still further increase the lead they have got, and starve the weaker ones occupying lower positions where the flow of sap is naturally little inclined to go; the result of this, especially in the case of Peaches, is that the bottom branches die off, leaving a considerable portion of the wall bare. If, on the contrary, the strongest shoots had been the lowest right and left at the base, the required balance would have been preserved, the advantage of which, independent of appearance, is that none of the wall would be unoccupied. Where a young tree has the strongest shoots at or near the centre, these require to be well cut back, so as to leave the weaker ones considerably the longest. Except this course is taken, the requisite balance in the head cannot be obtained. To reduce the strong shoots that a young tree has made in this way causes some loss of time in getting the space covered, yet it will be a gain in the end. When planting young trees, care should therefore be taken that they have well-shaped heads to begin with. French fruit tree growers bestow much attention on



training, so as to get the strongest shoots at the bottom; they manage their maidens in such a way as to secure two shoots of equal strength from the base. At pruning time these are cut back to leave them equal in length; they are then bent down and secured right and left so as to be nearly in a horizontal position, where they naturally form the groundwork for an evenly balanced head with the strength in the right place for keeping the bottom of the wall covered. I have asked some of the leading fruit tree growers in this country why they did not try this form, and was told that they had done so, but that the ideas of buyers were so far fixed in favour of the training they had been accustomed to, that they would not have any other. T. B.

## ROSE GARDEN.

### WINTER TREATMENT OF ROSES.

THERE are few flowers more commonly cultivated than the Rose. Even amateurs and cottagers regard it as one of their best flowers, and they never tire in seeking for information which will increase their crop of flowers and further the well-being of their plants. Those who grow Roses year after year soon find out the treatment under which they succeed best, but those with a limited knowledge of their requirements often make great mistakes at first. Few of such growers can understand that the best treatment which open-air Roses can receive from November until March is simply to leave them alone. This applies to all bed and border Roses, and wall ones as well, although a little exception may be made in favour of the latter. The great desire with many as soon as the leaves fall is to begin and prune, which should not be done. March, and no other time, is the proper season in which to prune Roses in the open. The only thing which will do them any good in autumn is to surface-dress them with manure and then leave them. All Roses delight in a rich soil. They would take manure every month in the year; but if a good quantity of rich material is put round each plant about the end of October or early in November, they will receive much benefit from this throughout the winter. I am, therefore, strongly in favour of surface-dressing or mulching now. There is no need to put the manure all over the surface of the bed or border, but two or three forkfuls put round each plant is very necessary, and should be done everywhere if luxuriant bushes and a profusion of fine flowers are desired. Light manure is of very little service to them. That from a cow-house or pig-stye is best. If it is put close to the stems, it will help to keep the plants firm, and prevent that shaking about which is injurious to Roses, as it breaks their roots and often bruises the wood. Indeed, where any plants are likely to shake about very much during the winter gales, they should be firmly tied to a stout stake. Some might think that to shorten the long shoots would save staking, and it would do so, but this would be the only benefit derived from it. Two or three years ago we had two sets of Rose bushes from two different nurserymen.

One of them had cut back the long stems to make packing easier or carriage less; the others were sent with all their summer wood intact. Both were planted at the same time. The long ones were pruned in spring; the others did not require any, but the autumn cut-backs made but poor growth the following season, and now they are much weaker than the others. In fact, they never got over the trimming which they received before we had them, and if a bundle of trimmed-in Roses were to reach me now, I would return them to the sender. When once our Roses have been mulched and staked in autumn we think no more about them until March, and this suits them very much better than any operation which might be performed on them now, or at any other time throughout the winter. Respecting the exception I would make in the case of wall Roses, it would only extend to nailing up or tying-in. Being generally top-heavy, they are apt to be blown about or down altogether if not secured, and they ought to be thoroughly secured whenever it is necessary to do so. When a Rose covers a large space on a wall, the screen produced by it is generally valued more than the blooms, and no attempt is made to increase these in size or numbers, but a liberal mulching in winter will do both, and those who value their wall and trellis Roses ought to set about mulching them heavily at once. CAMBRIAN.

### ROSES AND THEIR CULTURE.

By J. MAY, NEW JERSEY.

TEA ROSES are best propagated in January or February. Select good, sound, strong cuttings; those cut just below a bud are the best. Put them in a bed of sand where the top temperature can be kept at about 56° at night and 65° to 70° during the day; it is best to lightly shade them during the middle of the day if exposed to a bright sun. Keep the cuttings moistened with a hand syringe at least twice a day. As soon as rooted pot off into 2½-inch or 3-inch pots, using good fibrous loam five parts, well-rotted cow manure one part, and sharp sand half a part if the soil is heavy; mix thoroughly and rub through a screen of half an inch mesh; pot firmly, but not so hard as to break the young, tender roots, place them in a greenhouse where the temperature does not exceed 56° at night or fall below 50°, with a rise in the day during bright sun to 75°, with plenty of air. Do not shade, but water sparingly, and on bright days take a hand syringe with a fine spray and give them a gentle dewing all over, taking care at all times to avoid extremes; either dry as dust or wet as mud is very injurious to their well-being. They need constant care and watching, and they will well repay any extra care in the better growth they make. In about five or six weeks from potting they will be ready to shift into 4½-inch or 5-inch pots. This time the pots should be well drained. Let the soil be in a nice moist condition before repotting. Avoid having the ball dry, as in that case it takes a long time to get it soaked, and often a plant gets a bad check from this cause. On the other hand, if it is too wet, it will press into a mass, and if at some future time the plants get dry it will form a hard mass like a brick. When potted, return the plants to the best position in the greenhouse, keep them

as near the glass as consistent, and maintain the same temperature as given above for the night; but as the days lengthen the temperature can be allowed to run up to 80° if plenty of air is given with it. This, of course, applies from the 1st of April onward. Treat the plants the same as directed for the first potting. As soon as thoroughly established, say in four or five weeks, they will be ready to shift again. Use 6-inch or 7-inch pots this time, and treat them exactly as for the last shift, except that the soil need not be quite so fine. This, under ordinary circumstances, ought to be by May 20. Treat the plants in the same way as before directed till hot weather sets in, then place them outside in open air on a good bed of coal ashes. If to be cultivated altogether in pots, they can remain there till September or till the nights begin to get cool. They should be shifted into larger pots as required, using pots from 1 inch to 2 inches larger at each shift, according to the strength of the plants; plunge the pots to the rim in coal ashes, or any light material that will allow water to drain away readily; water whenever they get dry at the root, syringe frequently to keep down red spider, &c. By the time they are ready to get into the greenhouse, in autumn, they ought to be 2 feet or 3 feet high and proportionately wide. But if to be planted out in beds or benches, then the plants need not be put in larger pots than 5 inches or 6 inches at most. About the end of June prepare the benches, &c., by having them well drained; this is best done by having a green sod cut very thin and placed over the openings between the boards, Grass side down; then fill the bench level full of compost, made in the same proportion as before described, but do not screen it, only break up the coarse parts reasonably fine with a fork or spade; put your plants in from 15 inches to 18 inches apart, according to the varieties, press the soil firmly all over, and water as required. Syringe twice a day during hot weather, and as soon as the plants start to grow fairly give a very light mulching of fine manure to prevent rapid evaporation; keep the plants clean and the soil free from weeds; give all the air possible during fine weather from the ridge of the house, but avoid front air as much as possible. As soon as the nights begin to get cooler than 56° stop syringing in the afternoon, and endeavour to have a dry, sweet atmosphere for the night. The temperatures given for young plants is good for the larger plants for all the winter months, and if really fine Roses are the desideratum of the grower, they should be adhered to as nearly as possible. By the 1st of October the plants so treated should have a good mulching of well-rotted cow manure twenty parts and one part of fine ground bone absolutely pure. Spread this mixture over the beds and benches from 1 inch to 1½ inches thick. For pot plants a somewhat richer mulching in bone, say one part bone to fifteen parts manure, is not too much. The plants should be housed by the middle of September, and treated in all respects the same as for beds, excepting that they will require a little more attention in the way of water. Manure in a liquid form I have never found to be any benefit to young plants till after the turn of the days, say February 1, when it should be given only sparingly, as the plants will not take it in large quantities. As they get older they will take more in proportion. Any good manure is useful for making it. Fresh cow droppings, one peck to fifty gallons of water, thoroughly dissolved and let stand till clear before using, is good. Let the plants be fairly dry before applying it. Sheep and chicken manure are also excellent for the same purpose, but must be



used in much less proportions, say three-fourths less than cow manure. Guano and blood manures are also good by way of change for plants of nearly all descriptions; Roses particularly under artificial cultivation are greatly benefited by a change of food after they have absorbed the food which the soil naturally contained. Whenever mildew shows itself apply a little flowers of sulphur to the affected parts, and in autumn, when the plants become badly affected, paint the pipes while hot with sulphur made into the consistency of paint mixed with either buttermilk or skim milk, which is perhaps as good as any way, though some are in favour of linseed oil. For my part, I do not like the very disagreeable smell in the houses caused by the latter after it is put on the pipes. Green fly is easily killed by spreading a thin layer of tobacco stems over the floor of the house. I do not recommend putting the stems directly on the soil in which the plants are growing, as I have found it injurious to them.

#### HYBRID PERPETUALS

require very different treatment from Tea Roses. For very early blooming, perhaps the best way is to grow them in pots altogether. To do this, start the plants the same way in every particular as Tea Roses, but change their treatment in autumn. If the flowers are wanted for Christmas begin to withhold water gradually about August 10, and continue to reduce the quantity given till the wood gets quite hard and solid, which, under ordinary circumstances, will be by the middle of September, when the pots can be laid on their sides, and a little loose Fern or similar material may be thrown over the pots. This is a precaution which need only be taken in case of showery weather; as long as the weather remains dry they can be left standing, but do not let them get so dry as to cause the wood to shrivel. Should they indicate doing so, syringe them overhead occasionally till the wood plumps up again, but not enough to make them start into growth. In this condition hold till about October 1; then they should be pruned back to good hard wood and sound eyes. Thoroughly soak them with water as soon as pruned, and place them in a cool frame or house where they can be slightly protected at night in case of frost. Let them remain in this position until the eyes begin to swell, which will be in about two weeks; then place them in the house where they are to bloom; mulch the plants with a composition as given above for Tea Roses in pots; water and syringe as required; let the temperature be kept at about 45° at night, with plenty of air during bright days. Follow this treatment till the plants are showing bud, then gradually increase the temperature to 56°, and give an occasional soaking of liquid manure till the plants are in flower, which will be about from the 20th to the 28th of December. As soon as the flowers are cut the plants can be removed to a cool house, and their places filled up with a succession of later varieties. But for general cultivation of this class of Roses permanently planted out-houses are undoubtedly the best, such as may be seen at almost any large Rose-growing establishment. They should be so constructed as to be able to remove a part of the roof, if not all, during the summer. Cultivation under this system is very simple. The plants should be set out in the bed of the house. First well manure it, and then put your plants in about 24 inches apart each way, and allow them to grow all they can during the summer; then when frost sets in in autumn, and the plants are well rested, they can be pruned back to good hard wood, cutting all the small wood clean out.

Then give the whole bed a good mulching of the best cow manure, from 3 inches to 4 inches thick, put the sashes on, and as soon as frost is out of the beds, give a thorough soaking of water. This, of course, should all be done according to the time when the crop of bloom is wanted; for early and mid-season crops about twelve weeks should be allowed from the time of commencing, and from two to three weeks less for later crops. As soon as the beds are well soaked the house can be started with a temperature of about 40°, allowing a rise of 2° each week until it reaches 56° at night, which is really the best temperature in which to produce first-class flowers. Give two or three good waterings at the root as required in the first month, syringe frequently overhead till the buds begin to show colour, then stop till all the blooms are cut. As soon as that is done the temperature can be reduced to 50° at night, and kept at that with the needed amount of water syringing, &c., to keep them healthy and clean. By the 15th or 20th of May the sashes can be removed altogether, and the same course of treatment should be followed year after year, with better results each time as the plants grow older.

**NEW ROSES.**—To those who are contemplating trying experiments in raising new Roses, I would say that the first and most important thing to consider is an improved variety over anything we have on the market at the present date, and to obtain that it is necessary to select the parents with a view to that end. The parents should possess a large percentage of the first-class qualities requisite to form a good Rose. Those qualities, I need hardly say, are, first, free flowering; second, good, vigorous growers; third, good form and substance of petal, combined with agreeable fragrance. As a type of this, take Bon Silene, in many respects not equalled and certainly not surpassed. When you have selected the varieties to use as parents, grow them into healthy, good-sized plants, then get them to bloom as near as possible at the same time; take the pollen from one flower and fertilise the other, first cutting out the stamens of the flower which is to receive the artificial fecundation before the pollen opens. Keep a memorandum of day, date, and varieties used; label each plant with numbers corresponding with notes in your book. Do this with all, no matter how many varieties you operate upon. If fertilisation takes place, the seed-pods, or hips as they are usually called, will swell and grow fast; but do not be in a hurry to gather them before they are ripe, as that would be fatal to your object; let them remain on the plant till quite ripe. Then gather and preserve them in sand till January, when they can be sown. As one real gem is worth all the imitations in the world, so is one really fine new Rose worth all the poor ones that will ever be produced on this or any other continent. And although many of your seedlings will be beautiful in colour and form, yet all is not gold that glitters; your fine colour and form may not be any improvement on existing kinds. In this, as in all other branches of the cultivation of the Rose, it is only by perseverance you can succeed. There is no "royal road to success," but rather it is strewn with thorns and briers all the way; but when at the end of the thorns we meet our beautiful queen in all her glory, what a recompense!

Mr. Taylor, of New York, said: What little experience I have had has gone to show that we can get more flowers in winter from the Roses in benches than planted out in permanent beds. I have two houses, and have been growing Bon

Silene in this way, and during the winter months when I want Roses I can grow and produce them well. All my experience has been in favour of benches. I have now nothing but benches in all my houses. There was one point, he said, upon which information was wanted. He would like to know about a fungus that had appeared in autumn on his Roses, which somewhat resembled mildew, with the difference that mildew was a more light, powdery substance than this. It appeared sometimes in damp and sometimes in dry weather. It seemed to like the young stalks. Mr. Hill, Richmond, said: I have been accustomed to growing Roses on benches for a number of years, but principally for propagating purposes. The benches we use for cut flowers are sloped to face the south. In the construction of these benches I left a space between the slats, and on this used 6 inches or 8 inches of soil. The Roses were set out in September, and the bench system gave very satisfactory results. Only last summer we imported a new fungus growth. It appeared as if you had sprinkled soot over the plants; the leaves turned black and the growth seemed to stop. About two weeks after the turning of the leaves the rest of the plant turned brown and died.—*Society of American Florists' Proceedings.*

## KITCHEN GARDEN.

### SALAD FORCING.

**CHICORY**, when well blanched, is useful in salads; it takes the place of Endive when that is scarce. Several dozen roots, well grown during summer, will furnish a good supply by introducing into heat a few roots at different times, according to the demand; when required in large quantities, a greater number of roots must be grown, Chicory being often asked for from early in December till late in May. When the roots are lifted from the open ground in autumn, they should be stored in a shed or cellar, covered with sand or dry ashes, or they may be stored in a clamp in the open ground, covered over with sufficient soil to exclude frost. In that case a few roots at one time can be taken from the clamp as may be required. They may be forced in any structure in which a temperature ranging from 55° to 60° is maintained. The roots may either be planted in large flower-pots or boxes. Place them 3 inches asunder, and turn some fine soil in between them, keeping the crowns just above the soil. Water to settle the soil about the roots, and place the pots or boxes in a temperature sufficiently warm to induce quick growth, which must be kept in perfect darkness in order that the leaves may be perfectly blanched before they attain full size, or they will be of no value for salads. Keep the soil moist and the plants free from draughts of cold air. Pick off the outside leaves when several inches in length, and of these one plant will produce a considerable number.

**DANDELION.**—The leaves of this, when blanched, are held in high estimation by many for cutting up and mixing with other ingredients used for making salads. When properly blanched, they resemble in taste those of Endive. The roots should be lifted in autumn, and stored in dry sand or ashes in a place from which frost is excluded. They should be forced in the same manner as Chicory. Place them in pots or boxes, and transfer them to a temperature ranging from 55° to 65°. Keep them in perfect darkness during their growth, and introduce as many roots at one time as will satisfy the demand for blanched leaves.



**CHERVIL.**—If salads are required during the winter months, the leaves of Chervil will be found useful for mixing with the other materials of which they are composed. To keep up a supply during winter, sowings must be made at intervals in much the same manner as Mustard and Cress. The plants may either be grown in pots or boxes, filled with ordinary potting soil, made tolerably firm. Sow upon the surface and cover lightly with fine sandy soil, watering at the same time and placing the pots in a warm greenhouse or pit. In a few days the seeds will germinate, and in the course of a few days more the plants will produce leaves large enough to pick for use. Sowings should be made about every second or third week if a constant supply is needed. Chervil may be grown in a cold frame, but it should be sown in the autumn if for late autumn and early winter.

**MUSTARD AND CRESS** must be added to the other things used in making a salad. These can be had at all times provided a warm structure is at hand; sowings of them must be made about every ten or twelve days in order to ensure a good supply. Shallow boxes are best for both Mustard and Cress; fill them with ordinary potting soil made firm and pressed perfectly level. Sow rather thickly, pressing the seeds into the surface, but upon no account

many plants must be put in the boxes as may be required to meet the demand.

WM. CHRISTISON.

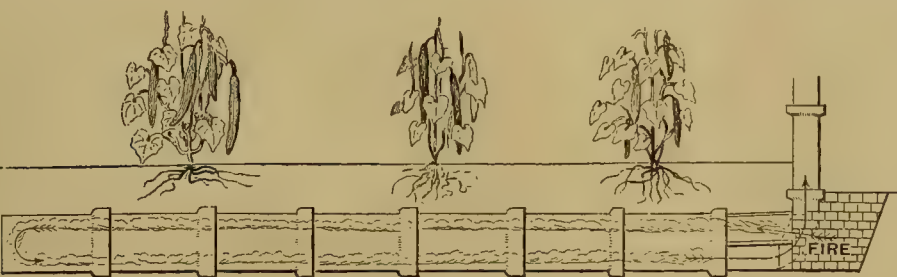
#### AN UNDERGROUND FLUE.

THE accompanying sketch needs but little description. The whole success of the plan rests on the well-known facility with which atmospheric layers run over and under each other; the hot current naturally runs along the top side, and the cool return current along the bottom. It seems, however, very odd to place the outlet below the inlet, yet this is right, and the cooler air and smoke then go up the chimney. There is no tendency for the hot air to make a short cut downwards and get straight into the chimney. It runs right to the end, which in the flue I have made is 20 feet from the fire, and heats it nearly if not quite equally all the way. The large pipes are 12-inch bore and act perfectly; the whole affair is laid dead level, and the chimney, of 6-inch pipes, is about 8 feet high.

As to fuel, it burns any rubbish in the simple brick hole which acts as fire-place, and which has to be covered with an iron plate so tilted as to let air in where it is most advantageous. By any rubbish I mean all kinds of garden waste—dried Cabbage stems, sweepings of wood sheds, old wood waste, dry weeds, and all the matter

higher quality for table purposes, and I have no hesitation in stating that such efforts have proved abundantly successful. As to Radstock Beauty, has Mr. Muir the true kind? In several parts of the country I have seen Lye's Favourite shown under the name of Radstock Beauty; I have also frequently known International Kidney to be sold for Cosmopolitan. Radstock Beauty is a chance seedling which came up in a cottage garden near Radstock; it was grown at Chiswick by Mr. Barron, and it received a first-class certificate from the International Potato Committee in 1877. It has a yellowish flesh, is quite mealy when cooked, and is a Potato which I should grow for my own eating. Supposing that Mr. Muir has it, and does not like it, depend upon it there are many who do. I must take exception to Mr. Muir's remark that certificates are awarded to Potatoes for their good looks. For a few years past the International Potato Committee have required that all new Potatoes competing in the classes for varieties not yet in commerce shall be sent to Chiswick to be grown under Mr. Barron's supervision. A committee is appointed to lift and cook them; a maximum of three points is given for appearance and for cropping qualities; then they are cooked, and if the table quality is considered good enough, three marks are awarded for that, and any variety so fortunate obtains a first-class certificate. What stricter test can a Potato undergo? Mr. Muir should take soil into account; a Potato that does not do well in his soil may be a great favourite in another kind of soil in a different part even of his country.

R. DEAN.



An Underground Flue.

cover them with soil, or the produce will be gritty. Mustard comes into use sooner than Cress, and requires to be sown oftener. Keep the seeds in darkness until they germinate, when they must be uncovered. When grown sufficiently for use place the boxes in a cold pit or frame free from frost, when the crop will keep good for several days.

**ENDIVE.**—This is one of the best of winter salad ingredients, and during the autumn should be grown in such quantities as may be required to meet the demand until young Lettuces get plentiful in spring. Before the approach of frost in autumn lift the largest plants and place them in cold frames or pits, or in any other structure from which frost can be excluded; but proper ventilation to dry up damp must be provided or the plants will rot. Smaller plants will withstand the winter's cold out-of-doors. They may be lifted in spring and planted in boxes and placed in a warm house, keeping them in perfect darkness, when almost every leaf will be blanched and fit to cut up for salad. Those planted in frames in autumn may be blanched where growing by placing a flower-pot over each plant; lay a piece of slate on the hole at the bottom of the pot to exclude light, or a better plan is to lift the plants and plant them in boxes, putting another box of the same size over the plants and placing them in the Mushroom house, or in any warm structure. Under such circumstances they will be blanched and ready for use in ten to fifteen days from the time when they are placed in warmth. As

of which so much comes from a garden in the successive seasons. It will not burn coke, coal, or heavy fuel. Observe that the flue entrance is kept free and there is always a draught. Light up for two or three hours on alternate days, and your bed of soil is kept very pleasantly warm at a cost of nothing but the trouble of doing it.

A. DAWSON.

#### GOOD AND BAD POTATOES.

WHILE Mr. Muir shall have full liberty to criticise freely the merits and demerits of new Potatoes, I hope he will not leap to too rapid conclusions. It is long since International Kidney was sent out (1876), but it was put into commerce at a time when handsome Potatoes were few, and to serve the purpose of setting up an ideal kidney Potato. High-class quality was never claimed for it; it was certificated by the International Potato Committee in 1876, and notwithstanding the amount of adverse criticism which it has received it is yet largely grown in early light land for market, and its quality in such soils is much better than Mr. Muir might suppose it to be. It is largely grown by cottagers on account of its productiveness, but probably they, as a rule, are not so fastidious as regards Potatoes as Mr. Muir is. Moreover, a great many people prefer close Potatoes to dry, mealy ones, and these represent a class of Potato fanciers who are entitled to some consideration. Further, during the years which have intervened efforts have been made to obtain kidney Potatoes of the handsome type of International, with

**International Potato show.**—I think "A. D." very much overrates the value of the new Potatoes that have been raised during the last few years. If of such grand quality as he states them to be, how is it they are not more grown than they are by gardeners and large Potato growers? Surely it is to everyone's interest to grow the best kinds of Potatoes, yet everywhere old sorts are still grown. Where a good Potato is required, new kinds do not find favour, because they have only their outward appearance to recommend them. The bulk of them when cooked lack the quality of the old sorts; moreover, many new kinds that a few years ago gained first-class certificates were not to be seen among the prize collections at the late international show. In confirmation of this I may mention International, Prince Arthur, McKinlay's Pride, and Lady Truscott. That fine looking Potato Welford Park Seedling was beaten in the class for the best kidney, and, like Mr. Muir, I hold that Potatoes that are so soon displaced by other new kinds cannot be of that quality that should be found in a really good Potato. Most gardeners have a better use for their ground than to grow these new Potatoes that have nothing but outward appearance in a raw state to recommend them, and which if cooked would not be tolerated on their employer's table.—W. C. LEACH, *Clopton Hall, Stratford-on-Avon.*

#### QUESTIONS.

5415.—**Gold fish.**—Can anyone kindly give information respecting the care of gold fish? Fifteen old ones and a good many young are in a basin on the lawn; the bottom is concreted with cemented flints for holding Arums, &c. Should they be fed daily, and with what?—A SUBSCRIBER.

5416.—**Charcoal.**—Can anyone tell me whether there is any market for charcoal, and at what price? I have a large quantity of old Thorns, Alder, Hazel, and other unsaleable wood, which formerly would have been burnt into charcoal, but now there seems to be no demand for it. If there is, where could I find a charcoal burner, and how should he be paid?—H. T. ELWES.

5417.—**Gesnerads in greenhouses.**—Can any of your readers inform me if any of the Gesneraceae can be grown in a greenhouse kept up to a temperature of 45° or 50° at night? In Roosen's catalogue I find species of Biglandularia, Centrosolenia, Kohleria, Mandirola, and Stenogastera marked *d*, meaning to be planted in spring. Would these, or any of the summer-flowering *Lychnis* do without stove heat?—A. R. W. *Gedolmring.*



## READING POTATO EXPERIMENTS.

IN reference to the remarks in last week's GARDEN concerning these, we have been informed by Mr. J. G. Baker, of the Royal Gardens, Kew, that the *Solanum tuberosum* alluded to (both the seeds and the tuber from Philadelphia) is really one of the Rocky Mountain species of *Solanum*, presumably *S. Fendleri*, and not the Chilian *tuberosum*. As the Rocky Mountain region and the Chilian Andes, the home of *S. tuberosum*, are 80° of latitude apart, and possess totally different climates, it is most desirable that the fact that the two species of *Solanum*—viz., *tuberosum* and the Rocky Mountain species—are distinct types should be clearly understood, otherwise confusion may arise. Indeed, the one important element that should be kept in view in this matter is that the *S. tuberosum*, which has always been considered to be the origin of our cultivated race of Potatoes, differs substantially from all the other species which have been dealt with in these experiments; moreover, whereas *S. tuberosum* is a native of dry parts of the Chilian Andes, *S. Maglia*, also experimented upon, comes from a region where the climate is moist. It is from the blending of the Chilian *tuberosum* with the Rocky Mountain species and *S. Maglia* that valuable results are expected. It is thought that if a race of Potatoes can be produced from a species naturally affecting a moist climate, it would be better adapted to the climate of the British Isles than our present race. Those who are following this matter should, therefore, first of all be quite clear upon the main point, that is the primary species with which these experiments are being carried out, and from which we cannot but think that important results will accrue. If, as is supposed, a race of Potatoes can be produced which will be disease-proof and at the same time productive and of good edible quality, the nation, we need hardly say, will be benefited in no small degree. The paper read by Mr. Baker before the Linnean Society, January 17, 1884, on the "Tuber-bearing species of *Solanum*," should be perused by all who take an interest in these Potato experiments.

## ORCHIDS.

## ORCHIDS AT DOWNSIDE.

CATTELYAS AND LÆLIAS, the glory of Downside, are still partially in flower. *C. Dowiana*, with its rich crimson-purple, gold-striped lip, contrasts strikingly with the soft lemon colour of its petals and sepals. This lovely species is represented here by several specimens bearing individually from two to five handsome flowers. There is also a remarkably fine series of the charming *Cattleya gigas*, which has of late occupied much attention, owing doubtless to the fact that recently imported plants are of a much more floriferous character than those formerly in cultivation, the flowering of which was only reckoned as an accident. We well remember some plants of it grown on the Continent for several years without ever showing any signs of flowering, and these same plants, grown side by side with the forms recently imported, still keep up their shy-blooming character, while the latter flower as regularly as they do at Downside and in other collections. Several fine forms of *Cattleya speciosissima* or *Luddemanniana*, as it is to this day called in many places, are also valuable, owing to their producing flowers at this time of year, and when the variety is a good one this *Cattleya* is certainly very handsome. The same may also be said of *C. maxima*, of which several beautiful forms seem to have this season made a simultaneous

appearance in different collections. Several grand, indeed unique, forms of *Lælia elegans* in the best possible health may also be found at Downside; among the most distinct may be noted the rare *L. elegans*, *Wolstenholmiæ*, *Turneri*, and *Dayana*, all with tall, erect bulbs, surmounted with two leaves, and bearing spikes of from four to seven flowers; the latter cannot be mistaken for the pretty *Lælia Dayana* or *Pinelli*, a dwarf plant with bulbs furnished with only one leaf, and producing also solitary flowers of a very beautiful rich colour.

THE TWO GEMS of the collection, however, so far as this genus is concerned, are undoubtedly *Cattleya Mastersoniæ* and *Lælia Amesiana*, both hybrids raised by Mr. Seden. The former is the result of a cross between *C. Loddigesi* and *C. labiata*, and its beautiful flowers are just intermediate between those of these two species exceeding in beauty the best known form of *C. Loddigesi* and equal to an ordinary *C. labiata*. The sepals are of a lovely amethyst colour and the petals rather undulated; the lateral lobes are whitish yellow with a very delicate amethyst border, and the white column forms a striking contrast with the intense purple of the middle lobe. In habit it somewhat resembles *C. superba*, its two-leaved bulbs being about 9 inches high. The *Lælia Amesiana* was produced by crossing *L. crispa* with *Cattleya maxima* as pollen parent. It is a very free grower, with bulbs sheathed like those of *C. maxima*, and producing on each spike two or three flowers whose petals and sepals remind one of those of *L. crispa*. The lip, although of similar shape as that of *C. maxima*, possesses the grand colours of *Lælia crispa*; it is three-lobed, and the side lobes, blunt-angled, are ornamented with a light mauve-purple border, which renders the flower very attractive. As showing how wonderfully well *Cattleyas* grow in this place, we may here mention that *C. calumnata*, a French hybrid of recent production, and which is by no means vigorous under ordinary treatment, is represented by ten or twelve healthy young specimens, mostly propagated here and growing in an extraordinary manner quite close to the glass. Far-famed as Downside is for *Cattleyas*, it is, nevertheless, equally celebrated for other choice Orchids; at present a great many *Masdevallias* may be seen here in great splendour. Foremost amongst them may be named a magnificent form of *M. Chimæra*, particularly remarkable for size and colours. This was associated with *infrecta*, *Estradæ*, *Veitchiana*, *Davisi*, *Schlimi*, *igneæ*, *Wagneri*, *Harryana sanguinea*, and the lovely *Chelsoni*, the last the first hybrid raised in this interesting genus of cool Orchids. It was produced by crossing *M. amabilis* and *M. Veitchiana*; its flowers are indescribably rich and brilliant. Amongst curiosities in flower may be named *Gongora atropurpurea* and some beautifully-marked varieties of *Oncidium Papilio* and *Krameri*; also *Epidendrum sceptrum*, with large dark brown spots on the lip; the pretty *Barkeria Barkerioli*, *Pachystoma Thomsonianum*, and the lovely little *Trichocentrum atropurpureum*, growing on a block. To these may also be added the peculiar-looking *Nanodes Medusæ*, the handsome *Oncidium incurvum album*, with long spikes completely loaded with pure white flowers having an exquisitely feathery appearance, and a beautifully variegated-leaved specimen of *Cattleya Mossiæ*. This latter does not by any means seem to illustrate the theory that variegation is a form of disease, as it is in the most robust health possible, yet its large glossy leaves are regularly and distinctly marked with longitudinal bands of yellow quite distinct from the dark green ground, with which they

form a pleasing contrast. Flowering somewhat out of its season, we also noticed a fine specimen of *Dendrobium Brymerianum* with its yellow and curiously fringed flowers. These are especially noticeable, as the growth of the plant itself, which in a teak basket and kept close to the glass, is really remarkable.

OF MORE ORDINARY ORCHIDS, but still represented by the best varieties, may be mentioned *Odontoglossum bicktonense*, *Roelzi*, and *Insleayi leopardinum*; *Oncidium tigrinum*, *aurosum*, *Weltoni*, *Marshalli*, *cheiroporum*, *ornithorhynchum*, and others. Quantities are in flower, and among the choicer sorts we remarked a fine plant of the new *Aerides Lawrenceanum* with racemes over a foot in length, well furnished with flowers quite as large as those of *A. crispum*, but resembling more those of *A. odoratum* and of very decided colours. Associated with these were *Aerides Sanderianum*, also one of the largest-flowered forms of the genus, and the much bepraised *A. Rohannianum*; a very pretty specimen of *Cœlogyne Massangeana*, *Trichosma suavis*, deliciously fragrant; the new *Angræcum Scottianum* and *Leonei*, the latter of which cannot fail, through the delicate pure white colour of its flowers and their delightful scent, to become a popular plant, especially if its autumn or winter blooming character is preserved after the plants become perfectly established; along with these was also a grand variety of *Vanda cœrulea* with good substantial symmetrical, and well-coloured flowers.

A good few *Phalænopsis* were also in flower, and among them the pretty, although small-flowered, *P. Esmeralda*; the sweet-scented and beautifully-coloured *P. violacea* from the Philippine Islands, distinct from all others on account of its large, closely-set leaves of a light, cheerful green hue, and remarkably glossy, and likewise on account of its flowers being produced in succession, the white petals and sepals of which are delicately washed with violet-rose in the lower portions, the lip being of a rich violet-crimson, relieved by a golden callus. The useful *P. amabilis*, whose flowering season seems to extend from one year's end to another, and *P. Sanderiana*, whose delicate tints are so valuable at this time of the year, were also both in flower; also an interesting specimen of the rare and beautiful *Oncidium Jonesianum*, which, when better known, will also become a popular plant. The gem of gems, however, contained in this collection is undoubtedly the entirely new white form of *Saccolabium Blumei*, which we still had the good fortune to see in very good condition; the spike, which is long and well proportioned, is remarkably well furnished with lovely flowers of the purest white, and although these had been open for a long time, they did not exhibit the least sign of colour. It is evidently one of the most striking, as well as one of the most valuable, of recent acquisitions in the way of imported Orchids.

**Orchids at Kenwood.**—This is a dull season of the year for Orchids to be in flower, but, nevertheless, a few good varieties are now in great beauty in Mr. Corning's collection. A large plant of *Cattleya Dominiana* is bearing eighteen of its delicate lilac-tinted flowers, and forming a pleasing contrast with the colours of numbers of *marginata* hanging near it. Of the latter one variety is particularly notable for the intense dark rose colour of its sepals and petals. *Lælia Dormaniana*, a rare kind in the way of *C. bicolor*, is also in flower; *L. elegans* is represented by a number of good varieties, such as *Wolstenholmiæ* with a seven-flowered spike; *enspatha*, the brilliant coloured *Turneri* and *Warneri*, and the dark-lipped *Dayi*. The genus *Phalænopsis* has at present no



very showy representative other than *Lowi*, of which there are about a dozen plants; this is a free bloomer, and requires plenty of heat in which to grow it well. It must not be thrown away when its leaves are all gone, as it is naturally deciduous. *Esmeralda* is here in the form of several varieties, also several plants of *P. rosea*. Among the scarcer kinds in flower are the purple form of *violacea*, called *Schroederi Valentinei*, which may be called a purple coloured *cornu-cervi*, and *fasciata*. This is of the *violacea* type, with lemon flowers, barred with cinnamon-brown, its flower-stem being like that of *cornu-cervi*. The *Cypripedium* family is the most conspicuous at this time of the year, the best among those in flower being *albo-purpureum*, *calurum*, *grande*, *Dominii*, and very free growing hybrids of the longifolium type—*vexillarium*, *cananthum superbum*, *Harrisianum superbum*, *marmoraphyllum*, and *Swanianum*, hybrids of the *barbatum* type, and *Stonei*, with the earliest of the *Spicerianum*. *Dendrobium chrysanthum* is in fine flower; though an old kind, it is still one of the best; its long stems laden with dark-eyed golden flowers, relieved by dark green foliage, render it a particularly attractive Orchid. By the way, I believe in England this species always blooms upon the ripened leafless bulbs like *Wardianum*. In this country it always blooms upon the present season's bulbs as soon as growth is finished. *Cynoches ventricosum* has some fine spikes of its curious green and ivory flowers; its fragrance alone renders this a desirable species. Among the *Masdevallias* may be noted *Chimæra*, with its varieties *Wallisi*, a large plant with about thirty spikes, *bella*, *nycterina*, *Rozei*, and *M. Carderi* and *Reichenbachiana* are more curious than pretty.—F. GOLDRING, *Albany, N. Y.*

**Orchids in flower in America.**—The following are in flower at Mr. Kimball's, viz.:—

<i>Aspasia epidendroides</i>	<i>Maxillaria venusta</i>
<i>Megacalinum Bufo</i>	<i>Oncidium crispum</i>
<i>Paphinia cristata</i>	<i>varicosum Rogersi</i>
<i>grandis</i>	<i>Weltoni</i>
<i>Cattleya Aclandiae</i>	<i>Phalenopsis amabilis</i>
<i>Eldorado alba</i>	<i>cornu-cervi</i>
<i>Perrini</i>	<i>amethystina</i>
<i>marginata (pumila)</i>	<i>Lowi</i>
<i>Cecelogyne Massangeana</i>	<i>Esmeraldia</i>
<i>Epidendrum aromaticum</i>	<i>Sanderiana</i>
<i>cochleatum</i>	<i>violacea</i>
<i>Lælia albidia</i>	<i>Odontoglossum Alexandrae</i>
<i>Dayana</i>	<i>(many)</i>
<i>Lycaste Skinneri</i>	<i>madrense</i>
<i>Masdevallia Chimæra Wal-</i>	<i>Vanda cærulea</i>
<i>lisi</i>	<i>Sanderiana (three plants)</i>
<i>erythrochæte</i>	<i>Zygopetalum Burkei (new)</i>
<i>swertiaefolia</i>	<i>Gautieri</i>
<i>Wagneri</i>	<i>Mackayi</i>
<i>Davisi</i>	<i>rostratum</i>
<i>Miltonia Regnelli</i>	

Mr. Kimball has also a great many other Orchids in bloom in the way of *Cypripediums*, *Cattleyas*, and the general run of Orchids that flower at this time of the year.—GEO. SAVAGE.

**Cymbidium longifolium.**—From Mr. Thomson, of Ghyllbank, St. Helens, we have received a very fine spike and leaf of this Orchid, a species intermediate between *C. giganteum* and *C. Hookerianum*, but with narrower leaves than they have and smaller flowers. The general habit is, however, very similar in all three species, to which may be added a fourth—viz., *C. Lowianum*. The spike sent us bore sixteen flowers, each with a spread of 3 inches, the sepals and petals measuring over 2 inches in length by one-third of an inch broad, and of an olive-green colour, with six or eight longitudinal lines of cinnamon colour. The lip is  $1\frac{1}{2}$  inches long, the apex recurved, and the edges turned up so as to form a sort of scoop, and there are two prominent ridges running down the inside from near the apex to the base; in colour, the lip is ivory white, beautifully lined inside with chocolate. The column is nearly as long as the lip, curved, and is yellow, streaked with chocolate. It has leaves 3 feet long by three-quarters of an inch broad. As a garden plant *C. longifolium* is better than either *C. giganteum* or *C. Hookerianum*, and is almost, if not quite, as handsome as *C. Lowianum*. Mr. Thomson obtained his plant from the Sikkim Himalaya imported with *C. Lowianum*.

**Rhubarb-scented Dendrobium.**—In THE GARDEN p. 463, "J. B.," speaking of *Dendrobiums*, mentions several varieties, including *D. Dearei* and *D. anosum*. The last, he says, is like *D. superbiens*,

but without the objectionable Rhubarb scent. Now I have grown this *Dendrobium* ever since its introduction, and have frequently tried to find a scent of some kind or other in it, but have always failed to do so. "J. B." must, I think, have meant *D. macrophyllum*, which really does smell strongly of Rhubarb.—S. M.

## NOTES OF THE WEEK.

**Gloxinias.**—Messrs. E. G. Henderson, Pine-apple Nursery, Maida Vale, have sent us some lovely blooms of *Gloxinias* to show how effective they are even at this late season. It is clear that by a little management these charming flowers may be had in great beauty from early spring till late in autumn.

**Proposed international exhibition.**—The president and council of the Royal Horticultural Society invite all who are interested in the advancement of horticulture and allied subjects to meet them in the Music Room of the Inventions Exhibition on November 10, at 12.30 p.m., to confer with them on the subject of holding an international horticultural exhibition in London in 1887. Admission by principal entrance, Exhibition-road.

**Gladiolus Ville de Versailles.**—From Mr. Baylor Hartland, Temple-hill, Ballintemple, Cork, come some blooms of this *Gladiolus*, a lovely variety at this late period when flowers are becoming scarce prior to the advent of *Chrysanthemums*. It continues yielding an abundance of flowers from lateral branches from this time on to Christmas if the season is mild. In pots also in a cool house the bloom is extended on to January. The flowers now sent are from a south border. Mr. Hartland also sends some fine blooms of *Sternbergias*, more particularly of *S. lutea angustifolia*, also leaves of *S. lutea major*, apparently a very robust-growing kind.

**The October Snowdrop** (*Galanthus octobrensis*).—I send you a bloom of *Galanthus octobrensis*. It opened the end of last week, and always blooms without the foliage, and is never later than the first few days in November. The late Rev. Harpur Crewe was kind enough to give me a root of it about four years ago. When he died I should think there must have been some half dozen roots in his garden. I wonder what became of them. When my own root had increased to two, I foolishly divided them, and lost one portion; consequently my stock consists of a small clump of three roots.—JAMES ALLEN, *Park House, Shepton Mallet*.

\* \* A most interesting variety, on account of its flowering at this season, otherwise it does not differ much from the ordinary form of Snowdrop.—ED.

**Gaura Lindheimeri.**—This hardy American plant, which is easily managed in the open border, we have found accidentally to be very useful at this season indoors. Cuttings struck six weeks ago and grown on in a close pit are now flowering abundantly in small pots; the young plants range from 1 foot to 18 inches in height, and are well furnished with pretty soft green leaves, linear in form. A few months ago when in full flower on the rockery no Orchid bloom could have been more chaste than the delicate white flowers of this *Gaura*, and now, when almost all other flowers are past, hardly excepting *Michaelmas Daisies*, it is equally interesting indoors. The flowers, which are produced freely, are each as large as a florin, and they last a wonderfully long time in beauty in a cut state; the easy, graceful habit of this plant also tends to enhance its value for pot culture.—K.

**Disa cornuta.**—There is a very wide difference between the well-known *Pride of Table Mountain*, *Disa grandiflora*, and the majority of the rest of the genus, and it is to the majority that *D. cornuta* belongs. It is a robust grower, with fleshy green leaves, the lower part spotted and lined with purplish red, and an erect flower-spike a foot high, the upper half of which is covered with green bracts and curiously hooded flowers, the hood being half an inch in diameter, and dull violet-coloured, whilst the spur is half an inch long and green. This must not be mistaken for the beautiful blue-flowered *Disa* commonly known as *Herschellia cærulea*, but botanically known under *D. graminifolia*.

*folia*. Messrs. Barr, of Covent Garden, recently sent us a short spike of the above, together with the inflorescence of *Satyrion carneum*, a fleshy-looking terrestrial Orchid from South Africa, much resembling in general appearance the spike of a *Monotropa* or *Lathraea squamaria*. The lower leaves are very succulent and rounded, those on the stem being longer, whilst the upper foot or so of the spike is covered with fleshy greenish boat-shaped bracts, the upper ones tinted with rose, and peeping out just beyond them are the whitish flowers. There are beautiful terrestrial Orchids in South Africa, but these two are not of them.

**Nerines.**—The beauty and variety of these plants have been abundantly displayed to us during the past week or two through the kindness of correspondents, who have forwarded us boxes of the flowers of *N. sarniensis*, the common Guernsey Lily and its various forms, as well as of other and rarer species. This week we have received from the gardens of Lord Suffield, Gunton, a beautiful collection of the forms of the Guernsey Lily, of which the following deserve mention: *N. sarniensis* var. *venusta*, here named *N. flexuosa*, as also it was named in Mr. Mansell's collection, referred to last week. The brilliant scarlet of the flowers of this plant is quite exceptional even in *Nerines*. Mr. Mansell tells us that in Guernsey this form is extensively grown under the name of *N. flexuosa*. A second variety of *sarniensis*, here named *Hogarthi*, is larger in the size and deeper in the colour of the flowers than the above. A form very near the *venusta* variety is here called *N. coruscans*, which is said to have had its origin in the crossing of *N. sarniensis* with *N. curvifolia*. The plant here named *Nerine Elwesi* is a pale scarlet variety of the Guernsey Lily, and has certainly no relationship with the true *N. Elwesi*, which is a pale rose-coloured form of *N. pudica*, the white-flowered *Nerine*. The genus divides itself into two groups, in which the first has erect flowers in a compact head, the stamens straight and the segments regularly recurved; this group includes *N. sarniensis* and its forms. The second group is distinguished by the flowers being more or less nodding, in loose heads, and the stamens bent or declinate, whilst the flower segments are more or less irregularly recurved; in this lot are included *N. crispa*, *N. pudica*, *N. amabilis*, &c.

**Saxifraga Fortunei and cortusæfolia.**—Anything at all likely to prolong the flowering season out-of-doors is most welcome, and especially so when the plants indicated merit, from their value as garden plants, a place in every collection however small it may be. The two *Saxifragas* here mentioned belong to a group including the old and well-known Strawberry *Saxifrage*, *S. sarmentosa*, long since out of flower, but nevertheless still interesting on account of its Strawberry-like runners, which hang gracefully over the sides of suspended pots or baskets. *S. Fortunei*, one of those in flower at present next to the *Hosti* group, is amongst the most beautiful of our *Saxifragas* and with them equally easy to cultivate, provided it is placed under the conditions most suitable to its requirements. It was introduced from Japan by Fortune, and flowered for the first time in this country some twenty-three or four years ago. It is reputed not to be hardy, but we have had no trouble with it on that score whatever. This may, however, be owing to its blooming at a time when the fullest open flowers are liable to damage from boisterous winds or severe frosts; the latter evil we provide against in this wise: we place stones behind the plant sufficiently high to support a square of glass, and by this means even in severe weather its flowers have been untouched. It prefers a shady situation not over moist, but where it can be kept cool during the summer months. It is, however, equally susceptible of drought, and should never be allowed to want for water. It forms dense tufts of beautiful dark evergreen foliage almost round, with unequally serrated margin and thick leathery substance; the flowers, on a numerous branched stalk, are pure white, and furnished with pretty little pink stamens. One of the petals is three times longer than the others and sharply serrated, a circumstance which gives the flower a singularly interesting appearance; they will remain good for three weeks or a month yet.



The other is *S. cortusaefolia*, also a native of Japan. It is said to be an extremely variable plant, and although it is conjectured that it may even yet turn out to be a mere variety of *S. Fortunei*, the present form is distinct enough from the other to merit a specific name. In a shady peaty bed this plant is now flowering profusely, even more so than the other. The flowers, though smaller, are more numerous and without the distinct serratures on the longest petal, which is a good character by which to distinguish the two. The leaves, which are much the same in outline, are more evenly divided and more regularly serrated; both may be easily increased by division of the roots, being the only way available, as they rarely, if ever, ripen seed owing to the lateness of the season at which they bloom.—K.

#### NOTES ON RECENT NUMBERS.

**Nerines** (pp. 454-461).—When the time of year comes round for the Nerines to be in bloom, their praises flow freely and regularly from all who see them, generally accompanied by expressions of regret that they are not more universally grown. That they are useful and beautiful few will deny, and also easily managed, but it is not in the hands of many that they are seen really flourishing. A mistaken idea seems to prevail that they can only be grown successfully for one season in pots, and that the following year newly imported bulbs must be procured. It is this notion of which gardeners must be disabused; for, of course, it is quite sufficient to deter people from investing in them, considering the price that has to be paid for a single bulb of any variety, except the common *sarniensis*. The list of names gets longer and more puzzling each year, considering how closely the sorts run into one another, and no doubt they will soon become more naturalised by being honoured with homely British names, denoting the different nurseries from which they come. However, since their beauty is well known, the chief thing to be done is to familiarise people with their culture, and so prove that it is neither difficult nor laborious. New and improved varieties are sure to follow, and be generally welcomed.

**Fine-leaved plants** (p. 454).—Some little while ago a query appeared in *THE GARDEN* as to the hardness in this country of *Besconeria yuccoides*, and I have watched in vain for any answer, or even any further mention, of this most graceful plant. The beautiful glaucous colour of the leaves and the way in which the points droop downwards render it noticeable at once amongst other stiff-growing neighbours. It is very useful as a single specimen for vases in a formal garden during the summer, but, though the flower-spike is curious and interesting, it is not to be compared with the *Yuccas* in this respect. Young seedlings might prove useful for house use, and would contrast well in colour with *Dracenas* and the things usually grown as table plants, but I have never seen them tried as such, probably because the seedlings are not easy to get. Some of your readers, with whom it is a favourite, may very likely be able to add to its praises.

**The Stone Pine** (p. 461) is a different thing here from what it is in Italy, for its colour in this climate is not that rich dark green which renders it so beautiful under a fiercer sun. Still, it is worth growing by us northerners for the sake of its handsome stem, which is always a conspicuous object in a landscape when it has attained a good height and size. It is necessary, however, to keep cutting off the lowest boughs as they die back, for if left on the tree they spoil the effect of the straight rough bark. Sometimes one may see a good close head in a healthy condition, but it is the exception rather than the rule, and though they do very well with us in this part of the country, they are in many places very liable to be injured by the frost or snow, and cannot be counted on to give us the same effects as in the land of *Cypresses* and *Olives*. I am not surprised at "Rustic's" disappointment, and would recommend him to develop the Stone Pine with a view to "stem effect," and give up the idea of horizontal or drooping branches in connection with it unless growing on another tree. I do not think, however, from his note that he can

have seen a really large specimen, and I expect he will modify his opinion when he does.

*Sussex.*

C. R. S. D.

#### INDOOR GARDEN.

##### TYDÆAS AND GESNERAS.

To those who wish to keep their indoor gardens gay at all times, this class of plants afford great help, especially at this dull season, but somehow or other it is not common to meet with them well grown and bloomed, though their cultural requirements are small and they are but little liable to the attacks of insects. In some the blossoms are very beautiful; in others the foliage is remarkably handsome, notably *zebrina* and *exoniensis*, whose deep crimson velvety leaves are valuable for indoor decoration under artificial light. The flowers of these two kinds make no great display, but there are many others whose blooms, as I have said, are very beautiful, and if started into growth at the proper season will be now in flower. Besides *G. zebrina* and *exoniensis*, we grow here *cinnabarina*, another handsome foliage-variety with bright vermilion-coloured blooms; *alba lutescens grandiflora*, yellow and white; *Nachtegal*, rose and white; *bicolor*, yellow and red; *Reine Marie Henriette*, deep orange and pale yellow; *Donderstraal*, red and white; and *fulgida*, vermilion. Add to these the brightly coloured *G. macrantha*, which blooms about the beginning of the new year, and we have a good representative selection. For flowering at this season, the roots after their winter's rest should be started into growth about April and grown on during the summer. As the object is the production of good sturdy plants, they should be grown cool in summer and allowed a good amount of light, otherwise they become weakly and drawn. In potting, thorough drainage must be insured, and free open soil should be used. As the pots get full of roots weak manure water is of great assistance if given about twice a week. An attractive feature of these plants is the regular contour of the pyramidal-shaped spikes of blossoms; therefore the shoots should, if necessary, be secured to a stake, even during their earlier stages, otherwise the regular appearance of the plant will be to some extent lost.

THE TYDÆAS constitute another beautiful class of plants, the blossoms of which are in some kinds at least most curiously spotted and marked in various ways. They should be treated the same as the *Gesneras*—viz., started into growth in spring and grown cool during the summer, so that when removed to a warmer structure about the beginning of September they quickly commence to bloom. They are by no means deep-rooting subjects; a few pans planted with the smaller rhizomes placed rather thickly together are now regular masses of bloom. A few of the best of these are *Madame Heine*, *Robert le Diable*, *Tricolor*, *Madame Halphen*, *M. Richard*, *Larios*, *Lady Caroline Harrison*,

*Cratère*, and *gigantea*. Another plant nearly allied to the above, and just now beautifully in bloom, is *Isoloma hirsuta*, in habit a good deal like a *Tydæa*, but more rambling. Its blooms are rather longer and less expanded at the mouth than those of the *Tydæas*, and in colour they are a rich vermilion. The whole of the plant, including the blooms, is thickly covered with hairs.

**PROPAGATION.**—All of the above may be readily increased in various ways, firstly by division of the underground rhizomes, which should be done just before potting. All the lesser pieces may be laid thickly together in a pan and slightly covered with silver sand till they start growing, when they can be potted four or five in a pot, or dibbled in pans filled for the purpose with suitable soil, and allowed to form a mass or cluster. Besides this mode of increase, cuttings of the young shoots, or even single leaves, strike readily and soon form plants; but in their case a great thing is to put them in as early in the season as possible, in order to insure the formation of good strong roots before winter. Seedlings are easily raised, and quickly form flowering plants; indeed, we have a very interesting series of seedling *Tydæas* in bloom at the present time, the result of intercrossing the varieties just mentioned. Amongst them are many beautiful kinds, so much so as to show that, with a few good varieties to commence with, it is by no means necessary to purchase others, as, by a little judicious intercrossing, plenty of different forms can be raised. H. P.

**Abutilon Boule de Neige.**—During ten years experience as a gardener I have never seen a well-grown and well-bloomed plant of this *Abutilon*. Most growers consider it little better than a weed, for which any out-of-the-way corner will do. That was my own opinion of it until a few months ago. On entering the situation I am now in last November I found a few plants of it which I thought only fit for the rubbish heap. Spring came round without my opinion being changed. However, I was obliged to keep up the stock, so I raised a few young plants from cuttings and potted them into 5-inch and 6-inch pots. Being rather pinched for room early in the season, they were put into a very cold frame—a great deal too cold for them; and the consequence was, they did little or no good; still they showed a bloom or two. Later on they got shifted into a warmer frame, and from that into the greenhouse, and in September last they had become good, strong, healthy-looking plants, from 18 inches to 2 feet high, well furnished with foliage from top to bottom, and blooming profusely at every joint. Now my opinion is that they would make grand plants for table decoration, or for cutting for small glasses. I saw it stated somewhere, not long ago, that this much-neglected *Abutilon* would never make a good plant, and could not be induced to bloom unless very much pot-bound. With this my experience does not agree, for with a little care in pinching, and attention in other ways, it will make a pretty plant in a short time, and bloom freely when well established. With regard to soils, it does not seem very particular, but I have no doubt a little peat will be beneficial.—J. T. F.

*Cyperus natalensis* is one of the best and most graceful of green-leaved decorative plants with which I have met for a long time, much better than *C. alternifolius*. It is a plant of more rapid growth, and one which is effective even in a small pot; in fact, for a dinner-table or vase there are very few more



effective plants, and it grows freely in any light rich soil if well supplied with water. We grow the majority of ours in 5-inch or 6-inch pots, and as soon as they are full of roots we set them in saucers of water that keep them fresh for a long time. They are readily increased by division, and anyone requiring decorative plants, and having no stove from which to get a supply, should procure this *Cyperus*; it grows freely in greenhouse temperature.—J. G. H.

#### INDIAN LILACS.

UNDER this name several plants belonging to the genus *Lagerstroemia* are distributed in gardens all over the world, finding favour because of the beauty of their flowers and their accommodating nature, a nature similar to that of our own Lilac (*Syringa*), in countries where the temperature

is warm enough for plants which originally came from the warm parts of India. We frequently hear of the commonest species (*L. indica*) from correspondents acquainted with its grace and beauty in the sunny lands bordering the Mediterranean, and only a few days ago we received a description of some fine specimens of it at Gibraltar. In the greenhouses of this country *L. indica* is a frequent plant, sometimes grown against a wall or the side of a house, and also as a shrub. Nothing can surpass a well-flowered bush of it in effectiveness, especially in warm conservatories where room can be afforded for it to develop into a large specimen. Its introduction dates back to 1759, when the Duke of Northumberland brought it to England. It flowers during the later months of the summer, and its terminal panicles, often a foot long and made up of hundreds of bright coloured flowers, are most showy and lasting. There are several very distinct varieties of it as regards colour, some of them having pale pink flowers, others almost white, and others again deep red, almost crimson. This last form is known as *L. elegans*, under which name it is figured in Paxton's *Magazine of Botany*, xiv., 269. We saw a fine plant of it in flower the other day in the stove at Pendell Court, where it is planted out in a bed of rich soil in company with Palms, &c., and we do not remember to have seen any variety of *L. indica* so beautiful as this was. *L. Regineæ* is another very handsome species common in Indian gardens, and also known in a few gardens in this country. It forms a tree when full grown, but usually with us it is kept at bush size by frequently pruning it back. It is distinguished by having leaves lance-shaped,

oblong, from 6 inches to 8 inches long, smooth, dull green; the flowers are in large terminal panicles, 8 inches to 1 foot long, about fifty flowers to a panicle, and each one is over 2 inches across, in form suggestive of a mill-sail, owing to the petals being narrowed at the base to a stalk, and broadened out an inch or more in the upper part; the colour is a bright mauve. For their cultivation the *Lagerstroemias* require a warm, sunny, moist house during their growing season, that is, in early summer, and a dry airy house after the leaves fall off, all the species being deciduous. If kept in a moist stove all the year round, they seldom flower well, if at all, and the same thing happens in a cool house. This fact was understood a hundred years ago, for we read in an early

graving is somewhat reduced from a photograph taken for us during the month of September.

#### RHODOCHITON VOLUBILE.

IN THE GARDEN (p. 396) this beautiful plant has met with just and well-merited praise, and, as there stated, it should, I think, adorn every greenhouse. In the Cambridge Botanic Garden it has proved to be in the houses one of the most generally attractive of all plants. The request for information as to the culture, which produced the specimens referred to, may be answered in a few words. It is very easily grown, and, as in many other cases, a hint only is necessary to indicate how superior results may be attained. It is one of those plants

which flower as they grow, and which do not by any vigour of growth lessen the production of flowers. Therefore the stronger it grows the better, and I find that it grows most freely and with least trouble if planted out in a border. If planted out in spring a large space will be covered during the summer. It is not particular as to soil, but it requires good drainage, otherwise it is liable to die. Water it will take freely, but in the borders I have—never properly constructed, and never, perhaps, intended for plants—it has died, no doubt from insufficiency of drainage and too much water



A group of fine-leaved plants (*Philodendrons*) in the conservatory at the Regent's Park Botanic Garden.

volume of the *Botanical Magazine* that in the greenhouse it is not a very ready bloomer, but in the stove it blooms more freely if kept dry for a while after its leaves fall off. B.

#### PHILODENDRONS IN THE BOTANIC GARDENS, REGENT'S PARK.

THESE fine-leaved plants are generally associated with stoves and hothouses. The interesting thing about them as regards the drawing which we show is their comparative hardiness. They grow very fairly indeed on a bank of rockwork in the conservatory in the Botanic Garden, Regent's Park, which is only kept at a moderate greenhouse temperature in winter. They have been there for many years, and their effect both in winter and summer is invariably good. Such plants are of the first importance to all who have to deal with picturesque and large hothouses, in which artistic effects and something like permanent beauty of foliage are sought. Such masses of fine tropical verdure are a grand foil to a little foreground of fresh flowers brought in from other houses. Our en-

from the floors of the house. This is a point to which attention should be directed, as I have known it to live for years. It has been planted behind the pipes and grown up at the back of the stage. It gives no trouble in the way of training; it requires only to have wires provided, and around these every leaf-stalk that can do so makes a turn after the manner of a *Tropæolum*. Cuttings of it will strike, but unless cuttings can be taken from young plants it is best grown from seeds. I do not recommend the culture of this plant in pots—though in that way very pretty specimens may be obtained—because it suffers immediately when more root-room is required, and to keep up its vigour very large pots would soon be necessary. Planted out-of-doors in summer it flowers well, and I have had an extremely pretty specimen of it on a few twiggly sticks in the herbaceous ground.

R. IRWIN LYNCH.

**The spring *Orobis* in pots.**—The choice of flowering subjects for greenhouse decoration during spring is by no means so limited as one might suppose. Hyacinths, Tulips, *Spiræas*, *Cyclamens*, *Primulas*,



Cinerarias, and perhaps Azaleas, undoubtedly contribute a considerable blaze of colour; but there are also many hardy plants that under glass expand their flowers purer in tint than when in the open air, and several of them may be lifted and utilised for greenhouse decoration. A very pretty subject amenable to this mode of treatment is the Spring Bitter Vetch (*Orobis vernus*) and its varieties, which flower beautifully in spring if lifted during the preceding autumn, and, after being potted, wintered in a cold frame. The blooms are Pea-shaped, and in their colour a good deal of variation exists, the ordinary form being an almost indescribable blending of blue, purple, red, and green, while all these change in tint day by day.—H. P.

## FLOWER GARDEN.

### NOTES ON HARDY PLANTS.

**SENECIO PULCHER.**—"This brought into the dining-room is simply grand. It does remarkably well in dry air, and the colour stands well. The plant has been in the room three weeks." So writes one who makes more of many of his hardy plants grown in pots than some of us do. This late flowering Groundsel is not only worthy of a place in our dwellings, but it may often be bloomed in sunny windows, when, if left out-of-doors, early frosts and rains would destroy the buds before a single head coloured, and so the plant would be valueless. In fact, it is a common thing to hear that it has been grown several years, and that it always promises well, but fails to open a flower; this is certainly a plant that needs special treatment. If wanted to flower in the open it should either be well forwarded in cold frames, keeping the leaves green all winter, and only putting it in the border after frosts, or protection should be given to old plants in the open ground with the same object in view. I always find that if the old leaves can be saved from frost that spring growth is earlier, and also the bloom, the following season. The roots are perfectly hardy. Treated somewhat like November-flowering pot *Chrysanthemums* as regards shelter in the bud stage is a capital way of getting the flowers to open.

**HOUSTONIA CÆRULEA.**—This is a most desirable rock plant, but seldom does one see it in big healthy cushions. It is said to be difficult to grow, but I think if it were said instead that it is difficult to keep in good-sized pieces, the fact would be more accurately stated. For a little time—say two seasons or a season and a half—it keeps beautifully green. It also grows fast under ordinary attention, a fact which proves that it is easily grown; but soon the tufts turn brown, and then the cushions fall into holes, black with decay, and if the remaining parts are not removed and replanted, all are soon dead. I imagined that it either flowered itself to death or soon became soil-sick, because when the flowers and buds are cut off and the plants are divided and given fresh soil, failing pieces soon revive. This may, however, be merely a timely operation, by which unknowingly the real cause of injury is averted. I have just overhauled a few plants that have been more than a year in their present position, and which were looking unhealthy. Grubs were found just about the collar, or in the midst of the plant, where it is half root and half stem; bits of the tops came away, leaving holes in the tufts about the size of a shilling. They had been severed from the main stock and were brown, but trying to live by means of the roots which had formed previously above the surface. I therefore think that where this plant fails from a similar cause, either means must be taken to free it of this pest, or annual division of the roots should be made.

**OVER-LATE FLOWERS.**—How very late are the *Asters* this year! Some *Tritomas*, *Sunflowers*, and similar good things, such as *Pyrethrum uliginosum*, &c., no doubt the dry summer kept back, but in these northern parts they are always too late to afford their full yield of bloom, and many are cut off before they flower at all when left to ordinary management. It is a loss of this kind that we most feel, as we can well wait a week or longer for tardy blossoms, but it is vexatious to have big plants a year for what is worse than nothing—labour and a fine bud crop all lost. Fortunately, there is a partial remedy. Plants divided after the blooming period into from three to six crowns, and set in well-prepared land a yard apart, always flower finely and earlier than the old thicket-like clumps would have done, but I have known these fail when the dividing process has been left until spring. *Asters*, *Sunflowers*, and tall *Pyrethrums* are here specially referred to; these, when operated upon in good time, can always be relied upon. They grow more shapely, produce more flowers, and have less herbage—a result doubtless due to the increased chances of the play of sunshine on the stems and the roots. Every year it is proved that such cultivation exchanges big plants and few flowers for plenty of flowers and small plants.

**EUPHORBIA ESULA.**—This is worth a place in gardens, though many may wonder why, seeing that it is a native Spurge and common in many parts. It is practically flowerless, but who can tell us of another herb or shrub with brighter tints than this has just now? and the tree-like form of the plant is distinct from that of the generality of herbaceous plants; the oblong-lanceolate leaves are a charming blend of apple-green, yellow, and vermilion, and there are few flowers now that can vie with small plants of it for colour effect. I say small plants advisedly, because the older and bigger ones, from their dense habit, do not ripen nearly so well; the best coloured are seedlings of last year, or those of 1883; they have but one or two stems, and are like miniature trees, from 6 inches to 12 inches high. On raised beds and in full sun only should this Spurge be grown, for unless the autumnal tints can be developed it is useless. It sows itself freely, and all that is needful is to pull out the old plants and reduce the seedlings annually.

**E. CYPARISSIAS**, or Cypress Spurge, is well named, but in gardens we often see it out of character—doubtless from the too moist or rich condition of the soil. Unlike *Esula*, it is of general utility, being pretty as regards the Cypress-like cut of its foliage, having a symmetrically-branched habit and, though dull, yet pleasing yellow-green flowers, which last for several months. On the upper dry parts of rock-work, nothing could be more charming than these fairy Cypress trees, and they, too, assume various pleasing tints; indeed, it is no uncommon thing to see their persistent foliage of a warm golden hue at Christmas. What does it matter if these are native herbs? If we can make them interest us, more need have we to be thankful that "we are blessed of our own."

**SAXIFRAGA (MEGASEA) STRACHEYI.**—Apart from its handsome bloom early in the year, this grows in favour on account of its leaf colour, which is only second to that of *purpurascens*, and, unlike the other rougher-leaved kinds, it is most attractive in the autumn. Its erect habit, toothed and ciliated leaves, handsome bloom and autumnal tints, together with steady growth, all go to stamp it as one of the very best of its section. It is perfectly hardy, and requires nothing special in the way of treatment. It

flowers well in rich land, but the foliar tints are more pronounced on dry, sunny banks.

**ERIOGONUM RAMOSUM.**—This is a seldom-seen plant. Scarcely yet are the flowers dead which opened in August on a sunny, dry slope; the plume-like racemes of rosy little blossoms on a downy-white scape 2 feet long, and seen springing from a comparatively small plant with a woody root-stock in the way of some of the smaller-leaved *Statice*s, make it in these respects remarkable. Not only, however, does seed of it seem to be scarce, but plants of it go on for years without making an offset; old plants, too, dislike being wounded at the roots. The limited habitats of the genus would almost indicate that something special is essential for its well-doing, and that something we do not manage to supply in cultivation so as to get results in common with other exotics. All the species, however, are not so difficult to deal with, for the pretty umbellatum will thrive nearly anywhere. All this only makes the distinct *ramosum* more interesting, and it is certainly beautiful.

**PRIMULA STUARTI.**—This may be numbered among the few species which will flower late. I have just seen it well in bloom and with a good supply of buds in reserve, but our wet season and early frosts will probably stop their development. I had seen small plants in flower some time back, and they did not impress one much in favour of this species. I then thought it but little better than the dumpy *P. luteola*. But let those who have only small plants withhold judgment until they grow strong, then will they find they are noble objects in a boggy situation; the large leaves and bold thick scapes are grey with farina, and the clusters of pale yellow flowers are drooping and most fragrant in the way of Elder-blossom. What should be kept in mind is that the plant does not do itself justice until strong, and should be well grown.

**SAXIFRAGA PELTATA.**—What a decided effect this big-leaved Saxifrage gives in its dying days; a clump of ten or a dozen leaves of nearly golden colour and drooping from their now flabby stalks almost 3 feet long resemble huge *Convolvulus*es in shape. It is a capital plant when in groups for creating striking autumn landscape effects. It is said to do finely near water, and if so, what better subject could be had for contrasting with *Reeds* and *Grasses*? My experience of it has been in the ordinary garden, or rather where the depth of good soil had been increased by mounding it, and it has done well. However it may do near water, I am sure it may be confidently planted where there is a deep loam and no water.

**CENTAUREA DEALBATA.**—This is not known as it should be; its summer flowers are good, and the way in which they are disposed among and just outside the bold foliage is much in favour of the plant for producing tropical effects. Just now, however, there is nothing but foliage, and the leaves are about the most useful green material that can be cut out of doors; they are gracefully arched, have good long stalks, are dark green on the upper, and nearly white on the under surface. From the bend which this half Fern and half *Acanthus*-like leaf has, the colours of both surfaces cannot fail to be seen when fixed in a jug or vase. Only the other day a designer of wall-papers who had made this plant the subject of one of his patterns told me that it had proved most taking. It is also much admired when cut, though it would seem hard to place the foliage so as to equal its natural habit on plants two years old from single crown divisions; then the round tufts are 2 feet in diameter, and nearly a foot high in the centre.



Plenty of good foliage can be obtained from it until late in the year. It may be grown in ordinary borders if enriched.

**TRITOMA PUMILA.**—This is always late here, but so hardy that unless the winters are severe, the flowers exist through the season and even grow brighter in spring. The dumpy spikes and dumper scapes of little more than a foot in length, rising out of dense masses of grassy foliage, are often additionally set off by a tufted bract or bracts, which resemble a few blades of curled Grass. This is not a constant character, but it exists now, and when it is not forgotten that the scape is so short and the Grass abundant in this kind, it will be easy to imagine how distinct it must appear compared with the naked long-scaped forms. I have seen it stated somewhere that the true kind is scarce. For many years I have grown it, and as none of my friends have questioned its correctness, I am pretty certain my plant is true to name. It seems the more needful to state this, because I have yet to add that it is the hardiest and most rampant *Tritoma* of all grown here, and this is just the opposite of what is implied by scarceness. A rampant plant without beauty may be justifiably scarce, but surely a handsome plant like this, naturally propagating itself quickly, should soon be plentiful.

**TRITONIA AUREA.**—This, set deeply five years ago in well-drained sandy loam, has never been disturbed since, and is now in flower. I do not believe that the tubers are so tender as to need taking up. If well protected the first winter, and encouraged to make good growth the following summer, they might, I think, be left out entirely. Of course, the soil should be of a porous quality like that just named.

J. W.

**Leeds' hybrid Narcissi** (p. 424).—Perhaps I can throw some light on this subject. I have not the smallest doubt that Mr. Leeds raised all these hybrids himself. I believe I was the first to whom he sent them, and I had much correspondence with him about them; and I am certain of two things, that he always spoke of them as his own raising, and that he never mentioned Dean Herbert. It is very possible that Dean Herbert may have raised some very similar or some identical, but, as far as I know, he has left no record of such results.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

**Arctotis aspera.**—What a free-blooming plant this is. A specimen of it in a large pot here was set out-of-doors in the spring; it soon rooted into the soil beneath, and has been plentifully in flower from April throughout the summer, and to all present appearances will continue indefinitely if protected. Although it is said to be hardy, it has not yet been tried here, but some plants of it will remain out this winter for that purpose. The flowers are of the Marguerite character—rays a sort of pale buff, orange at the base, disc brown. Externally they are rose coloured. The foliage is decidedly ornamental, deeply cut and crispy. It strikes from cuttings with the greatest ease, and does not appear at all particular as to soil, although a light sandy compost is, perhaps, most congenial to it.—J. M., *Charmouth, Dorset*.

**Colchicum speciosum from seed.**—In reply to Mr. Tymons' question (p. 401) allow me to state that *Colchicums* come up very unevenly from seed; a few come up in the first year, more in the second, still more in the third, and a quantity even in the fourth year after the sowing. This is my experience, and I have raised more than 100 bulbs from seed. It is necessary to sow the seeds if possible at once in a stratum of finely sifted soil, in order to be enabled to take up that stratum of fine soil every year, sifting out the seeds and sowing them afresh. Thus they are separated from those which have germinated and formed small bulbs; these will be found lower down in the seed pans and should be kept a little dry

during summer, whilst the seeds should be kept constantly moist.—MAX LEICHTLIN, *Baden-Baden*.

### LILIES IN THE WILD GARDEN.

BEAUTIFUL effects have often been produced in gardens unintentionally by plants which have been cast aside as valueless, and simply stuck in in some out-of-the-way corner, where they have found a comfortable home often more suitable for their requirements than the most elaborately prepared border. This more particularly applies to hardy bulbs, when at the annual lifting time there is found to be more progeny from the parent bulbs than can be conveniently accommodated in the garden proper. Oftentimes these surplus bulbs are planted in the



White Lilies naturalised.

rougher parts of the garden, there to take care of themselves, to hold their own against stronger growers, and if they succeed in doing this, in time they become naturalised. Some of the stronger growing Lilies are well able to thrive under such conditions, and sometimes one hits upon just the right spot in this haphazard way in which a certain kind will succeed after all contrivances conceivable have been tried in vain elsewhere to coax it into vigorous growth. In many gardens the common white Lily, the purest and loveliest of Lilies, absolutely refuses to grow strongly and flower well; whereas, in many cottage gardens it flowers in the greatest profusion and grows luxuriantly, spreading almost too rapidly, if, indeed, one can ever have too much of such a lovely plant. If anyone has surplus bulbs of this Lily, let them be planted in various places under different conditions as

to soil and exposure, and let the results of each case be compared. In all probability, one patch will succeed better than all the others, and in that case note should be taken of the particular conditions under which this finest mass has thriven, and these should be imitated elsewhere. It is useless to say that the white Lily does not like sun, or that it abhors shade, for, from observation, we know that in some places it grows best in shade. There is a variety of circumstances that govern the growth of plants, particularly Lilies, and therefore the surest and most satisfactory way is to find out for oneself what suits them best. The stereotyped advice to grow certain kinds in peat, in loam, or a mixture of both, as the case may be, is good in its way, but gardeners in an advanced stage of the art of Lily growing will hardly be content to follow such advice implicitly. Now, when bulbs are being lifted and the stock of them increased by separating the bulblets these remarks may be useful, as many may like to try experiments for themselves by planting in various positions. Of course, only the commoner kinds should be thus dealt with, and those only that repay the trouble by producing beautiful effects when in bloom. Among these may be mentioned *L. candidum*, *croceum*, *Martagon*, *dalmaticum*, *elegans*, *bulbiferum*, *colchicum* (*Szovitzianum*), *canadense*, *pardalinum*, *superbum*, *auratum*, *chalcedonicum*, *umbellatum*, and its numerous varieties. These are mostly robust kinds, and may be purchased cheaply. W. G.

### DEAN HERBERT'S DAFFODILS.

To anyone acquainted with the botanical works of Dean Herbert, his skill as a draughtsman will be familiar. If he had one gift more pre-eminently than another for the elucidation of the subject he had in hand, it was that of perfectly accurate delineation with brush and pencil. I have now before me a large number of his original drawings, and they are exquisitely drawn and coloured. Even William Hunt never excelled him in rendering all the minute details of flower and leaf, of colour and form, and the dean always took care to show all the botanical details as well, so that in his drawings you almost seem to have the actual flowers before you. The illustrations in Edwards' "Botanical Register," especially of the *Crocus*, will bear me out in this assertion. It was, therefore, with no little surprise that I read the following note by Mr. Engleheart in your last (p. 457): "As to Mr. Barr's identification of Herbert's six seedlings, I am not prepared to accept it as proved, or even very probable. I have seen the coloured plate in question; it is most atrociously executed. It need only be stated that in one of the figures the red edge of the tube (!) is absurdly continued, in defiance of Nature and perspective, in a loop round its profile and junction with the perianth, to prove that the picture is a purely fancy one." Now, this is not only misconception, as anyone may see without the plate before him, but it is untrue in fact, and is a gross libel on Dean Herbert. The plate is now before me (Edwards' "Botanical Register," vol. xxix., p. 38). It is the dean's own work, signed W. Herbert, Del. It is most beautifully drawn, and I have not the slightest doubt of its perfect accuracy. It would be difficult indeed, to find its equal in the portraiture of the *Narcissi*. I merely write this in defence of the fair fame of the dean, as I did a few weeks back for Edward Leeds, who was similarly assailed by the same writer. The original drawings by Dean Herbert were executed in very fine and clear pencil, and with exquisite



delicacy, every minute veining of flower and leaf being shown, just as in a study by John Ruskin. The colouring is with water-colour, and generally with the point of a fine brush, every shade being carefully noted down. Nothing with which I am acquainted in flower drawing surpasses this work, and the drawings which remain to us are indeed precious. These etchings in the *Botanical Register* are accurate copies from such originals, and therefore their faithfulness and value must not be disparaged.

W. BROCKBANK.

*Brockhurst, Didsbury.*

#### NARCISSUS MAJOR SUPERBUS.

THERE should be no insuperable difficulty about settling this little controversy. We know that both Mr. Barr and Mr. Brockbank are actuated by no motive except the simple desire to advance our botanical and horticultural knowledge. Let them, with suitably strong bodyguards if needful, bring their respective majores superbi to Kensington next spring and lay them before the Narcissus committee, together with the original plate in the *Magazine of Botany* and the small woodcut in Messrs. Barr's larger catalogue of 1884. There will be a certain comfort in having this ancient and haunting ghost peacefully and finally laid. The judges, we may hope, will not track the question into the darker and more labyrinthine by-paths of Daffodil lore; they will not venture to determine whether the flower is a major or whether it is superb, but they will boldly decide whether there is such a thing as a major superbus answering satisfactorily to the ancient representation thereof, and, if so, who has it—without, of course, touching on the more solemn issue of who ought to have it. This latter consideration pertains to another tribunal, since proceedings more or less burglarious in past generations seem to be dimly hinted at in connection with the flower's history and lineage. It might be well, too, that all possible certificates, medals, &c., should at the same time be awarded to the successful claimant, in order to stay future proceedings, and to make it entirely clear who has the major superbus, "all imitations of which are felony." There is truth in the bill brought against me by Mr. Barr (p. 457). I did take home his major superbus from the 1884 conference to compare with its supposed twin in my garden, but "when I got there the cupboard was bare"—Daffodils will fade—and so Mr. Barr shared the fate of Mother Hubbard's expectant companion. But was not this likewise my own hungry experience when last April I spent some hours at Tooting, and was refreshed by no vision of major superbus? Flowers I certainly did send to Mr. Barr this last spring, but he denied them any, even the remotest, kinship with the Superb One. Let us hope that he is right, and that yet another star of the first magnitude has come into the slightly over-crowded sky of Daffodils. By way of a small help towards the (let us trust) final settlement of this question, I will gladly, when place and date are fixed, accept Mr. Barr's too flattering invitation, and bring out of the "richness and variety" of my collection a Daffodil or two to compare with the Didsbury and Tooting aspirants to the dignity of the major-superbush.

G. H. ENGLEHEART.

*Appleshaw, Andover.*

**Anemone japonica.**—Notwithstanding "D.'s" paragraph (p. 401) in praise of this Windflower, I would caution the inexperienced against giving it a place in choice borders. Of all the introduced pests here this is the worst. Once let it get established, and extermination is next to impossible. The roots are black, and not easily distinguished, and every

particle becomes a plant. The more the soil is stirred the more this *Anemone* multiplies, a remark which applies to the type and both varieties. The most fitting place for it is in open spots in woods or in the wild garden. While admiring the flower I sometimes wish I had never seen it. A bank in a cottage garden, which I saw some time ago, was covered with it. There it held its own, and harmonised well with the coarse herbage amongst which it grew.—J. M., *Charmouth, Dorset.*

#### AMPELOPSIS VEITCHI.

THIS, one of the prettiest of all climbers adapted for the covering of outside walls, and at all times a most interesting plant, is particularly attractive just now, when coloured foliage is greatly in demand. Veitch's Creeper, as it is commonly called, has been held by many as being inferior in colour to the common Virginian Creeper (*Ampelopsis hederacea*). Yet it is quite as ornamental as that old favourite, and although, in the majority of cases, the red tint of its leaves during the autumn months may not be quite so intense, the plant possesses other characters which render it equally valuable. Its neat habit and the peculiar way in which it clings naturally to either stone, brick, wood, or indeed any other material, being in that way equal to the best of Ivies, would almost be sufficient to recommend it wherever a wall needs covering, for it will thrive in any situation as well as in any soil, and, although of somewhat slow growth for the first year or so when once established in a good substantial soil it grows at a rapid pace. Another good quality which distinguishes it is the duration of its foliage, which is produced earlier in spring than that of the common Virginian Creeper, and lasts a great deal longer, as may be noticed in any place where the two plants are grown in close proximity. No better example of this excellent quality could be afforded than some houses lately built near Kew Gardens. The walls of many of these are already covered with both sorts growing side by side, and the contrast between the two at the present time is most striking; whereas the common Virginian Creeper deprived of all its foliage has the appearance of a perfect skeleton, showing nothing but bundles of dry-looking stems, Veitch's Creeper is still in full beauty, and its leaves, which it will retain for several weeks longer, exhibit a glorious variation of tints graduating from a dark glossy green to a metallic hue and dark crimson tinged with red, equal in many cases to the colours of the foliage of the older plant. The dry weather experienced during this last summer cannot in any way have had any influence in the matter, as both kinds were subjected to the same amount of drought, which could not possibly have acted on one without at the same time affecting the other in a corresponding degree. Veitch's Creeper is a native of Japan, from which country it was imported some twenty years ago. It is easily propagated from cuttings either made of soft wood during summer, or in a dry state during winter and early spring. Its hardiness was sufficiently tested and satisfactorily established during the winter of 1879-80, when most of the Ivies in some parts of Scotland were killed to the ground, whereas the *Ampelopsis Veitchi* did not suffer in the least.

S.

**Lawns from transplanted Grass.**—Turfing lawns where needed is an operation now being pushed briskly forward, so as to get the Grass firmly rooted before frost sets in. I recently saw a lawn formed in a rather novel way, viz., by means of transplanting Grass. The owner said he was determined to have a lawn of clean Grass, and as he could not get turf free from weeds, he decided on the following plan:

The soil was prepared in summer; the surface soil was forked over several times, so as to get rid of any seeds of weeds that might be in it. In September, as soon as the rains had come, a number of boys were employed to dig up young seedling Grasses by the roadsides, and beginning at one end to plant the lawn with them, putting them about 3 inches apart. This being done, little attention was required until next spring, when the Grass would be mowed and rolled in the usual way; thus there was certainly a lawn to begin with, and with ordinary care it might be kept good for years, while as regards cost, I question if the work of forming a lawn in this way would not be cheaper than by means of turf.—J. G. H.

#### GARDEN FLORA.

##### PLATE 517.

##### IRIS KOROLKOWI.\*

My friend, Mr. Max Leichtlin, once said to me, "There are some plants which, so long as they are in bloom, I always go and look at the first thing in the morning, in order that I may enjoy their beauty; and Iris Korolkowi is one of these." They who know the floral wealth of the Baden-Baden garden will recognise that a flower to be thus singled out must have peculiar charms; and, indeed, I am myself inclined to regard I. Korolkowi as, in some respects, the most beautiful of all Irises as yet known to me; the delicate veining, the rich tone of the dark "purple-brown" (if I may use such a term to designate a very peculiar colour which is common in this and allied Irises) throat between style and standard, and the contrast which this affords to the soft creamy ground colour of the falls and standards, together with a graceful form, produce an effect which, in my eyes at all events, is most delightful. At the same time, these qualities are most difficult to reproduce in a picture, and I hope the artist of the accompanying plate will forgive my saying that the image falls short of the reality, as indeed it must.

I. KOROLKOWI was some years ago described and figured by Regel (*Gartenflora*, 1873, p. 225, t. 766), but the plant, I believe I am right in saying, was nearly lost to cultivation until it was revived by the skill of the great Baden-Baden gardener, to whom I am indebted for my own specimens; from him, too, came the plant from which, while growing in Mr. Barr's nursery at Tooting, the accompanying plate was drawn. Regel's figure in the *Gartenflora* does scant justice to the beauty of the subject; indeed, one almost suspects that the plant must vary in colour, and that the specimen there drawn was a variety lacking the splendour of Max Leichtlin's plants.

Thanks to the energy of the Russian Government, of Dr. Regel, and other Russian men of science (and, I may add, of Russian generals, who at least do not think it below their military dignity to take the trouble to send home roots and seeds of rare plants), we are becoming acquainted with a large number of Irises, growing in Western and

\* Drawn at Messrs. Barr and Sons' nursery, Tooting, June 20.











Central Asia, which form an interesting group intermediate between the ordinary bearded Iris and the *Oncocyclus* Irises, such as *I. iberica* and *I. susiana*. *I. Korolkowi*, sent from Central Asia (I have so far failed to find its exact habitat) by General Korolkow, after whom it has been named, is one of these; *I. Leichtlini* from Bokhara is closely allied to it, as are also several other Asian Irises which have not yet come into general cultivation.

The root of *Korolkowi* resembles a good deal that of an *Oncocyclus* Iris, but is distinctly less fleshy. The leaves are tall, narrow, and upright, not falcate, as in most *Oncocyclus* Irises. The scape, about a foot or so high, bears two large flowers, with the characters shown in the plate. The approach to the *Oncocyclus* type is shown in the large permanent spathe valves and in the prominent arched styles, but the beard is close set and linear—not a group of scattered hairs, as in *Oncocyclus*, and the constituent hairs are simple, not studded with bosses or tubercles. The affinity with *Oncocyclus* Irises is, however, best shown in the capsule, which is large and trigonal, like that of an *Oncocyclus* Iris, dehiscing in the same way, and in the seed, which is large, wrinkled, with a light-coloured fleshy arillus, exactly as in an *Oncocyclus* Iris. So like is the seed to that of *I. iberica*, or *I. susiana*, and the other *Oncocyclus* Irises, that it becomes very difficult indeed to distinguish it from them.

These characters—a scape with two, or sometimes three flowers, large permanent spathe valves, a capsule and seed resembling those of the *Oncocyclus* group, but with falls having a distinct beard of simple hairs—are common to a large number of Central Asian Irises. They are seen in *I. Bloudowi*, described long ago by Ledebour, and from *I. Bloudowi* we readily pass through *I. flavissima* of Asia to *I. arenaria*, which is found in Hungary, marking the western limit of the group, and at the same time connecting the group with the ordinary dwarf bearded Irises.

Nearly all the members of this group of Irises are peculiar in colour, and for the most part strikingly veined. Hence most of them, though by no means all, are singularly beautiful and worthy of cultivation.

But what shall I say about their cultivation? Were I one of those gardeners so skilful, or possessed of such a happy soil and climate that I could grow *I. susiana* and *I. iberica* in a common garden border without care and without trouble, I should buy as many plants as I could get of *I. Korolkowi*, *I. Leichtlini*, *I. Bloudowi*, *I. arenaria*, and others, and plant them everywhere. Under my present circumstances, however, and with my present skill and knowledge, I cannot make these Irises flower unless I treat them exactly as I do *I. iberica* and *I. susiana*. I place them in the sunniest, driest spot I have, in sandy or rather gritty, but fairly rich soil, planting them if possible in the beginning of August putting them in dry, and never let-

ting the watering-pot touch them. At the end of May or beginning of June I put a light over them, but not round them, letting the air have free access beneath the glass to the plants, but shutting off all the rain. I keep the light on until the end of July or beginning of August, varying the exact time according to the state of the weather and the forwardness of the plants. Then the lights come off, and the plants are left exposed to wind, rain, frost, and snow until the following summer, though, perhaps, during a wet November I ward off excess of rain for a few weeks. This plan I learnt from my gardening master, Max Leichtlin. When I follow it the plants generally thrive and flower. When I do not follow it, but leave the plants exposed to the freaks of an English summer, they linger on flowerless for a while, and after a time are no more.

M. FOSTER.

## GARDEN DESTROYERS.

### DISEASES OF PLANTS AND THEIR REMEDIES.

By J. HENDERSON, NEW JERSEY.

FEW plants are attacked by insects or disease when in vigorous health. It is only when vitality is impaired or growth checked by any cause that they are troublesome. Red spider rarely attacks plants when growing strongly, and even mealy bug seems to pursue its ravages more vigorously during the winter months, when growth is slow, than in summer. As instances of this, we find that *Coleus* are badly injured in mid-winter by mealy bug, but outgrows its attacks in spring and summer. *Bouvardia* is another case in point, being one of the worst plants we have for mealy bug, yet when spring comes and plant vigour asserts itself it seems to a great extent to disappear. Mildew attacks *Roses* when a ventilator is raised carelessly on a cold raw day, and the chilling air strikes down on the soft growth, checking the flowing sap and leaving the plant in a debilitated condition, which invites the fungus known under this name. A marked instance of this occurred in our place years ago. We had a house filled with Hybrid *Roses* in full leaf and just showing bud; the house was ventilated by old-fashioned square ventilators that slid up and down. One afternoon they were carelessly left open too long, and the plants under the openings were slightly frozen. The frost apparently did but little injury, but in two days the plants that had been under the openings were completely covered with mildew, while the rest of the house was comparatively free from it. This showed conclusively that the affected plants were made liable to the mildew by having their vitality checked by the slight frost. Of late years, one of the most annoying diseases attacking plants is that affecting the *Carnation*, and it is undoubtedly caused by working our stock year after year in a high temperature, which weakens the general vitality, and the disease, be it a fungus or an insect, quickly follows. In the autumn of 1883 we had a surplus of two varieties of *Carnations*, and, rather than throw them away, we "heeled" them in a cold frame, putting straw mats on the glass in severe weather. They wintered well, and in March we put in a few hundred cuttings of each. We marked them, and last winter they were the best plants we had, not one of them dying off, while we lost

hundreds of the same kinds in our regular stock; and I firmly believe that if this plan was adopted of wintering *Carnations* intended for propagation, that the *Carnation* disease would disappear. Another and perhaps more practicable way of avoiding the difficulty we have practised for years, and that is to propagate our young stock as early as possible in winter, and, after they have become established, knocking them out of the pots and putting them in shallow boxes in cold frames. This gives them rest, the good effect of which is very marked. This theory of weakened vitality being the cause and not the consequence of most plant diseases is, perhaps, best borne out in the case of the

**BLACK RUST OR VERBENA RUST.** It is a common mistake for growers to use for planting out such plants as *Verbenas* as have been propagated in mid-winter. These plants are usually held in the same pots long after they become pot-bound, and consequently are stunted and perhaps diseased when set out. Although they may appear to grow strongly at first, yet the taint is there, and when mid-summer comes, with its protracted spells of heat and drought, all vigour is gone completely, and rust appears immediately. The true plan is to use for planting the last propagated plants in spring; these sustaining no check, grow right along until midsummer, when it is necessary to cut them severely back, and fork in a good dressing of manure as close to the plant as possible, followed up by a thorough soaking of water. This last, of course, if the ground is dry, which is almost invariably the case in August. Plants so handled grow vigorously, avoid the fatal check, and give healthy cuttings when needed in October. The rust that is found on *Heliotropes*, *Bouvardias*, &c., is probably the same thing; or, in any case, is produced by the same cause. This is particularly noticeable in *Heliotropes*, as they become rusted at once if pot-bound. When plants are affected with black rust, a syringing twice a week with Fir-tree oil is effective in checking it, but, as in everything of this kind, prevention is the best remedy.

**CELERY RUST.**—Although this is a little out of the florist's line, yet a valuable lesson may be drawn from the causes that produce it. The Celery rust is occasioned by anything that injures the roots, either an excess of rain or drought—either cause kills the working roots, and the yellowing up or rusting of the leaves soon follows. In the open field this is beyond control, but the hint given is invaluable in operations under glass where watering is under our command. There is but little doubt that nine-tenths of the failures in *Rose*-growing for flowers in winter are traceable to the working roots of the plants being destroyed by being kept too wet or too dry.

**GREEN FLY.**—Of course we all know that this insect can be destroyed by fumigation with tobacco, but in cases where cut flowers are grown, particularly *Roses*, tobacco smoke will take the colour out of the buds, and to a great extent lessen their value. The fly can be kept down by simply spreading tobacco stems about the house, and giving them a dash of water whenever you are watering. The slight fumes that are constantly arising from the tobacco will keep the green fly entirely under subjection. We kept a *Rose* house, 312 feet long and 20 feet wide, entirely free from fly with a layer of tobacco stems, 10 inches wide and 2 inches deep, running the full length of the house. It is not safe to put the stems on the bed where plants are growing, as sometimes there are ingredients used in curing tobacco which will cause injury to the plants. I have known several



cases of this. The stems need renewing every six weeks.

**MEALY BUG.**—We have tried various emulsions of kerosene oil for this pest, but with indifferent results. Alcohol, which is the basis of most insecticides for mealy bug, will do the work, but it is too expensive for general use. The imported preparation known as Fir-tree oil is by far the best and most economical remedy we have yet tried. It kills the bug and its eggs and does no practical injury to the plants. In using the Fir-tree oil, or any similar insecticide, it is better, when practicable, to dip the plants in the preparation. In my experience, one dipping is as good as ten syringings and much more economical. A common error in the use of all insecticides is the want of persistence in their use. It is much better to use a weak application of any insecticide frequently than a stronger dose of it at less frequent periods. For example, we have always found it more effective and safe to fumigate with tobacco smoke our houses twice a week lightly than once a week more heavily.

**ROSE BUG.**—This most dangerous insect first appeared in quantity here seven or eight years ago, and probably you are all familiar enough with it. It is about as large as a lady bug, but brown in colour. The perfect bug feeds on the tops, eating the leaves and doing some injury, but the great mischief is done by the larvæ feeding on the roots. This is a white grub, about a quarter of an inch long, hatched in the soil. Its presence at the roots is quickly shown by the discolouration and dropping of the leaves, which, by the inexperienced, may be attributed to the ordinary causes of overwatering or too high a temperature, but if a plant is dug up dozens of the grub will be found about the roots. The only remedy seems to be to pick the perfect bugs from the tops by hand. The Rose bug has not done so much damage during the last few years, as the now general practice of planting new stock each year seems to have disturbed and prevented its breeding.

**BLACK ANTS.**—These symbols of industry will cause considerable injury and annoyance in a greenhouse if allowed to gain headway. They tunnel the soil in pots and benches, carry it up the stems of the plants, and encrust with it the mealy bug and scale, which they pretend to devour, but never diminish. They can be readily exterminated by dusting their runs with pyrethrum applied with a bellows. It is useless to spread it around by hand, as they are killed by breathing it, and it must be distributed in fine particles. In the winter of 1883 our place became badly infested with ants, and only the persistent daily use of pyrethrum for three months exterminated them.

**MILDEW.**—The only remedy we have ever used for mildew is sulphur, either by putting it on the pipes so that the fumes will be thrown off by the heat, or in the liquid form, as follows: One pound lime and one pound sulphur, in two gallons water; boil this down to one gallon, and use a wineglassful of this to five gallons of water, and syringe the affected plants twice a week. This is particularly useful in summer when not firing, and is a certain remedy. It has been recently suggested to use linseed oil, mixed with sulphur, for painting the pipes, it being claimed that in this way the sulphur would do no harm to the plants. Now, while the linseed oil may be a good thing to mix with the sulphur to make it stick to the pipes, it is certainly of no other benefit. It is well known that sulphur mixed with water alone is used on hot-water pipes in greenhouses and graperies, as an antidote against mildew and red spider,

without injury to the plants. It has been our practice for years to sprinkle the pipes with water and then dust the sulphur on while wet, and I have never seen the slightest injury to Roses or other plants by this manner of applying it. Many serious results have occurred by burning sulphur in greenhouses or applying it on brick flues, but I never heard of injury to plants resulting from its being applied on hot-water pipes. Black mildew or black spot I have had scarcely any experience with, as we never have had it on our place, except in a slight degree on some Hybrid Tea Roses. I have noticed, however, that it is most prevalent in Rose establishments where the stock is grown for propagation in shallow benches, in soil without manure. It is almost unknown where the plants are grown for cut flowers, and consequently are liberally fed. In all probability continued starving leaves the stock in such condition that it invites the black spot. There is a formula which is said to check it, but it has been kept a secret by the discoverer. In conclusion, I would say that, in my opinion, the ventilation of a greenhouse has more to do with the health of its contents than any other one cause. This is particularly true with Roses. If air is given on a Rose house, day and night during July and August, there will be little trouble with mildew, as the cool night air and the action of the wind all tend to toughen the fibre of the wood and leaves and give strength of constitution to the whole plant, so that when the spores of mildew and other fungoid diseases strike, they do not take root, but glance off harmlessly from the hardened and fortified foliage.

Mr. Armstrong, of St. Louis, said: My experience has been that sulphur water, prepared as given, is the only remedy for Carnations afflicted by red spider. On application to the diseased parts, it not only killed the spider, but did the plants good. Mr. Taplin, of Maywood, said: For Hybrid Roses, I mix sulphur with tobacco water, and add a little soft soap, mixing it thoroughly, using tepid water, and applying it freely. Mr. John Henderson spoke of the good effect of sulphate of potassium, in the proportion of half an ounce to one gallon of water, syringing on the under side of the leaf.—*Society of American Florists' Proceedings.*

#### RATS AND KENTISH FILBERTS.

In my simplicity I have always hitherto imagined that squirrels and mice were the sole quadruped depredators amongst nut trees in a garden. Such a belief has, however, to-day suffered a rude contradiction, and rats have exhibited themselves in the list of insidious foes to Filberts. Though I have grown Filberts in abundance in the same situation for forty years, this is the first year in which I have known rats to have made a raid upon them. Night after night for a week I have witnessed the wholesale destruction which they have committed, the ground underneath the trees being thickly strewn with nuts and shells, while a large quantity of both were carried away and stored in heaps in some adjacent sticks. The rats had crawled up the trees, like the "opossum up a gum tree," and had severed the thin stems bearing the nuts, which then fell to the ground, in many instances leaving the husks that had contained the shells hanging upon the tree. The most provoking part of the business is that the nuts are not ripe, and I am compelled either to gather what remain in an unripe state, or to abandon them to the ravages of the rats, unless I can destroy the vermin, which I am endeavouring to do. To show that there can be no mistake about the culprits, I have had several small steel traps set at the foot of the trees, and within the last two or three nights have caught five or six rats—five young and one old; on opening the stomachs they were found full of nuts. I imagine the old ones

ascend the trees, and throw down the nuts to their progeny beneath, the marks of claws and rat's hair being plainly visible on the branches. Unfortunately, the rats have harboured where it is difficult to eradicate them. It may be objected to the charge of mischief by rats that perhaps squirrels and mice may have been the culprits. But of squirrels we have none; and as to mice, they nibble in a way altogether different from that presented by the shells, which are smashed up and broken into large pieces by a larger tooth. My object in writing is twofold—to relate a curious incident of natural history, in my long experience quite unprecedented, and also to put other people on the alert, and to warn them to look after their Filberts; "forewarned is forearmed."

*Shawell Rectory.*

EDWD. ELMHIRST.

\* \* A remedy for these pests is Sandford's Rat Poison, a valuable aid in fighting a voracious garden pest.—Ed.

#### SHORT NOTES—GARDEN DESTROYERS.

**Eucharis mite** (*H. J. M.*).—I have carefully examined the last bulb you forwarded, and can find no insects, except the bulb mites mentioned in my last reply. They are in great abundance on this bulb, which quite accounts for its unhealthy condition. The flies you sent are quite harmless to the bulbs, and I expect their grubs would be equally so.—G. S. S.

**Vineroots** (*J. B. Aberhady*).—The Vine roots you forwarded are very much decayed, but I can find no trace of Phylloxera, and I do not imagine the present condition of the roots is the result of an attack by that insect, but I cannot tell you what is the cause. I should suggest you should thoroughly examine the soil in which the Vine is growing; very likely the drainage is in fault or the roots have got amongst something that is injurious to them.—G. S. S.

**Tomato flies** (*E. R., Highgate*).—Your house is infested with one of the snowy flies (*Aleurodes*). I think you would find tobacco smoke kill them if the house was properly closed up so as to prevent the smoke escaping, and if enough tobacco was used. Syringing the plants with soft soap and water and tobacco juice, or some other insecticide might be used with the soft soap water. Vapourising tobacco juice might be useful. For this purpose a small paraffin cooking stove with a pan on the top to hold the tobacco juice has been much recommended; the vapour rising from this kills such insects as green fly, thrips, &c.—G. S. S.

### TREES AND SHRUBS.

#### NOTES ON AUTUMN SHRUBS.

AFTER the first flush of summer bloom, then the number of flowering shrubs falls off rapidly, till by the time that autumn sets in few are to be met with. Among the spring and early summer flowers a second crop of bloom is sometimes produced in the autumn, it is true, but this is due more to the peculiarities of individual plants than to any class of shrubs. One of the most regular second-crop bearers is Darwin's Barberry, of which I have frequently seen bushes in the autumn densely bloomed, but even this cannot always be depended upon. This present autumn again I have seen a *Pyracantha* bush thickly studded with bloom in September. Many of the summer blooming *Spiræas* will continue to produce occasional blossoms till late in the autumn, the most notable in this respect being the low-growing *S. callosa alba*, which I have had in bloom till most deciduous subjects had lost their leaves. *Lindleyana* is at its best in the early part of the autumn; it is so beautiful, that its merits must on no account be overlooked by the intending planter. A large mass of the beautiful pinnate leaves when crowned by clusters of waving plume-like blossoms is striking in the extreme.

**HIBISCUS SYRIACUS** OR **ALTHÆA FRUTEX**, as everyone knows, is invaluable as an autumn-flowering shrub, the blossoms expanding in all their freshness just when so many others are on the wane. Moderately heavy soil seems to suit this *Hibiscus* best, and it is seen to the greatest advantage when so situated, that even during the summer the roots are at least fairly moist. Nurserymen's catalogues, as a rule, contain a far greater number of varieties than are required for all practical purposes. A few of the best, according to my opinion, are *totus albus*, pure white; *albus plenus*, white, with a claret-coloured blotch at the base of the petals, which contrasts strikingly with the rest of the flower. *Boule de Feu* is, I think, the best of the reds, while *atro-purea* stands in the front rank among purple-flowered



kinds. A couple of striped varieties, never so effective, however, as the self-coloured kinds, are Lady Stanley, cream, striped with red; and *purpureus variegatus*, purple and white. The pick of all, however, I take to be *Celeste*, a single-flowered kind, with large blossoms of a pleasing bluish tint.

**CLERODENDRON TRICHOTOMUM**, another autumn flowerer, is a large-growing bush, with heart-shaped leaves and panicles of white blossoms. The reddish coloured calyx from whence the blossoms protrude form in this plant the most conspicuous feature. It is of very easy propagation, for pieces of the root grow readily enough, and the plant will thrive almost anywhere, but, of course, it flowers best where the wood gets well matured. As a single specimen, it quickly attains considerable size, and even when not in flower, the ample foliage is very effective. Several of the *Hypericums* are valuable for autumn flowering, not the least beautiful being the common *H. Androsæmum*.

**DESMODIUM PENDULIFLORUM** is a plant of a half herbaceous character, as it dies nearly to the ground after flowering, the future growth being contained in some large prominent buds near the base of the plant. It produces long, slender, somewhat arching shoots, the upper part of which is terminated by great numbers of Pea-shaped blossoms, in colour bright rosy purple. It is a handsome plant if uninjured by frost, which, however, frequently happens unless protected in some way. To effect this, it is often seen against a wall, but then the graceful character of the whole plant is to some extent lost. We employ it for conservatory decoration, and very pretty it is under glass, but not of so long duration as out-of-doors if the weather is favourable. Ours are plunged out-of-doors during the summer, and encouraged to make good liberal growth, and in autumn they then yield a fine display of bloom, in colour quite unlike any other occupants of the conservatory at that season. Care must be taken that they do not root through the pots during growth, as the lifting then would cause the blossoms to drop.

**THE CHINESE LESPEDEZA BICOLOR**, a near ally to the *Desmodium*, forms a roundish bush about 3 feet high, and bears bright, purplish blossoms. It is very pretty when in bloom, but lacks the gracefulness of the *Desmodium*.

**ARALIA SPINOSA** is a strong growing shrub that generally pushes up suckers so freely as to form a good-sized clump. The leaves are very large and much divided; indeed, it is frequently used in connection with other fine-foliaged subjects in what is generally spoken of as sub-tropical bedding, but it is with its autumn flowering qualities that we have now to deal. The flowers are terminal and borne in large upright much-branched panicles, and though individually they are but small and of a whitish tint, yet collectively they are highly ornamental, especially when crowning a noble mass of foliage.

**HYDRANGEA PANICULATA GRANDIFLORA** is now often seen in pots flowering throughout the summer, but when planted in the open ground it then blooms towards the end of summer and in the autumn. When in a thriving condition, the large heads of creamy white blossoms are borne in the greatest profusion, and last a long time in beauty. In full sunshine the flowers before decay often assume a bright reddish tint.

SEVERAL *CEANOTHUSES* flower well in autumn, the best being the two hybrid kinds, *Gloire de Versailles*, now well known, and *Phare*, sent out, I believe, by M. Lemoine, of Nancy, some half dozen years ago. The *Laurustinus*, too, is often finely in flower during the autumn, and many hardy *Heaths* are still in bloom. *Abelia rupestris*, one of Fortune's introductions from Japan, flowers for months together, generally well on into the autumn. It is a neat little bush with glossy Myrtle-like leaves and clusters of small tubular blossoms borne on the tips of the shoots.

**THE STRAWBERRY TREE** (*Arbutus Unedo*) is just now bearing a profusion of its wax-like bells, which, under favourable conditions, will later on be succeeded by large, bright-coloured fruits. All the *Arbutuses* are well worth growing for their autumn flowering

character alone, apart from the fact that they are highly ornamental as evergreen shrubs or trees. There is a deep-coloured variety of the common *Arbutus* known as *rubra*, which is very telling, especially when a good form is obtained, but many inferior ones are in circulation, probably seedlings. The variety *Croomi* is especially valuable, being superior in every way to the ordinary form. The larger-growing *A. Andrachne* and *procera* are generally very floriferous. Wherever hardy enough, the shrubby *Speedwells* are in full bloom during the autumn; indeed, in the event of mild weather or where a slight protection can be afforded them, they will bloom throughout the winter.

The foregoing list embraces at least the principal hardy shrubs that flower during the autumn, though perhaps the *Wych Hazel* (*Hamamelis virginica*), which blooms later on, should be added. In the case of this latter shrub, the curious starry blossoms are thickly borne on the then naked shoots. After that, in seeking blossoms on outdoor plants of a shrubby character, it will be necessary to wait some little time, and then search on walls for *Jasminum nudiflorum*, *Lonicera Standishi* and *fragrantissima*, or *Chimonanthus fragrans*. H. P.

**Spiræa Lindleyana**.—This fine shrub deserves special mention on account of its hardness, fine habit, and free-flowering disposition. Though a native of Northern India, it grows freely in cold situations in Yorkshire, reaches the height of 7 feet or more, and never fails to produce its broad conspicuous panicles in July and August. It is a fine subject for drives and parks, and should have a well-drained site and full exposure to the sunshine if it is to flower freely. Not its least valuable characteristic is its quick growth, its long wand-like shoots being produced in one year and flowering the next.—S.

**Abies Albertiana**.—This species, which is allied to the Hemlock Spruce (*A. canadensis*), is one of the most graceful of the tribe, particularly if growing on soils suitable to it, such as a peaty loam. Some of the original plants sent home were planted in Scotland, and now are admirable specimens. A peaty soil seems to be the most suitable for their growth. Notwithstanding, however, that this *Abies* is allied to the *A. canadensis*, the latter has not the constitution of the *A. Albertiana* when seen growing side by side in situations where the *A. Albertiana* succeeds well. *A. Albertiana*, when growing in different soils and degrees of elevation, I find varies very much in habit of growth.—J. M.

**Cratægus tanacetifolia**.—Here and there in old-fashioned country places fine specimens of this handsome Thorn are now and then met with. When the beauty of the flowers—more fragrant than those of the common May—of the distinct and striking foliage, and of the large yellow fruits—as large as small Medlars—are taken into consideration, one cannot fail to wonder why the species is not more generally planted. It is, moreover, perfectly hardy, and will succeed under almost any conditions. Probably, in a short time, deciduous trees and shrubs will once more be taken into public favour, and then *C. tanacetifolia* will undoubtedly not be overlooked. Another Thorn of similar habit and aspect is the scarlet-fruited *C. odoratissima*; this, as well as the purple-fruited *C. orientalis*, is thoroughly deserving of a place in any shrubbery. All three make beautiful objects when planted as single specimens on lawns. We lately saw a fine specimen of the Tansy-leaved Hawthorn at the Knap Hill Nurseries covered with fruits, which rendered the tree very handsome. We hope soon to give a coloured illustration of this handsome Thorn.

**TREES AND SHRUBS FOR AUTUMN.** THE various trees and shrubs valuable for autumn effect may conveniently be divided into three heads: firstly, those deciduous trees and shrubs whose decaying foliage assumes bright and varying hues; secondly, those with ornamental fruits, which in autumn are at their most attractive stage, and next (confined almost

entirely to shrubs) are those that flower at that season. Besides these, the different *Coniferae* are ornamental at all times, in company with most other Evergreens. The beauty of the North American forests during the autumn is well known, and many of our brightest tints come from thence, but as our autumns are frequently wet and dull they are not so showy as in the clearer and brighter atmosphere of an American autumn, though even here, especially if the weather be fine, some beautiful autumn displays are to be seen.

The list of trees and shrubs selected for autumn effect would include the following:—

FOR THE BEAUTY OF THEIR DECAYING FOLIAGE OR ATTRACTIVE BARK.	
<i>Acer platanoides</i>	<i>Gymnocladus canadensis</i>
<i>macrophyllum</i>	<i>Koeleruteria paniculata</i>
<i>spicatum</i>	<i>Liriodendron Tulipifera</i>
<i>striatum</i>	<i>Liquidambar styraciflua</i>
<i>saccharinum</i>	<i>Nyssa Tulepo</i>
<i>rubrum</i>	<i>Parrotia persica</i>
<i>Ampelopsis</i> (both species)	<i>Platanus occidentalis</i>
<i>Betula papyracea</i>	<i>orientalis</i>
<i>rubra</i>	<i>Pyrus arbutifolia</i>
<i>populifolia</i>	<i>Populus alba</i>
<i>alba</i>	<i>fastigiata</i>
<i>alba purpurea</i>	<i>nigra</i>
<i>Celtis occidentalis</i>	<i>Ptelea trifoliata</i>
<i>Cornus alba</i>	<i>Prunus Pissardi</i>
<i>sibirica</i>	<i>Quercus coccinea</i>
<i>florida</i>	<i>rubra</i>
<i>sanguinea</i>	<i>nigra</i>
<i>Carya alba</i>	<i>tinctoria</i>
<i>tomentosa</i>	<i>Salix vitellina</i>
<i>olivæformis</i>	<i>Ulmus americana</i>
<i>Fagus sylvatica purpurea</i>	<i>montana pendula</i>

FOR AUTUMN FLOWERING.	
<i>Aralia spinosa</i>	<i>Hydrangea paniculata</i>
<i>Arbutus Unedo</i>	<i>grandiflora</i>
<i>procera</i>	<i>Leycesteria formosa</i>
<i>Berberis Darwini</i>	<i>Lespedeza bicolor</i>
<i>Clerodendron trichotomum</i>	<i>Laurustinus</i>
<i>Ceanothus</i> of sorts	<i>Rhus Cotinus</i>
<i>Desmodium penduliflorum</i>	<i>Spartium junceum</i>
<i>Escallonia macrantha</i>	<i>Spiræa Lindleyana</i>
<i>montevidensis</i>	<i>Symphoricarpus vulgaris</i>
<i>Hamamelis virginica</i>	<i>Sophora japonica</i>
<i>Hibiscus syriacus</i>	<i>Tamarisk</i> (various)
<i>Hypericum</i> of sorts	<i>Teocoma radicans</i>
	<i>Various hardy Heaths</i>

TREES WITH ORNAMENTAL FRUIT.	
<i>Cratægus Oxyacantha</i>	<i>Cratægus punctata</i>
<i>nigra</i>	<i>Hollies</i> of sorts
<i>lutea</i>	<i>Pyrus Aucuparia</i>
<i>tanacetifolia</i>	<i>Aria</i>
<i>coccinea</i>	<i>Sorbus</i>
<i>Douglasi</i>	<i>Siberian Crab</i>

FRUITING SHRUBS.	
<i>Berberis vulgaris</i>	<i>Euonymus latifolius</i>
<i>Cydonia Maulei</i>	<i>Hippophaë rhamnoides</i>
<i>Cratægus Pyracantha</i>	<i>Lycium europæum</i>
<i>crenulata</i>	<i>Rosa rugosa</i>
<i>Lælandi</i>	<i>lucida</i>
<i>Colutea arborescens</i>	<i>villosa</i>
<i>cruenta</i>	<i>cinnamomea</i>
<i>Cotoneaster frigida</i>	<i>spinosissima</i>
<i>bacillaris</i>	<i>Skimmia japonica</i>
<i>microphylla</i>	<i>Symphoricarpus racemosus</i>
<i>Simonsi</i>	

**Pyrus Malus floribunda**.—To those who are looking for something choice in the way of deciduous trees of a pendulous habit to enliven the fronts of their plantations, shrubberies, &c., in spring and early summer, we would say plant here and there (or in bold groups if distant effect is the object in view) the lovely *Pyrus Malus floribunda*. Those who have seen the grand masses of it in the Knap Hill Nurseries when in bloom must have been charmed with it. In the distance the appearance is that of soft flowing



fountains of crimson, pink, and white beautifully blended. It is a most profuse bloomer, of moderate habit of growth; the shoots are long, pendulous, and flexible, with a glossy bark. These shoots are covered throughout their whole length with buds and blossoms in all stages of development in May, and are succeeded by small yellow Cherry-like fruit in the autumn of a flavour similar to that of Siberian Crabs.

**Leycesteria formosa.**—One often meets with this plant in far from a satisfactory condition, yet when thriving it is a really striking object. In situations somewhat shaded from the full glare of the sun I have seen it succeed perfectly; the beautiful green of the leaves and stem contrasts well with the purple bracts and white flowers, and renders it quite distinct in appearance. Last winter this plant suffered severely, yet it grows so fast that many then cut to the ground have already formed fine plants.

**Picea concolor.**—This fine Conifer is easily distinguished by the irregular arrangement of the leaves; they do not form a row on either side of the stem, as in most of the Piceas, but grow from the top and even the bottom of the branches; they are about 2 inches long, of a whitish hue changing to pale green as they grow old, the upper and lower surfaces being of the same colour. The cones are borne in an upright manner singly on the branches and are from 3 inches to 4 inches long. As a tree its colour is very pleasing, and it deserves to be more extensively planted than it is, being very symmetrical and free as regards growth. It should be planted in elevated positions in preference to low-lying lands, for although it grows very freely in the latter it is somewhat liable to be cut by spring frosts. *P. Lowiana* and *Parsoniana* are often confounded with *P. concolor*, but they differ in the leaves being somewhat longer and arranged in a regular row on each side of the stem; they then curve gracefully upward, and form, as it were, an inverted arch. *P. concolor* is freely distributed throughout California, where it attains the dimensions of a large-sized tree.

**Pinus ponderosa.**—We have just had a fine specimen of *Pinus ponderosa* cut down, in order to give more space to a splendid tree of Douglas Fir, which has reached a height of 70 feet, and which is clothed to the ground with beautiful cone-bearing branches. The circumference of the trunk a foot from the ground is 11 feet 6 inches. The height of the *ponderosa* was 54 feet, and the circumference of the trunk a foot from the ground 6 feet. In cutting it up into short lengths we found it to be very full of turpentine. We had several large trees of different species of *Pinuses* cut up that were killed here during the hard winter of 1860-61, but none had such a strong resinous smell as this. I cannot, however, speak of its value as a timber tree. So far as I could learn, it was placed here about 1830. Our soil is a good gravelly loam.—J. M.

**Exochorda grandiflora.**—This is a shrub comparatively little known as yet, though it is so handsome. It is a near ally of the *Spiræas*, and forms a medium-sized bush with rather slender branches. The leaves are oblong in shape and the pure white flowers are borne in racemes towards the ends of the branches, each being about an inch in diameter. The whole bush has a light and elegant appearance, and flowers so profusely as to be quite a mass of blossom. It was introduced from Northern China by Mr. Fortune, and is quite hardy around London. The season of blooming is in May or June according to the position in which it may be placed.—W.

**Abies obovata** is so called from the shape of the cones, which constitute one of its principal distinctive features. In habit it much resembles the Norway Spruce, but its growth is somewhat slighter and more pendulous. The cones, however, are so distinct, that there need be no fear of confounding the two kinds, being in the Norway Spruce 6 inches

or 7 inches long, with the scales pointed and rugged at the hedges, while in *A. obovata* they are not more than 3 inches long, almost egg-shaped, and the edges of the scales are perfectly smooth. *A. obovata* is a native of Siberia, and therefore quite hardy, but the climate of this country seems unsuitable to its requirements, as it is rarely seen in a flourishing condition. It succeeds best in an open, airy, sheltered spot.

**Pinus Massoniana aurea.**—This is from Japan, and quite hardy. The line between the green and gold is sharply defined, and the gold has a lively tint like that of the Golden Yew in its best state. A tree of this 50 feet high will have a striking appearance.—S. B. P.

**The Blue Colorado Spruce.**—*Picea Parryana glauca*, as seen in the Knap Hill Nursery, Woking, is one of the most striking of hardy Evergreens. On the lawn everyone is learning to seek variety; and as one of these district types, therefore, the Blue Spruce of Colorado takes a very high rank. Of a light greyish blue, with hardly a trace of green on the young growth, which is especially lovely, the appearance of this Evergreen fairly startles one by its strangeness at this time of the year. Its other good qualities are also numerous. It quite hardy, and transplants



Group of Conifers on a lawn—Maiden-hair Tree, Weeping Hemlock Spruce, and Nordmann's Fir.

easily: is vigorous, and yet compact and moderate in growth. In a word, it is both excellent and enduring in all good qualities that go to make up a first-class Evergreen, and is, moreover, positively unique in colour. Seedlings of it are plentiful, but the choicest and richest colour will always be secured by grafting; whereas among a large quantity of seedlings we may miss altogether the most excellent tints. Anyone interested in fine Evergreens should see this Blue Spruce of Colorado about midsummer, when its colour is richest. It is doubtful if any Evergreen can surpass it for strange and decided effect.

**The Laburnum as a tree.**—We have no need to praise this for its beauty—recognised by all—but it is not generally known how good are its claims to treeship. It is usually seen as a low flowering tree. At Coolhurst, near Horsham, we were charmed to see the Scotch Laburnum a tree about 40 feet high. In flower at the time, the distant effect of its golden branches seen through the other trees was very fine. It was sheltered by other trees, otherwise it had taken its chance in the usual struggle for life in the grove.—V.

**Rapid growth of the Wellingtonia.**—I have known the growth of this Conifer to reach 40 inches in one year. To determine precisely the exact elongation, I tied the leader of a fine young seedling, planted in a favourable locality, to a measured stake, and by this means ascertained the growth by night to

exceed that by day; but this depended upon the weather, varying from half an inch during a warm sultry night to one-sixteenth of an inch, or an imperceptible growth, during a day of the brightest and hottest sunshine.—T. R.

**Variegated Conifers.**—Of the many variegated Conifers sent out I never saw one that, as it grows out of the nursery stage, did not become diseased; in fact, the total yellow or whitish variegation is an imperfect state, and these parts soon die, as in the case of the variegated *Wellingtonia*. In the nurseries these variegated and golden Conifers are carried through their earlier months or years without showing the decay they exhibit as they get on, but to judge of them fairly we must see them in gardens afterwards.—J. H.

**Hypericum patulum.**—Here in a light, sandy, and somewhat dry soil, not far from London, this *Hypericum* is a most beautiful autumn-flowering shrub, for just at a time when very few others are in bloom this is at its best, and not only does it flower at this season, but is most prolific in the production of blossoms. The frosts we have lately experienced destroyed the blooms on plants that were in exposed positions, but in the case of some that were a little sheltered there are a number of flowers yet to open. *H. patulum* forms a low-growing shrub with slender arching shoots and a profusion of bright golden blossoms  $1\frac{1}{2}$  inches or so in diameter. From the arching character of the branches, this kind forms a bush elegant in outline—more so, in fact, than any of the other *Hypericums*. This *Hypericum* is a native of the Himalayas and is quite hardy here, for if the weather is unusually severe and a few of the less matured shoots are injured, it quickly recovers. As to soil, it is in no ways particular, for some specimens that came recently under my observation were growing in a stiff loam, and in condition were all that could be desired. *H. patulum*, in common with the other members of the genus, can be readily increased in different ways; firstly, a plant can be sometimes divided into several without injury, then some kinds ripen seeds, while all strike readily enough from cuttings taken at almost any season; but the best times are just as the young growth is finished, in which case they will root well the same season or in autumn, when many of them will not strike till spring. In either case they must be placed in a frame, and with those put in during the summer care must be taken to keep it close and shaded, otherwise the cuttings will flag severely.—H.

**Cedrus Deodara robusta.**—The common Deodar is, as everyone knows, liable to be injured by late spring frosts, which occur after the plants have commenced to push out their new growth, so that it is no uncommon occurrence to see a specimen studded with small tender green tassel-like clusters of young foliage completely browned in a single night. One great preventive of this is to plant the trees in a situation so exposed that they will not commence growing till all danger is past; but this is not always possible, as in low valleys such a spot is not to be found. There is, however, a variety of Deodar which, as far as I know, has never been injured by spring frosts, owing to the late period at which it starts into growth. I allude to the variety *robusta*, a much stouter kind than the common form, with fewer and far more pendulous branches. The leaves, too, are both longer and stouter. It is well worth growing as a distinct variety, apart from the fact that it is much less liable to injury than the type.—ALPHA.

**The Cardinal Willow.**—Mr. Coleman sends us from Eastnor some twigs of a Willow of a fine reddish hue bearing this name. It seems to us a variety of the *O-ser*, and a most desirable plant. Mr. Coleman says, "My tallest Willows are now about 30 feet in height, and still growing. If well planted and allowed plenty of room, I have no doubt they would attain a height of from 40 feet to 50 feet. From December on to leaving time gleams of sunshine falling on the bright shoots give one the idea of an immense bonfire throwing up its flames at the close of an autumn day."



## GROUPING TREES AND SHRUBS.

THE terms grouping and massing are commonly used in connection with landscape gardening, but it is evident from what is seen around us that group-planting in the sense in which artists understand the term is not very commonly followed. It is not easy to group trees and shrubs artistically; on the contrary, it is one of the most difficult things that a landscape gardener has to deal with. To do it well he must possess an intimate knowledge of the materials with which he has to work, just as the painter must know the effect which every colour on his palette will produce on his canvas. Form and colour are but of secondary importance; the rates of growth of the trees, the maximum size that they will ultimately attain in various soils are the first considerations. Indeed, one of the commonest errors in tree planting lies in planters not taking a long look ahead. Too often trees are planted for immediate effect without regard to the future. Hence we often see groups of pigmies and giants intermixed in a confused way, large growing trees

house. The chief consideration is to produce a beautiful sky-line, and this is not difficult to do where materials are abundant. The group illustrated on the opposite page is not put forward as representing one perfectly arranged, but it is far beyond the average examples of group planting. It would have been better if the Weeping Hemlock Spruce had not been planted immediately in front of that spreading-headed Maiden-hair tree, in itself a beautiful object, the form of its head, which is not too dense, creating a pleasing outline with the pyramidal Nordmann's Fir to the left. These two trees have ample space to develop themselves laterally, but in course of time the Fir will alter the form of the group. It will overtop the Maiden-hair tree, and then the sky-line will be destroyed in a great measure. The Hemlock Spruce and the Junipers are well placed so far as space is concerned, but the Hemlock should not have been placed directly in front of the Salisburia, although seen naturally its darker tone of green will make it stand out in relief.

Much additional beauty could be imparted to



Flower-spray of *Lardizabala bitermata*.

often smothering the smaller ones; whereas had the proper space been allotted to each kind at the outset, all this would have been avoided. Planting ornamental trees is a work requiring a considerable amount of forethought, and no one can do it well who does not know the material with which he works thoroughly. The best tree planters are those who can carry, as it were, in their mind's eye the effect that they will produce a generation after planting. The most beautiful tree or shrub groups are those planted in an easy style, as if Nature herself had done it. Valuable lessons can be learned from natural woods, even in a Scotch Fir or Birch plantation, where one often meets with most picturesque groups, a mixture of old and young—two or three generations, in fact—scattered in an informal manner, the old trees generally forming a centre, around which cluster the young of various sizes. These natural groups should be the tree-planter's guide, and this is of the utmost importance in planting groups on lawns and in other conspicuous parts. In lawn planting the groups should be made to look best from the most frequented points of observation, which are generally the windows of the

ornamental trees and shrubs if they were so arranged that harmony and contrast received more consideration.

**Heaths after flowering** (*H. S.*).—The blooms should where possible be cut off the plants as soon as the flowering season is over, except in the case of those that flower till late in the autumn, when the operation had better be delayed till the following spring. At the time the blooms are removed all straggling shoots can be shortened in, to induce a close bushy habit of growth, as if this is not done some Heaths are apt to get bare and loose in character. Indeed, in many places where these plants are grown in quantity, the practice is followed of going over them with a pair of shears after blooming and cropping them somewhat closely, which retains the plant in a close compact form, with, however, this disadvantage, that for some time after the operation they have a closely-cropped appearance. The same end can be obtained by just cutting off the old flower-shoots and shortening in straggling branches without proceeding in such a wholesale manner. With regard to peat, it is by no means necessary, though it forms a suitable soil for all hardy Heaths either alone or mixed with other materials. At the same time, Heaths will do well in a mixture of loam and leaf

mould without any peat whatever, but a soil composed to a certain extent of vegetable matter in some form or other is necessary. Where the soil is loamy, a good dressing of leaf-mould well dug in will suit the different Heaths thoroughly. As to transplanting and dividing them, the early part of November is the best time for the operation, as if delayed till the new year the drying winds experienced in early spring may possibly distress some of the plants. In your correspondent's case they may have been too severely divided, or possibly suffered from want of water during this dry season, as after transplanting they are of course more susceptible to such matters than when thoroughly established.—T.

## LARDIZABALA BITERMATA.

THIS hardy evergreen Chilean shrub is useful for growing against walls or on pillars, although its flowers, unless in some way protected, are often injured by autumn frosts, being developed generally very late in the year. The foliage is thick and leathery in texture, and the flowers, which are rather large and dark purple coloured, are produced in close drooping axillary spikes. In favourable seasons it ripens its fruits, which are Capsicum-like, about 2 inches long, and composed of a thin, pod-like outer covering which encloses the round seeds embedded in pulp. These are eaten by the Chileans, by whom also the shoots of the plant are made into cords of great strength by simply passing them through fire and macerating them in water. The genus gives its name to the small Natural Order Lardizabaleae, which includes the beautiful greenhouse climber *Akebia quinata* and *Stauntonia latifolia*, the latter also cultivated for its fruits, and hardy in this country when grown against a south wall. Another curious member of this Order is *Decaisnea insignis*, a plant of which recently flowered in the temperate house at Kew, and was figured in the *Botanical Magazine*. Horticulturally, the best of these plants is the *Akebia quinata*.

**Genista elatior.**—Few shrubs make a more brilliant show during their blooming season than this Broom. From a purely botanical standpoint it is simply a gigantic form of our native Dyer's Greenweed (*G. tinctoria*), but for garden purposes no two plants could well be more distinct, the latter rarely exceeding more than 2 feet in height, whilst *G. elatior*—or *G. elata*, as it is often called—attains a height of 8 feet or 10 feet, and forms compact bushes, densely clothed with bright yellow blossoms. There are some good examples in the shrubberies, &c., at Kew; and, as the species bears cutting in well and seeds freely, there seems no reason why so valuable a hardy shrub should not be much more common than it is. It is to be regretted that such a beautiful shrub as this is so seldom to be found in our nurseries. The reason of this, no doubt, is that nurserymen are so seldom asked for it.

**Fraxinus Mariesi.**—The common flowering Ash of Southern Europe is undoubtedly a very handsome tree, and one far too seldom met with. This new species is, however, much the more beautiful; its panicles of white flowers are larger and more dense. No doubt, when it becomes more widely known it will be largely planted. It is a native of the Chinese province of Kiu-Kiang, where it was discovered by the collector, whose name it bears, when travelling for Messrs. Veitch. The species thrives thoroughly well in the Coombe Wood Nurseries, in Surrey. The entire plant is quite glabrous, except the petioles and the branches of the panicle, which are clothed with a very dense, almost microscopic, pubescence.

**Second flowering of the Catalpa.**—We extract the following note from an American journal: "On one of the streets of Mount Carmel, Ill., stand two large trees of our native Catalpa (*C. speciosa*). During the first week in June they were both in full bloom; these flowers all dropped during the first half of the month. To-day, July 20, one of them is again in full bloom. The whole top is literally covered with flowers, and at the same time the beans of last month's flowers are hanging thick. In this second crop the panicles are about as large and full as in the first. They are of the usual size, but paler;



it is so unusual for a second flowering to be apparently as abundant as the first, that I think it proper to report this instance. Another peculiarity is the short time between the two crops—about six weeks."

#### PICEA AMABILIS.

THIS handsome Silver Fir is by no means a common tree in this country, probably on account of the difficulty which arises in procuring good seeds, as the cones are usually perforated by insects, whereby the vitality of the seeds is destroyed. Hitherto it has been principally propagated in this country by cuttings and grafting it upon the common Silver Fir (*Picea pectinata*), but as the latter commences to grow early in spring, and the former the reverse, the consequence is the scion cannot assimilate the sap of the stock at the commencement—hence the unnatural globular swellings which so often appear at the place where the scion and stock are united.

These swellings are often the means of retarding the growth and healthy development of the trees in early life to a serious extent. In one case I had a tree of this species which produced a large growth of the above description, and I think it did not add a couple of feet to its height during a period of twenty years, although, at the same time, the tree kept green and fresh. The best plan to make such trees start is to pinch out the terminal buds of the side branches during the month of April, and if this is persisted in for some time it generally has the desired effect. As a general rule, however, the better plan is, in place of using the common Silver Fir for a stock, to select some other species for that purpose which begins to push its growth in spring at the same time as the species to be united, when the union will be found to take place in a more natural way.

*P. AMABILIS* is undoubtedly one of the best trees of recent introduction both for ornament and utility, and it is to be hoped that before long we shall be enabled to raise it in quantity from home-saved seeds, and for this purpose foresters should be on the alert when their young trees begin to cone to have them properly fertilised at the right time, as the seeds cannot fail to be of great value for some time to come. It is thoroughly hardy, of a conical habit of growth, and well furnished with branches, which are clothed with abundance of dark green glossy leaves, the undersides of which are of a light silvery colour. With regard to soil, it will thrive on any of ordinary quality if properly drained, and in cases where the sub-soil consists of till, or hard clay, such will require to be broken up and prepared with a pick previous to planting the tree. This Silver Fir is likewise at home on cold flat peat bog, and in situations where trees are apt to suffer by late spring frosts. Such ground should be drained about a year previous to being planted in order to give it time to drain and cleanse itself of any impurities which might be detrimental to the roots of the young trees. At the time of planting a small quantity of well pulverised soil should be mixed with the bog, which will tend to insure success. This species is indigenous to Northern California, and was first discovered by Douglas, and afterwards by Jeffrey. It was found growing at elevations ranging from 3000 feet to 4000 feet above sea-level, and attaining a height of from 150 feet to upwards of 200 feet, and with stems of from 6 feet to 7 feet in diameter.

J. B. WEBSTER.

**Grafting Rhododendrons.**—Having some very fine varieties of unnamed Rhododendrons, both

early and late, and wishing to propagate some of the best varieties, I lifted a good many young plants of *R. ponticum* from a bed in which they had been planted, potted and saddle-grafted them with the desired varieties. This was done in the end of October last year; they were placed in a two-light brick pit, which had been used as a hotbed for striking cuttings in the preceding August. The grafts were simply tied, no clay or grafting-wax being used. The number of grafts put on each plant varied according to the number of young growths of that year, some having as many as four or five shoots. The pit in which they were placed was kept very close throughout the winter and well into the spring. As the days lengthened and the season advanced the plants were syringed regularly, and the glass whitewashed and otherwise shaded to prevent too great an amount of evaporation. This was continued until most of the plants were well started into growth. They were then gradually exposed to light and air to complete their growth and ripen their wood. Some of them are well set with bloom-buds, and very few indeed altogether failed. Among them I have some eighteen plants of *R. Thomsoni*, which thrives and flowers beautifully in Devon.—J. G.

#### WORK DONE IN WEEK ENDING NOV. 3. OCTOBER 28.

BETTER weather at last, and the ground and turf having dried sufficiently to admit of our tramping about in comfort, we have made rapid progress in taking up from the flower beds such plants as it was desired to save either for winter flowering or as stock plants for the production of cuttings in spring, or for replanting again next summer. In the latter class are included all slow-growing succulents, such as *Aloes*, *Agaves*, *Echeveria metallica*, *E. Peacockii*, and similar plants, and a small proportion of *Pelargoniums* and *Fuchsias* that we require as big plants for vase and large basket bed planting. All the dwarfest *Abutilons*, the smallest bushy plants of *Marguerites*, and medium-sized *Heliotropes* we pot up for winter flowering, for if placed in a stove temperature for two or three weeks they quickly recover the check of lifting, and recommence flowering at once. If cuttings of any kind have failed to strike successfully during the autumn, then it is that we save old plants for propagating from in spring. Dug up tuberos *Begonias* and a few *Dahlias* that, though still in good flower, had to be removed to allow of our planting the beds for winter effect. Tuberous *Begonias* we winter by packing them closely together in shallow boxes and fill in between the tubers with dry soil, sand, or leaf soil. *Dahlias* we pack on the floor of a frost-proof shed, and to prevent them shrivelling we fill between the roots of these also with leaf soil. Succulents are being potted in the smallest possible pots, and will be wintered crowded closely together in a pit that, if needs be, can be artificially warmed. The half-hardy kinds we winter in cold frames, the plants being simply heeled in in light soil, and crowded as closely together as possible, so that one good watering to settle the soil about the roots usually serves to keep them sufficiently moist till the new year, when we find it necessary to give them another soaking. Cut for preservation in Grape-room a mixed house of *Grapes*, the varieties being *Alnwick Seedling*, which has already begun to shivel, *Gros Maroc*, *White Tokay*, *Barbarossa*, *Mrs. Pince*, *Golden Queen*, *Gros Colman*, and *Mrs. Pearson*.

#### OCTOBER 29.

Another very fine day. Again removing plants from flower beds and refilling them with shrubs—*Euonymus*, *Aucubas*, *Mahonias*, *Laurustinus*, small variegated *Hollies* and *Retinosporas*, the two last named being used principally as standard plants in groundworks of *Heaths*, *Sedums*, *Herniarias*, *Cerastiums*, a few early flowering *Tulips* and *Hyacinths* being also intermixed in some of the beds. Sweeping and raking up leaves has been our other outside labours to-day. Potting up old bedding plants, filled with *Chrysanthemums* the vinery that yesterday was cleared of ripe fruit, the Vines being previously partially pruned, which means that all laterals were cut away and the principal side shoots shortened to from 18 inches to 24 inches in length. The Vine border,

which is an inside one, was also well watered. Our late Muscat vinery has also an inside border, and to avoid the *Grapes* decaying from an over-moist atmosphere, we last year kept the border very dry, and as a consequence the *Grapes* kept perfectly sound, but we have had to pay the penalty this year by the *Grapes* shanking badly; this season we have given a larger amount of water and covered up the border with clean straw to keep in the moisture, so that watering is not often required. Muscats do not with us keep well in bottles; consequently we are compelled to try and preserve them on the Vines, and the above plan has proved fairly successful. At present there is no indication of shrivelling, and the berries and colour are perfection.

#### OCTOBER 30.

The day has been fine and sunny, but this evening rain is again falling heavily, and our plans of work on the morrow are once more frustrated. To-day has again been occupied in winter planting of the flower garden, and with carting leaves and manure, and in grubbing up a few old fruit trees that are to be replaced with young ones. Put in another batch of *Tea Roses* to force, and stacked others—Hybrid *Perpetuals* mainly—in leaves under a high hedge as a shelter from frost, till they are required to be put into the forcing-pit. Repotted, after flowering, part of our stock of *Eucharis*, the bulbs having literally pushed each other out of the pots, and in one instance the pot was broken by the immensity of root formation. We always keep our plants in stove heat. They are never what is called rested by being put in a cool house; the nearest approach to rest that we afford them is to keep them rather dry for two or three weeks after new growth has been made, after which period they again receive a full quantity, and very soon afterwards throw up fresh spikes of flower. Potted bedding plants and untied Fig trees from trellis preparatory to pruning them and planting the interior of the house.

#### OCTOBER 31.

Gale of wind, accompanied by heavy rain (0.63 in.), which continued to fall with but slight intermission from eight o'clock last evening till seven o'clock this evening. Outdoor work quite an impossibility, and all our hands have been employed on the usual wet day jobs, such as plant cleaning, washing pots, and lime-washing pits and the walls of early vinery, which, as soon as room can be found for *Chrysanthemums* in other houses, will be closed up for forcing. Loosened from trellis the trees in late Peach house, and began to prune them. Fig trees and Vines in second vinery are also being pruned. Tied up tree *Carnations* and *Bouvardias*, and gave them more room, the better to display their flowers. The Strawberry house is now filled with double and single varieties of the zonal section of *Pelargoniums*, and they too require looking over once a week to pick dead flowers off them, and to turn the plants round to prevent them getting one-sided. *Grapes* were looked over to cut out bad berries, and the laterals in late Muscat vinery have been cut off at the end of the principal side shoots, the aim being to let in more light and air to the fruit. Apple and Pear rooms were also freed of rotten fruit and all kinds neatly labelled. Thus far, both Apples and Pears keep well, but there are now too many Pears ripening together, and the usual annual resolve again crops up, namely, not to grow so many kinds. The best kinds that we have now in use are *Marie Louise*, *Nouveau Poiteau*, *Pitmaston Duchess*, *Seckle*, *Durandean*, and *Beurré d'Aremberg*.

#### NOVEMBER 2.

We have had another turn at winter furnishing of flower beds, and to get it completed have, much against our will, had to lift plants that were still flowering well. *Dahlias*, *Cannas*, *Fuchsias*, *Lobelia cardinalis*, and others in large basket beds have had to give place to shrubs of various kinds, *Ivies*, *Periwinkles*, *Cotoneasters*, Japanese *Honeysuckles*, and *Pernettyas* being used for the outer line and edgings to drop over the edges of vases. Small vases we plant with bushy shrubs of a uniform size, the principal kinds being *Thuja aurea*, *Retinospora plumosa aurea*, *Cupressus erecta viridis*, and bushy variegated *Hollies*. Swept up and rolled walks. It is just



about useless to sweep up the lawn, and we shall strive to do as little of that kind of work as possible till the leaves are all down. There being every appearance of a sharp frost to-night, the lights of frames containing bedding plants, bulbs, and forcing shrubs have been shut quite up, and Cauliflowers now ready for use have had their own foliage bent over the flowers by way of protection. We have now arrived at a time of year when sharp weather may set in with little or no warning of its approach; hence the desirability of getting every plant that is at all tender into winter quarters. Pruned trees in late Peach house, potted up bedding plants, and planted Cannas in light soil on the floor of a frost-proof cellar.

#### NOVEMBER 3.

Being fine and dry, our work has been almost an exact counterpart of yesterday's. Flower beds are now all cleared of tender plants, and other hardy kinds are being planted in their place. Part of our Roses are being lifted, the ground trenched and manured, and as soon as they are replanted, spring-flowering plants will be planted thinly amongst the Roses. Schizanthus, Silene, Nemophila, Saponaria, and Limnanthes we find good hardy annuals for this purpose. Pansies and Wallflowers are also excellent, and, as a matter of course, Hyacinths and Tulips are indispensable spring flowers. Trenching border for fruit tree planting; pruning indoor Peach trees; watering Pines. This has to be cautiously done at this dull time of year, and once a fortnight is about as often as a general watering is needed.

HANTS.

#### FRUITS UNDER GLASS.

##### CUCUMBERS.

IF August-sown plants are now in bearing, and likely to maintain the supply up to Christmas, succession batches which usually follow late Melons may be kept steadily progressing until they have nearly filled the trellises, when the points must be pinched out of the leaders to throw strength into the laterals. Meantime keep every growth divested of male and female flowers, and lay in horizontally as many of the best placed side shoots as will furnish the trellis with sub-laterals for carrying fruit when the time arrives for throwing the plants into bearing. The important end to be attained from this treatment is a firm, sound, healthy growth of leaf and bine, neither too weak to respond to the demand when it is made, nor too strong and watery to resist the trying climatal changes which may take place before the end of December. To secure this end, maintain steady top and bottom heat by keeping the fermenting material in the beds frequently turned and replenished with well-worked Oak leaves from the reserve shed, and run down the blinds at night to economise fuel and prevent the radiation of warmth and moisture. Admit a little air every day, if possible, to keep the atmosphere fresh and sweet, but not to lower the temperature to any appreciable extent, otherwise mildew will speedily put an end to future progress. Top-dress the pots with light fresh turf, previously well warmed to the temperature of the house, little and often, as the roots work upwards, but avoid the use of solid manure, as it encourages worms and induces a gross habit of growth, which it should be the study to prevent, at least until the plants come into bearing, when stimulants in a liquid form may be given at every watering. This watering should be thorough whenever the plants need it, and not in dribbles, as is too often the practice, particularly when the roots are confined to medium sized pots placed in near proximity to the bottom heat pipes. Young growers will do well to make particular note of this, as more winter Cucumbers are ruined before they commence their useful or profitable stage by mere surface watering, which never reaches the crocks, than many people imagine. They will therefore be most likely to insure success by placing the pots in a position favourable to the escape of water, and by its liberal application as often as the roots require it. If this important item is neglected and the crock roots become dry, what follows? Certainly not a crop of clean crisp fruit, for the young shows die off in their infancy; not stout healthy foliage tipped with beads of moisture when the house is

opened in the morning, as the leaves are already becoming cupped and turning yellow; but red spider puts in an appearance in plenty. Mildew (my racing friends will correct me if I make use of the wrong term) takes up the running; insecticides and a spell of bad weather, which necessitates hard firing, speedily terminate the race or the struggle for existence, and the time has arrived for making a fresh sowing. These remarks do not spring from an imaginative brain, but from dearly-bought experience, for I once had a man, a surface-waterer, who repeatedly protested that his plants were not dry at the roots, but close examination proved the contrary. One solitary plant in a cool corner was saved from the wreck by the application of copious supplies of water, and my surface-dribbler learned a lesson which he will never forget so long as he grows winter Cucumbers. Next to the judicious application of heat and moisture comes cleanliness. Discard plants of all kinds that breed insects, produce decaying matter, and breathe the air which by right belongs to the legitimate occupants. Keep the glass, the kerbs, and the floors scrupulously clean; run the limewash brush over the walls occasionally, and, although the syringe has been laid aside, except for damping the surface of the bed, apply the most approved remedies should mildew or insects put in an appearance. One more drawback to successful culture remains to be noticed, and that is overcrowding. Knowing how difficult it is to keep winter Cucumbers, we are apt to cut the ground from beneath our feet by placing our plants too close together, and by having to pinch and thin to prevent stifling and overcrowding through the dead months, when plenty of air and light, which can only be secured under the system of extension training, are of vital importance.

##### THE CHERRY HOUSE.

Although the forcing of Cherries is not often commenced before the end of the year, it does not follow that the annual pruning, cleansing, and preparation of the precocious occupants should be delayed, for every day brings its own work, and the sooner a tree is pruned and put in order after the leaves fall, the better the chance of success. Having so often drawn attention to the importance of cleanliness in every structure devoted to the culture of fruit trees that become a prey to insects, it is only necessary to say the usual routine with soap and water must be gone through, as Cherries are not exempt from the attacks of very troublesome enemies at a most critical time where this work is neglected or carelessly performed. Another advantage gained by early cleansing is the ability to turn the house to account until the time arrives for forcing. The temporary occupants, it must be borne in mind, may include Strawberries, Roses, hardy Azaleas, and a host of other things which can stand any reasonable amount of cold and a few degrees of frost, as it is at all times necessary to keep the house fully ventilated to prevent the buds from getting too forward. Where trained trees have plenty of trellis room, and summer pinching is closely followed up, Cherries, like Peaches, require very little winter pruning, as they soon become one mass of blossom-bearing spurs; these in course of time may need judicious thinning to insure fine fruit, but this does not often require attention until the trees get aged, and then it is a good plan to remove an old branch bodily, to give more room to those left, and to favour the laying in of young shoots. If the roots of the trees are in a satisfactory condition, all old mulchings may be removed quite down to the solid border preparatory to the addition of an inch or two of fresh compost, consisting of sound calcareous loam, crushed bones, old lime rubble, or hair plaster. Manure should not be given to young trees, as gross feeding induces gummy, but it may be applied to older trees that require stimulating, and all may be well mulched and fed with liquid after the fruit is set and swelling freely. If the house is partly furnished with trees in pots, and the latter are now plunged in the open air, let them be cleansed ready for taking in when the house is closed for forcing, and apply the annual top-dressing at once if this important operation has been allowed to fall into arrear. Keep the tops of the pots well covered with mulching to protect them from frost, and guard against attacks from birds

should a mild winter force the buds into a prominent condition.

##### PLUMS.

The management of Plums under glass so closely resembles that which has been recommended for Cherries, at least from the time the leaves fall until the fruit of the latter begins to ripen, that it is hardly necessary to repeat instructions, as both require similar pruning, training, compost, and winter treatment. And yet there is one valuable section to which early autumn dressing is not always applicable, for it frequently happens that Coe's Golden Drop, Coe's Late Red, Ickworth, and Blue Imperatrice are kept hanging until the end of November, when each fruit becomes a sweetmeat, and to hasten their consumption for the sake of early pruning would be unadvisable. This difficulty may, however, be got over by gathering the remains of the crop and placing the fruit in a dry Grape room; better still, where these Plums are appreciated, and who does not appreciate a Golden Drop ripened under glass? is the separation of the early and late sorts, and giving the latter a division to themselves. Winter dressing can then be delayed, and the late varieties, instead of being forced with early fruiter, can be brought on through the spring months almost if not entirely without the aid of fire-heat. Excellent fruit has often been grown, as we never see it on open walls in cold houses, but this system is not recommended, as the delicate flowers suffer quite as much from damp as they do from dry frost. Hot-water pipes and boilers of every description are now cheap enough; they are easily and expeditiously fixed by men of ordinary skill; the cost of fuel is trifling, as fire-heat may not be needed after the fruit is set, and when it is borne in mind that a single flow and return pipe will suffice for a large house, there remains no gainsaying the argument that every Plum house should be made secure from frost and damp by the introduction of hot water.

##### STRAWBERRIES.

Where early fruit is wanted a few of the most promising plants of Vicomtesse Héricart de Thury or some other favourite sort should now be selected from the general stock and kept by themselves for that purpose. The plants for early work should have single crowns, hard, brown, and ripe, and the pots in which they have been grown should be small, say 5 inches to 6 inches in diameter, and literally matted with fresh, but well-ripened roots. If these conditions have not been secured, starting in November or December will be best left alone, as plants that do not fulfil these requirements are sure to disappoint, if they do not turn out a complete failure. If they do come up to the standard, wash the pots, open the apertures to insure the free escape of water, and top-dress with rich loam and well-rotted manure. Give them a soaking of diluted liquid if necessary, and place the pots on a cool moist bed of ashes in a cold frame where the crowns will be close to the glass when shut up in bad weather until the forcing house or pit is ready for them. Many growers who are expected to perform miracles in Strawberry forcing without the aid of a specially constructed house start the first batch with early Peaches, or perhaps on the back-shelf of an early vinery, and dearly they pay for the crop, if the indifferent apology which follows may be called a crop, as plants so managed invariably leave their mark in the form of red spider behind them. Plants intended for successional crops should now be sorted and plunged where they are to remain for the present. Some place them in cold pits, which they only close during wet or very severe weather. Others plunge them out in the open air, and allow them to stand the brunt of the most inclement winters, apparently with success, as we always hear of the best crops of forced Strawberries after a hard decided winter. Whichever mode of wintering the plants is adopted, there are two points which must not be neglected; the first is the maintenance of a thoroughly moist condition of the balls; the second is full exposure of the crowns to secure perfect rest. The most injurious system is stacking the pots on their sides in cones, for no matter how carefully the bedding material, be it old tan, soil, or ashes, is placed about them, the balls invariably get dry and shrink from the sides of the pots when the roots perish or lose their vitality. The next bad system is placing the



plants on shelves or floors a great distance from the glass in dry, draughty houses, at all times favourable to red spider and mildew, as it is simply impossible to succeed in the maintenance of that even degree of moisture, which open air or cold pit plunging secures without the aid of the watering-can in winter.

## FIGS.

*Pot trees* that were put in order last month and placed in position ready for starting in November must now receive attention. If the pit has been freely ventilated and the roots have been kept on the dry side, give moderate supplies of tepid water at short intervals until the balls are thoroughly moistened, and gradually reduce the volume of fresh air until the pit is closed for forcing. Meantime, prepare the bottom heat materials, be they tan or leaves, by frequent turning in the open air, but where they can be protected from heavy falls of chilling rain. When well worked and thoroughly sweetened, introduce a sufficient quantity to produce atmospheric moisture, which will economise syringing, and gentle warmth about the lower parts of the pots and pedestals. Cast it in loosely at first, and make additions little and often as it subsides, until the bottom heat thermometer indicates 70° to 75° where it is brought into contact with the roots. When the balls of the plants are warmed through, commence syringing once or twice a day according to the state of the weather, and never allow the roots to feel the want of water. Light, well-glazed pits or houses in which the fermenting material is properly managed will require very little fire heat at first, and when it does become necessary, it should be applied through the early part of the day, as that is the most favourable time for sweetening the atmosphere by careful ventilation. Figs may be started in a temperature ranging from 56° to 60° on mild nights, and 65° to 70° by day, rising to 75° after the house is closed with rays of December sunshine.

*Trained trees* in succession houses may be taken in hand immediately after the leaves fall. If the long shoot or extension mode of training is adopted, thin out a few of the oldest branches that have reached the extremity of the trellis to make room for promising shoots laid in for succession, and shorten others back for fresh breaks where there is likely to be a scarcity of fruitful points another season. If the trees have been free from insects, wash with soap and water only, and tie in as soon as the house is properly cleansed and painted. It does not, however, often fall to the lot of the Fig forcer to find these strong heat-loving trees perfectly free from one or other of their numerous enemies, and as the winter dressing offers the only favourable opportunity for annihilating them, the usual insecticides must be thoroughly and carefully applied where they have been present. Brown scale is sometimes troublesome, but it can be removed by the application of hot water at a temperature of 120° to 130° when the trees are at rest. Not so easily managed is that most detestable of all insects, mealy bug, for it descends below the surface of the border, and manages to exist in dilapidated walls, trellises, and woodwork, where nothing less potent than hot limewash and turps paint can reach it. From these lurking places, no matter how well the trees may have been cleansed, a plentiful stock of well-conditioned insects will emerge in the spring, and so the system of stopping short just when one ought to begin in earnest may go on for years or a lifetime. To prevent the reappearance of the pest in Fig houses, syringe the trees and every part of the structure with paraffin and water, a wine-glassful of the first to a gallon of the latter, to prevent dispersion during the process of untying and pruning; let all ties and prunings be burned, and remove every particle of loose soil and mulching from the borders. Point and limewash the walls, stop and paint the woodwork and trellis, and carefully wash the trees; paint the latter when dry with a solution of Gishurst compound, six ounces to the gallon of water; tie in at leisure, and the muscular part of the contest will be nearly over. But there comes a time when returning spring brings out from the depths of their ark of refuge a few, perhaps not half a dozen, unusually fragile-looking bugs, from which a whole house of trees will be reaped in one year. It is for the advent of these solitary insects that the

persevering operator must wait; not one must be allowed to escape; they may be crushed as they emerge, but the best and most effectual mode of stamping them out will be secured by the use of methylated spirits applied with a camel's-hair brush. The spirit does no harm to the foliage; it melts the insect in a second, and it carries destruction into the hole or crevice which has proved a safe shelter through the winter.

Eastnor Castle, Ledbury.

W. COLEMAN.

## BOOKS.

## ORCHIDS, THE ROYAL FAMILY OF PLANTS.\*

THIS is a large and showy book, with pictures of Orchids about as badly drawn and coloured as they well could be. The strangeness of these plants has led many people not of the strongest discrimination to denominate "kings among plants," as is done in this book, but, in justice to other classes of plants, this distinction ought not to be allowed. To those who know the variety of beautiful plants in existence, the position which Orchids have for the moment assumed in this country is somewhat out of proportion to their real merits. Though numbers of Orchids are very beautiful, numberless plants of other families are equally handsome, both in form and colour, and quite as fragrant. Nothing could be said against fashion being in favour of a particular class of plants were it not that for that class others are unjustifiably neglected, and this is one of the evils with which horticulture, like other things, has to contend. This neglect of other plants for the sake of Orchids is clearly apparent when we consider the hosts of beautiful things that have been discarded, not because those fond of flowers did not appreciate them, but because the present generation of gardeners would not take the trouble to grow them. Orchids are to them everything at the present moment. Singularly enough, this new Orchid book arrived while we were turning over a series of coloured drawings of Australian flowers by Mrs. Rowan, plants that were for the most part familiar to gardeners of the old school, but now relegated to the limbo of unpopular plants. The endless variety of form and size, the extreme diversity and brilliancy of colour in these flowers is astonishing, and yet they have gone out of fashion and another class of plants easier to grow, but beneath them in interest, has taken their place. These Australian plants, as Mrs. Rowan has so faithfully represented them in their native wilds, are very different from the same plants once familiar to us in gardens pinched and tied into balloons and pincushions, so that it was impossible to see their singular beauty of habit and blossom. Need we allude to the Lilies, Gladioli, Narcissi, and a host of other beautiful families as other examples of garden plants that are equal to if not surpassing Orchids in beauty, and that have quite as much right to lay claim to the title of "royal families" as the Orchids. The book before us does not, we apprehend, claim any pretensions to being scientific, although the authoress commences with an enumeration of the classes into which the Order has been lately divided. She does not display a very profound knowledge of her subject, and throughout the work statements occur which are downright misleading. For instance, the third paragraph in the introduction runs thus: "This weird and wonderful plant (alluding to the family of Orchids) has its natural habitat chiefly in the Tropics, the most beautiful of the species coming from the East

Indies!" The book abounds with poetical allusions, often, however, remote from the subject in hand. The authoress has a curious way of mixing up genera, species, varieties, and hybrids, which she classes under the general term, "variety." In conclusion, we might add that the printing and general get-up of the book, with the exception of the plates, leave little in that way to be desired. V.

## OBITUARY.

DR. HENRY G. BULL, of Hereford, died on Saturday last after a very brief illness from cancer. He was an enthusiastic gardener, and possessed an extensive knowledge of fruits and fungi. He was the author of the "Herefordshire Pomona" and the originator of "Fungus Forays," in which he took great interest. The pages of THE GARDEN have in bygone days been enriched by contributions from him on both subjects.

## LATE NOTES.

**Fungi** (*W. H. M.*).—The fungus sent is a good example of the razor-strop fungus (*Polyporus betulinus*).—*W. G. S.*

**Protecting trees.**—If "Wallis" will send us his address, we will communicate with him; we cannot do so through THE GARDEN on the subject in question.

**Certificated plants** (*R. H. S.*).—Your suggestion is carried out in our "Garden Annual," and in THE GARDEN a list of the certificated plants is always given in the reports of exhibitions.

**Apples.**—We have received two varieties of Apples from Mr. T. Laxton, Girtford, Beds. One named September Beauty, good looking and not of bad flavour, but there being so many, for that reason any new kinds must have distinct qualities; the other is Dartmouth Crab, a very handsome little fruit, but, as regards the specimens sent, curiously deficient of acid and flavour.

**Hypericums** (*R. B.*).—Apply to Mr. T. Smith, nurseryman, Newry.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants.**—*G. C.*—*Microlepia platyphylla*.—*R. A.*—1, probably a *Mesembryanthemum*; 2, some kind of *Grevillea* (send a flower); 3, *Pereskia aculeata*; 4, *Euphorbia splendens*.—*E. F. C.*—Spindle tree (*Euonymus europæus*); name of *Rubus* next.—*J. F. H.*—We see no difference between your variety of *Cypripedium insignis* and the ordinary form.—*W. Robinson*.—The specimen of Orchid is too small to name. The variety of *Lapageria rosea* you send is common; it has mottled flowers, but we are not aware that it has a distinctive name.—*W. R.*—1, *Crocus sativus* var. *cashmerianus* (rare); 2, *C. Tournefortii* (rare); 3, *C. Clusii*; 4, *C. Salzmanni*.—*Blue Bell*.—1, *Cassia corymbosa*; 2, *Polypodium venustum*; 3, *P. vulgare cimbrium*; 4, *Celsia Arcturus*; 5, *Salaginella caulescens*; 6, probably *Schizostylis coccinea* (send flower).—*E. D. L.*—1, *Nephradium molle corymbiferum*; 2, too small to name; 3, *Aster Bigelowii*; 4, *A. bess-arabicus*.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruits.**—*Ignoramus*.—1, Doyenné du Comice; 2, Fondante d'Automne; 3, Josephine de Malines; 4, Easter Beurré; 5, Beurré Mondelle; 6, Alexandre Lambre. —*C. Kilminster*.—1 and 2, decayed; 4, Doyenné Gris; 5, Easter Beurré. —*F. S.*, *High Elm*.—1, Dutch Mignonne; 2, Golden Noble (yellow). —*T. Atkinson*.—Winter Red-streak. —*A. Mowbray*.—7, Sturmer Pippin; 8, Dutch Mignonne; others not recognised. —*J. Beddow*.—None of your Apples are recognised; probably all are local seedlings. —*Hampshire*.—Not recognised. —*C. L.*—1, Golden Pearmain; 2, King of the Pippins; 5, Kerry Pippin. —*W. F.*—1, Yorkshire Greening; others not recognised; worthless local sorts. —*W. D. Paine*.—Apple is Norfolk Beaufin; 1, Easter Beurré; 2, Bergamote d'Esperen. —*Anon*.—2, Duchesse d'Angoulême; 4, Chaumontel; Apple not known. —*Bill*.—1, King of the Pippins; 2, Beauty of Kent; 3, Lord Suffield (large yellow). —*J. T.*—Bergamote d'Esperen. —*G. A. W.*—Apple, Gravenstein; 1, Beurré Bachelier; 3, Gris d'Hiver; 4, Beurré Diel. —*A. B. C.*—Brown is Verulam; green is Beurré Defays. —*F. Orton*.—1, Beurré Diel; 2, Fondante d'Automne; 3, Passe Colmar; 4, Beurré Bosc; 10, Waltham Abbey Seedling. —*Miss Anderson*.—1, Glou Morceau; 2, Beurré Rance; 3, Catillac.

Other names will be given next week. We have received numerous parcels of fruits to name containing only one example of each sort, and often in a bad condition. We must, therefore, decline to name fruits unless our rules as stated above are complied with.

\* "Orchids, the Royal Family of Plants" (with coloured illustrations from Nature), by Harriet Stewart Miner. London: John Slark, 12, Bushby-place, Camden-road, N.W.



## WOODS & FORESTS.

### NOTES.

**THE LARCH DEMAND.**—I am not so sure that the future prospects of Larch planting will turn out so great as some of the advocates of planting suppose, and therefore when the planting is on remote moorland the chances of profit become even less. We must consider the purposes the timber is likely to be put to before planting. In the case of the Oak, which, as I have before stated, everybody planted in the days of our forefathers, it is now found very difficult to dispose of the crop at fair prices, because the demand that existed when the crops were planted has partially disappeared. The sorts of Oak that are most saleable now are old and sound Oak of large size and small Oak for mining purposes; middle-sized trees are very bad to dispose of, and there is no great demand for the large Oak either. Good plantations of Ash and Sycamore would have been extremely valuable at the present time, as both can be readily sold down to 6 inches quarter girth. As to Larch, I believe that if it was not for supplying pit props and railway sleepers it would be as poor a paying crop as any other in this country, and one not unnaturally asks what is likely to be the demand for these purposes in the future? As for mining purposes, it is calculated that our coal-pits will be practically exhausted in about 100 years, and some coal-fields will be exhausted long before then and before the crops of Larch planted now shall have come to maturity. That will be the case in this part of Yorkshire, and as the whole of the Larch of moderate size goes into the pits, its market will then be gone. Large-sized Larch is used for sleepers on the railways; immense must be the consumption for that purpose, and great the falling off in the demand when a substitute for wooden sleepers is found, and that substitute seems to have been already discovered. Steel sleepers are being employed on the Continent, and only the other week that most enterprising of English railways, the Midland, ordered some thousands from Belgium for trial. If they turn out as the company expects, it has signified its intention of substituting them for wooden sleepers, and some English foundries are ready to put down plant for their manufacture at home. Indeed, one large firm has already begun. Thus two chief outlets for Larch would be gone, and those who expected their unprofitable Spruce to come in for the same purpose will be equally disappointed. Looking at the matter cautiously, I would not advise anyone to plant Larch or its substitutes on an extravagant scale. Ash and Sycamore, on the other hand, as far as one can see, are likely to be used for a great variety of purposes, and as they grow quick and can be sold proportionately cheap, they are both deserving of the attention of planters.

**ASH.**—"J. N. B." thinks I was "straining a point" when I said that Ash always finds a ready customer, no matter what it was like if it was not rotten. I was not straining anything, but actually recording my experience, as a case in point will show. We have lately been clearing our park of some exceptionally large old Ash trees that were on their last legs. When felled they were as bad a looking lot as could be found, being not only black-hearted and shaken, but in some cases hollow. Yet I sold them all to an experienced timber buyer, not for a large sum certainly, but at a figure which paid for felling and lopping and left a margin besides, not to speak of the fact that the cost of removal from the ground was saved us. The

purchaser transported them to the station a mile and half distance, and sold them for a sum that paid him also. A good deal depends on the district where one resides. What the timber was to be used for I have not yet learned, but most of it went to an agricultural implement maker. In mostly all localities there are what are called "wood jobbers," who, being posted up in the wants of everybody round about who uses timber, can generally find a customer for timber that no regular merchant would trouble with, and it was to one of these men we sold the Ash. The same man has bought all the "rubbish" on the estate for many years. He pays punctually, and has amassed a small fortune for himself. The worst lot I ever sold him was 1000 feet of Scotch Fir that was quite dead when it was felled, and which had laid on the ground for twelve months. He stumbled on it one day, offered 2d per foot for it for some special want of some of his customers, and paid cash for it. Wood agents have often timber on their hands that has to be felled and removed in some way, and however inferior it may be it is a wise plan to let it go for what it will fetch, if it only helps to pay the cost of labour.

**QUESTIONS FOR SPRUCE GROWERS.**—If all that is written in favour of the Spruce and Silver Firs as valuable timber is true, why, in the name of common sense, do not those who have it sell it—send it into the market—instead of constantly grumbling at something being wrong—trade being wrong, and the rest of it? There is plenty of Spruce and Silver Fir in the country, hundreds of thousands of feet lying rotting on the ground; why do not those advocates of its excellence show proprietors how to get quit of it? Their services would, I am sure, be thankfully received and remunerated. Its use on estates for barns and sheds is common enough, only very little is needed in that way. As for the more important buildings on estates, these are now commonly taken by contract, and although the contractor is proverbial for "scamping" and doing things as cheaply as possible, it is a strange thing that he prefers to buy his foreign timber or sawn timber from the merchant to using estate Spruce. Here, at the nearest town to us, and at stations, foreign Spruce in the shape of poles and props are being daily delivered in great quantities, being sent from Hartlepool and elsewhere, and large estates close by, with miles of Spruce Firs of all dimensions, have scarcely any share in the trade. The timber costs about as much to fell and deliver alone as the price given for the foreign timber, or thereabout. Miles upon miles of split Spruce poles from Norway are employed for topping fences on farms and estates, and I have not heard of one English lot being used for that purpose. To use "Glendye's" words, "it is futile" talking about the value of any article that you cannot sell. We must make the best of things as we find them. Numbers of proprietors have Spruce Fir to sell at the present time, and would be glad to be rid of it almost for what it cost to grow or less. Can the advocates of its culture help them in their strait? That is the question. Abstract values may read very well and abstract valuers may occasionally find employment, but I never had occasion to deal with them; they live with the poets and people of that sort. At the present moment dealers in native Spruce timber are sitting twirling their thumbs for want of customers, and are likely to be so employed for a long time to come.

**THINNING PLANTATIONS.**—Without exception, the most perfect examples of young Sycamore

here are a few acres of trees about seventeen years old that were self-sown on a piece of ground where Furze was first raised, but which perished as the Sycamores grew up. The trees vary in size, the tallest being perhaps 30 feet high, but all are as straight as a gun-barrel, and stand quite close together. To all appearance, they will thin themselves by the strong ones overgrowing the weaker ones, and still stand thick enough on the ground and as straight as they are now. This patch is in the middle of our game preserves; hence has not been meddled with in any way. The lower branches are already dying naturally off owing to the dense shade, without leaving any mark behind them. Contrast this lot of trees with some others that have been planted or sown in blank places in the woods, and which are branchy with shorter and far less shapely trunks that will never make such useful timber, prune as one may. The secret of thinning undoubtedly consists in simply leaving sufficient top to a tree to keep it in health and provide a fair layer of tissue every year, and the bottom branches of the tops should meet so as to completely shut out a view of the ground from above. I should say about one-quarter of the height of a tree is sufficient to carry the needful amount of active branches and leaves—that is, on the average from youth to age, but of course species vary. I believe that when it becomes necessary to lop off the branches of trees to make them grow straight for timber purposes, the trees have been too thin on the ground previously. There is nothing more certain than that crowded plantations produce the straightest timber in all cases, and the reason why is worth asking by every forester, for the utterly needless work carried on in the name of pruning on many estates is nothing less than a scandal. It is the culture and working expenses that take away most of the profit on what are falsely called well-managed plantations. Dull as trade is, I consider the management at fault, on any estate fairly furnished with timber, that does not provide an income from the woods after paying all expenses. It is a fact, nevertheless, that some woods do little more than pay for management annually, which means dead loss, taking the rental of the ground into consideration. I am opposed to thinning, unless the thinnings are marketable and can be sold at a profit, and I look upon selling the mature timber advantageously, and planting young trees in proportion the first and most important duties of the forester. I could not help being struck the other day by a 20-acre patch of Larch, belonging to one of our tenant farmers, that had never been thinned since it was planted, except that some of the trees had been cut out here and there by the farmer at times when he could find a customer for them, and at the present moment he is offered 9d. per foot for the lot on the ground and has refused it.

YORKSHIREMAN.

**Seaside planting.**—Is not "J. M." (p. 444) too far north to hope for much success in planting the maritime Pine? If, as appears to be the case, the difference in latitude between the Landes of Gascony and some of the more northerly parts of France is sufficient to show a marked change in respect to the growth and reproduction of this tree, and to the disadvantage of the higher latitudes, is it not the case that the Isle of Man is outside of the zone where this tree succeeds? I cannot, at the moment, recall any instance of *Pinus maritima* being grown so far north, but perhaps some information may be forthcoming. With regard to the general question of seaside shelter planting, I know nothing of the merits of the Ontario Poplar in particular, but from having observed various species of the Poplar



thriving well in such situations, it would appear that it is a tree well suited to the purpose of raising shelter by the sea until something else can be established.—J. N. B.

**Figured woods.**—It has become the custom, if a figured wood is wanted, to ransack the list of what are called foreign fancy woods to get it. Why should this be? We have certainly among our common hardwoods material as beautifully figured as one would wish to see. The wood which is justly termed the British mahogany—viz., the Elm, is often beautifully feathered and otherwise figured, and when worked into furniture is not excelled by any wood of a similar character. The beauty of the grain of the Oak has been recognised for centuries, and now the Ash is scarcely less appreciated, and what is true of these woods is more or less so of many others growing in these islands. Speaking for oneself, we would greatly prefer a suite of furniture manufactured from one or more of these woods to anything which has hitherto been brought in from abroad. There is something peculiarly attractive in a well-made oaken chair.—D.

### A FORESTRY SCHOOL.

IF our woods have been mismanaged, who is to blame? Who requires to be educated, the owners or the foresters? "Yorkshireman" sums up the most probable points of mismanagement under five heads. Of these five what proportion falls on the owners and what on the forester? The first point he gives as want of method in planting; this is rather an indefinite expression, and one which, without some further explanation, it is difficult to understand—at least in the sense he may intend. I conceive, however, he refers rather to a lack of system than to the neglect of any particular usage common to the planters. If I am right in assuming the former, system in planting in this sense can never be learned in a school, as the areas and requirements of estates would vary so much, that nothing short of actual experience on the spot would supply the knowledge. If the mismanagement is in the actual methods of planting, there may be something said for the advantages gained by testing every known plan in the experimental grounds attached to such an institution. The mismanagement in not planting enough, which is referred to as the second point, has been repeatedly dwelt upon; and whatever views may be taken of the shares of blame due to the owner and his manager respectively under the first head, the fault of not planting enough cannot be laid to the account of the forester. This is essentially a question resting with the proprietor, and one which no amount of education given to foresters could remove. It may be that if a knowledge of wood management was more widely spread by means of a school, there would be more educated men ready to undertake the actual work; but after all the bar to more extensive planting does not lie in the fact that there are no men to be found who can do the work, but rather because the owners lack the means or inclination of setting about having it done. The third thing to which reference is made is planting the wrong sort of trees; this may either be taken as meaning the planting of wrong sorts for producing saleable timber, or the planting of what would be good timber if planted on the right soils. Errors, no doubt, have been

committed in both directions. With respect to the first, no school education is required to teach us that only about half a dozen kinds of trees grown here are really saleable; but if the matter is taken in the other sense, there seems to be a need that the important question of the suitability of trees to soils and situations should be more looked into. Indeed, it is here that the more theoretical part of a forestry education can be turned to account. It is true that even here the mere theory must, to be reliable, be supplemented by observation and practice; but this admitted, there is undoubtedly much value in the elementary knowledge of soils and situations which would be better taught in a school or institution than it would be elsewhere. Whether the undesirability of mixing all kinds of trees pell-mell in a single plantation could be better demonstrated in a school than it could by the use of a little common sense out-doors, we will not pretend to say; but as "Yorkshireman" says "rabbits" would make a good school subject, and one upon which the owners will have to be educated, it may be well enough for the student forester to enquire into the best methods of preventing damage by game and vermin, but it is obvious that here the blame lies with the proprietor. In the abstract, I, in common with most others who have had to do with estates, like to see some hares and rabbits about; but when we come to the pure and simple question of growing trees, they are undoubtedly a great nuisance, and to a great extent it rests with the owner whether he will grow trees or encourage rabbits. On the whole, such faults in the management as exist may justly be traced to the owners as to their woodmen if the intelligence of the manager is not recognised and supported by his principal. I agree with "Yorkshireman" that there is comparatively little hope that matters will be greatly mended by a new race of foresters.

J. N. BLUNT.

### TIMBER TRADE VAGARIES.

"YORKSHIREMAN" is evidently staggered over this, as none of his remarks throw any light upon the simple fact stated by me on p. 439. It is most likely I should never have written upon the subject had I not accidentally come across the information just after reading what "Yorkshireman" said about Oak in that county, but as it has cropped up, I scarcely like the idea of having the thing explained away in the manner "Yorkshireman" essays to do. He says my statements want amplifying. This may be, but they also want answering, which is, perhaps, not quite so easy. Why I should be called upon to explain anything about sending Oak in the rough from this county to Yorkshire, whether the trees contain 10 feet or 60 feet, I cannot conceive. What I stated was, that the merchants hereabouts are now buying Oak to saw up and send by rail into Yorkshire, and this I am prepared to prove. It is very ingenious to try and shift the question by saying that the buyers, if they come from Yorkshire, may not want the timber to go into Yorkshire. This, however, will not do, as I was careful to ascertain its destination and the purpose for which it was to be used before I ventured upon the statement. It decidedly

does go into Yorkshire, and is cut into scantlings, for which trees containing from 20 feet to 60 feet would be very suitable. As the question of transporting round timber has been raised, I will just add, although it is outside what I originally spoke of, that I cannot on the moment remember Oak being sent in the round from this county to Yorkshire, but that I distinctly recall instances where such timber has been sent from the neighbouring county of Berks still further north.

WILTSHIRE FORESTER.

### NOTES ON THE ELM.

THIS is the tree against which some have been waging warfare, as it is essentially the tree of the fields and the hedgerows, and is, here at least, found in few other places. Some writers who should be judges on the question assert that the finest Elms in this country are to be found in the county of Wilts, but upon this I express no opinion, as the difference of a few cubic feet more or less of contents does not greatly affect us in looking a little into the value and uses of the tree. If value was always reckoned in the current coin of the realm, the Elm is a tree which would not now rank very high, as it is one which has receded in price during the last few years as much as any of our woods; indeed, it would scarcely be straining the point too far to say that during the last decade it has fallen one-half in value. This great depreciation may, without doubt, be traced to several causes, each of which has had its share in affecting it adversely, but the principal cause, as was the case with the Firs in the north, was the great havoc committed amongst the grand old trees on many estates by the October gales experienced a few years back. In the course of our duties we had occasion to be much amongst the wreck and ruin caused by this untimely slaughter, and in some instances it was little short of appalling, as not only were the giants of our parks, fields, and hedgerows uprooted, carrying with them tons upon tons of soil, but many a fine tree had to become the prey of the axe during the ensuing winter in consequence of the damage wrought amongst its branches. At first sight it may appear that the effects of such a mischance as this would be worn out in the course of the ensuing season, or at least in a season or two, but in the case of a wood where the demand, if steady, is limited, the reverse is found to be true, as in many places, with the exception of the removal of the branches, the trees laid as they fell for season after season. Now, however, if the gales do not recur, the supply and demand seems fairly balanced, and when the long expected turn in the country's trade takes place, the Elm will be amongst the first of our native woods to join in the upward movement.

With regard to its uses, although the Oak is more popularly looked upon in this connection, the Elm occupies a position of some importance in the shipbuilder's yard. Like other woods, it has largely been replaced by iron and steel, yet there are many knees and scantlings sawn from this tree which the ship constructor has not learned to do without. Its natural toughness and durability in the positions in which it is used have much to do with its retaining its place, as also the fact that it does not corrode the iron with which it is used. From the necessity which exists for these purposes of obtaining particular bends and lengths and sizes, the caterer for the shipyard is accorded the especial privilege of picking and choosing from a fall of Elm before it is allotted to any other purpose. This may be more safely done than in most instances,



as for many things for which Elm is used the best is often left behind.

THE CHAIR-MAKERS consume a quantity of Elm. This is a use, however, which does not greatly clash with the wants of the shipbuilder, as large short butts which would not come in for the latter cut up the very best wood for the chair-maker. The principal dimensions used in the chair manufacture are planks of from  $1\frac{1}{2}$  inches to  $1\frac{3}{4}$  inches in thickness, and from 15 inches and 16 inches to 20 inches and occasionally upwards in width. The 15-inch and 16-inch by  $1\frac{1}{2}$ -inch planks go for the seats of the ordinary Windsor chair, and the thicker and broader planks for arm-chairs. Elm is also used for backs and scrolls of chairs and in other positions, but not nearly so much as for seats, as Beech and other woods will readily cut up these smaller sizes. From its toughness, the Elm is much used for the making of packing cases, as, in addition to standing an occasional hard knock, it has the property of not splitting when nailed. For such work the smaller and rougher trees and the limbs of larger ones are used, as the price obtainable would not allow of the employment of the better qualities of the wood. Beyond this there are many home industries in which a considerable amount of Elm is absorbed, and amongst these we may mention that of bellows-making. Some years ago the larger trees were in request for cutting into planks for smiths' bellows, but now, except in country smithies, the forge bellows has made way for the fan driven by steam. Notwithstanding this, the domestic bellows-makers use a lot of Elm, as in each grade, from the patriarchal apparatus of the farm kitchen to the mere toy of the drawing-room, the Elm has a place.

It is said that the Ash is adapted to a greater variety of purposes than any other wood, but if so it is closely followed by the Elm, as, descending from a use of such national importance as shipbuilding, through the domestic avenues of chair and bellows-making, we again meet with it in the storeyard of the railway company, where it is relatively as useful as it is for the shipbuilder. Though not much used in the construction of wagons for the permanent way, it is much used for other classes of work, and on that important feeder to the main lines of rails—the tramways; it is generally employed for the flooring and other parts of trolleys, and where Larch is not to be had at a reasonable figure for the sleepers on which the tramway rails are laid. In sewage works and others of a similar character the Elm is the friend of the engineer, as no other wood common to this country will supply its place. Another large user of this tree is the undertaker, as although for sentimental reasons the Oak is sometimes preferred, not a tithe of the coffins annually made are of any other wood than the Elm.

Besides this, there are a thousand and one other purposes for which Elm board is now and again used, but which individually would not be sufficient to dwell upon, so we close with speaking of its uses on the farm and by the wheelwright. On the former of the two, for many things foreign wood has supplemented our native wood, but not always with success, and this especially so in the case of out-door work, such as the fencing-in and division of yards, weather boarding, and the inside divisions of the stable and stall. The rough usage to which things like this are sometimes subjected to is more than the foreign deal can sustain, and in more than one case of which we are cognisant the Elm is being returned to. These uses, however, are not more common than those of the wheelwright, as his is a trade in which more

of this wood is employed than of any other, and one in which the whole of a tree can be used from the butt to the branch, the bole of it being sawn into boards, and the larger of the limbs into felloes. The smaller of the trees are cut up for naves, and a proper selection for this purpose is of the utmost importance, as when a break-down occurs, any part of a wheel can be more easily replaced than the hub. When Wych Elm is to be had it is generally preferred for this purpose to the common English Elm on account of its tougher nature. D. J. YEO.

#### FIELD GATES.

CAN you give me a little information as to the best kinds of timber for ordinary field gates and the styles of gate in more general use?—J. P. K.

\*\*\* With regard to the best kinds of timber, for durability the Oak has unquestionably the first place, and as a great proportion of the entire cost of a gate consists of the labour, we look upon it as doubtful economy to use any other wood than Oak. A very good gate, and a lighter one than when entirely constructed of Oak, is one with an Oak top-rail and Oak hanging style and head, with bottom rails and braces of Larch. On some estates it has become the practice to use foreign deal with the Oak instead of the Larch, but this is never satisfactory, as the deal soon gives way if subjected to pressure. Where Larch is not obtainable, it is not uncommon to see Elm used, but this is to be deprecated, as it is a wood unsuited to the work. It is somewhat difficult to give a clear notion of the different classes of gate without the aid of diagrams, but the most common is the 10-foot field gate with hanging style and head 4 feet high. This may consist of either four or five rails, but more commonly of the latter number. A diagonal brace springs from the foot of the hanging style and is carried upwards to support the top rail, either at the point where it is tenoned into the head, or at some point near the middle of its length. If the former plan is preferred, no other braces are used; but if the latter, it is usual to bolt on two upright braces between the point where the diagonal brace meets the top rail and the head. This is sometimes varied by carrying a diagonal brace from the foot of the hanging style and one from the foot of the head of the gate to meet in the centre of the gate underneath the top rail, and two additional braces on the reverse side of the gate and reversed in position, by which means a diamond is formed on the centre of the gate. These, of course, are single gates, but a system of double gates is in use in some parts of the country. These pairs of gates are made so that each is a little over 6 feet in length, giving an opening of something more than 12 feet. The height of head and style is about 4 feet 6 inches. The gates shut in the centre upon a small stump-post, both of the outside posts being used for hanging them. This class of gate is made with a short diagonal brace and one upright brace, and, like the other styles, are best when the braces are fastened to the rails by means of bolts and nuts.—D. J. Y.

**Wood sleepers.**—This term may refer to anything between the small-sized scantling on which the joists of floors are placed transversely and the heavy scantling on which most of the rails used in the construction of our railways are laid. With the exception of those used for flooring, which are generally made of Oak, home-grown wood is only used for sleepers of a more or less temporary character. For laying of tramway lines from mines and quarries,

Larch is employed when it can be had. When it is not obtainable, Elm is sometimes substituted. In building new lines of railways where the rails have to be laid roughly to admit of the passage of trucks with earth from cuttings to embankments, the temporary sleepers which have to be used are generally manufactured from Scotch or Spruce or any Fir which comes cheapest. So the advent of a new railway often gives an outlet for wood which otherwise would have been of little value.—J. N. B.

**Notice-boards.**—A simple notice-board warning trespassers is in nine cases out of ten effective. When it is seen on a place that the fences are kept up in a slovenly manner, that the gates are broken, and that no notices are about, the would-be trespasser gets the impression that very little is thought or cared about the enclosure, and acts accordingly. On the other hand, where fences are kept whole, gates repaired, and a notice-board fixed here and there, the contrary idea gains ground, and the notion that someone is on the look-out, and that caution must be observed, takes the place of the confidence engendered by the opposite appearances. Such things as these may appear trifling, but from considerable observation of results, we are satisfied that they have a very considerable effect. If, therefore, any owner suffers trespass and damage to his woods and plantations, the inquiry whether any of these things happen from the want of the adoption of some such simple precautions as those to which we have referred will be a profitable one. There is one word of caution that we, however, must give, and that is, do not nail the notice-boards to the trees. This is an easy way to perform the work, but one which damages the trees. It should be insisted, therefore, that the boards should be affixed to posts, and not to the trees.

#### EFFECTS OF SOILS ON CONIFERS.

OBSERVING tree planters cannot fail to notice the varied effects that different soils have upon trees, and particularly upon Conifers planted in this country. Even a garden of small dimensions will often afford many instances of these effects; some species may be seen in luxuriant health side by side with others starved and sickly. The peculiar likes and dislikes of Conifers as regards soils are not only interesting, but important, particularly when planting for profit is the end in view.

Some time ago I remember a very sensible paper on this subject was communicated to the "Transactions of the Scottish Arboricultural Society" by Lord Ducie. The following extracts from the paper in question serve to show how practical Lord Ducie's remarks are. He says:—

"The general diffusion of foreign Conifers in this country and their importance, not only as regards the effect which they will eventually produce in our landscapes, but as regards their intrinsic economic value, induces me to hope that a notice of certain peculiarities, which I have had opportunities of remarking in a few species, may not be unacceptable. In and about Tortworth Park, at the northern extremity of the Bristol coal basin, the underlying beds of carboniferous limestone and old red sandstone crop out at a high angle, with occasional beds of the triassic and liassic formations resting on their flanks, producing not only great irregularities of surface, but important differences both in the constitution and quantity of the superincumbent soil. Over the whole of this ground the more common Conifers are planted in great



abundance, and, with a few exceptions (owing chiefly, I believe, to geological reasons), they grow rapidly and well. As a general and sufficiently obvious rule, the Conifers thrive in proportion to the depth of the surface soil on which they stand. This is especially the case with the Deodar and *Pinus insignis*. The rule does not, however, appear to apply invariably to the Douglas Fir (*Abies Douglasi*), as I possess specimens growing as vigorously on the cold and sterile shades of the carboniferous limestone as others on the deep and warm soil of the old red sandstone. The most fastidious of the Conifers which I have had an opportunity of observing is undoubtedly *Cryptomeria japonica*. On the limestone, its leadingshoot is always defective, and its growth generally devoted to the formation of a nest-like mass of small shoots; whilst on the old red, a formation deficient in lime, its growth is regular, upright, and graceful, and so rapid, that I have no hesitation in affirming that in this locality it would outgrow the Larch. The Deodar, on the other hand, appears to be the least discriminating and the most accommodating of all the Conifers. No position, no variety of soil, appears to come amiss to it; on lime or sandstone, rock or clay, it grows with equal facility—though depth of soil, as before stated, invariably contributes to rapidity of growth. *Pinus insignis* appears to prefer the old red to the limestone; on the latter formation it maintains its health, but its annual growth is comparatively small. The most vigorous specimen of this Pine which I possess stands on a deep loam, formed by the detrital matter of the overhanging hill, at the point of contact of the old red sandstone and the clay of the lower lias. In *Araucaria imbricata*, though planted in considerable abundance and in every variety of soil, I have not been able to detect any decided preference for one formation over another. It has an evident dislike to a wet locality, and it generally, though not exclusively, thrives best on a deep soil. *Cupressus funebris* and *Cupressus Goveniana* are both growing vigorously on limestone rock with but little surface soil. The former of these trees is thriving equally upon a deep soil of the old red sandstone. *Cupressus macrocarpa* is growing rapidly on the clay of the carboniferous limestone. *Taxodium sempervirens* appears to be extremely capricious in its taste as regards the formation on which it grows; but I have in several cases remarked that it thrives and even appears to luxuriate in a shade which proves deleterious, and often fatal to *Pinus insignis*. There are many other Conifers which appear to manifest habits or tastes peculiar to themselves, but which are either too young, or in numbers insufficient to justify me in attempting to generalise upon them. Indeed, all the remarks which I venture to offer in this short paper are not made with a view to dogmatise upon the subject, but in order to call the attention of persons cultivating this tribe of plants to the importance of selecting the position of such Conifers as show any decided tastes. With

some reference to geological position, it is true that many formations are not often met with upon one estate, more especially in one park—the locality in which the more valuable Conifers are generally planted; but, where such conditions do occur, a knowledge of the formation in which each species appears to thrive best cannot fail to prove important. Before such knowledge can be attained, more extended and more accurate observations will, however, be necessary.”

If any readers can supplement Lord Ducie's statement by others, I am sure it would interest many others besides myself.

OLD FORESTER.

#### FORMATION OF PLANTATIONS.\*

PLANTATIONS, whether set down in comparatively narrow belts or strips as a means for providing shelter to arable land exposed to severe and strong winds, or for the profit they yield in process of time to the proprietor when put down over large tracts of land, ought to form an important part of the work of the estate. Viewed in the latter aspect, indeed, they are highly profitable, for tracts of land which, either from their position, character, or from the poorness of their soil, could not be made to produce crops of any kind, may, by a fair degree of attention, and by an outlay in the way of preparation of no great amount, be made to grow timber to a large extent, which will yield a fair return—indeed, all things considered, a handsome one. And in some classes of soils a double benefit is obtainable by planting, inasmuch as these are gradually improved by the growth of the timber, and the care more or less which is given to it; for it may be taken as an axiom that land growing some kind of crop, looked after however poorly, becomes improved in value, and does not deteriorate or remain bad as when left waste, and allowed to remain so. There is thus something compensatory in all farm labour, small in amount as that may be.

#### PLANTING FOR SHELTER.

The value of plantations for exposed parts of fields cannot be over-estimated. They are specially valuable to pasture lands. Much depends upon the way, however, they are planted for this and other purposes. If in large and heavy allotments, the benefits they are supposed to give will be greatly lost. The best mode of distribution for such purposes of shelter is in comparatively narrow strips, these placed, if possible, upon the elevated parts of the property. It is surprising how much shelter is afforded even by a strip of a few trees in breadth, if properly disposed. Of course, it is different with plantations set for the purposes of home-timber growth, of which we shall have hereafter remarks to offer; but for the purposes of shelter heavy thick clumps in large measure defeat their own object, and where used to shelter fields under cultivation, more especially so. For in such cases, while they do in a measure protect them from biting blasts, they also prevent the access of light and air, both essential requisites to successful cropping, as we have elsewhere shown. The position of the wood, as already hinted at, is also an important point to be attended to. Some pay so little attention to this, or are, perhaps, so ignorant of its value, that with them it seems enough if the wood be put down, that apparently being the great point, but where and how put is not at all thought of. Of course—

An extract from "Landed Estates Management." By R. Scott Burn.

and it seems scarcely necessary to draw attention to that point—it is essential to plant the protecting strips at the parts from which the prevailing winds of a cold and heavy blustering character come.

It does not, however, always follow that what is considered generally to be a mild warmish wind is so, or that its effects are favourable upon vegetation. Cases are known and might be cited where the winds, as, for example, east and north-east, universally supposed to be most unfavourable to vegetation, pasture, and arable land alike, have been proved, beyond a doubt, to be actually favourable to it, certainly not at all prejudicial. It will not be amiss, then, for a proprietor or his manager, who may be new to the estate and its history, while contemplating improvements in the way of plantations, to inquire into the history of the estate, and not, in fact, to be above the position of asking those who know of it as to certain facts connected with its local and other peculiarities. Such information so gained will be of great practical value.

#### TREES FOR SHELTER.

The kinds or varieties of trees to grow for shelter purposes will depend upon circumstances of soil. But, as a rule, those best adapted to resist strong winds are the following: The Mountain Ash, known in Scotland as the Rowan tree, and it makes also a lovely addition to shelter plantations on fields not far from the house, as in spring the blossoms are beautiful to look at and redolent with the finest perfume, while, later on, the changing hues of the berries contrasted with the green leaves, till they assume the deep red or scarlet so well known, make it a universal favourite; the Sycamore, known also in Scotland as the Plane tree; the Horse Chestnut, a lovely tree with its gorgeous spikes of blossom in spring; and, lastly, the various Pines. One or more of those should generally be placed to the windward side of the shelter plantation, and the body made up with a variety of them or of other trees which take well to the particular soil. The depth or breadth of the plantation should vary with the climate, but a fair average one will be from 40 yards to 60 yards. Yet it is worthy of notice that depth or breadth does not always secure immunity from the force of the blast. Indeed, it is surprising the degree of shelter which will be obtained from a fence of only moderate thickness, say of Hornbeam—often mistaken for Beech, which, indeed, it closely resembles. This forms a capital shelter all the year round, for the leaves, like those of the Beech, being resinous at their stalks, and keeping long from decay and dropping off, remain to stay the force of the wind during the season when it is fiercest and coldest.

#### ROTATION OF CROPS.

When we come to consider the growth of timber for paying purposes, we shall, of course, more specially point out what here we only merely allude to, and that is the necessity to grow timber adapted to the soil—a point apparently not likely to be lost sight of, but one which is pretty often so, nevertheless, to the complete throwing away of the purposes in view, at least to a great extent; for it is quite obvious that there must be some soils better adapted to grow certain trees than other soils. But, at the same time, it should be remembered that, although a soil be well adapted to grow a certain class of timber, it will not be a plan yielding the best results, if, after cutting down a plantation which has succeeded well on a piece of land, to plant the same land with the same class of trees, as they will not be so valuable. In fact the



principle is the same in kind, though not in degree—for its action, at all events, is not likely to be so marked, considering the difference between the styles of cultivation—as growing two corn or two crops of the same kind in succession. In plantation work the principle of rotation of crops, avoiding this succession, is not much thought of, but why it should be so it is difficult to see, so far as its scientific accuracy is concerned. In practice the point is generally decided simply by the consideration as to what kind of timber will pay best to put down upon the land. In very high lands it is, of course, absolutely necessary to consider the kind of timber best adapted to given heights, as each tree has what may be called its line of thriving height; above which, if planted, it will be poor and stunted.

This principle of rotation, or changing of the kinds or varieties of trees put down on land, would, however, at first sight, seem to run counter to the plan which good authorities seem to think the best in setting down timber, and which proceeds upon the principle that mixed plantations pay much better than those made up of one class chiefly of trees. Yet, by a judicious mode of working, the rotation, even in such cases, may be carried out at the time of thinning. By putting down a variety of trees, not only is variety of appearance secured, but of shelter also, those which keep their leafage on for a longer period than others giving shelter at periods when most required, as the Beech, the Hornbeam, and some of the Oaks. Again, a variety of kinds yield a variety of shade, as some have their growth higher up than that of others; while the more tender and valuable trees can be protected by the more hardy and less valuable, care being taken to have the protecting trees well established in growth before the more valuable ones are planted. All these are points to which attention must be paid if the most is to be made out of the timber of the estate; and that it is a source of profit if well managed need not be named here.

#### LAYING OUT PLANTATIONS.

There are various methods in use for laying out plantations of trees for the purpose of growing timber for selling purposes. The plantations are generally laid down so as to form shelter to the agricultural lands, or to serve some other useful purposes, as well as merely raising the timber. Where they are but of comparatively small proportions—mere strips, as it were, in no way approaching to the great stretches which cover hundreds of acres, and coming up to somewhat of the dignity of “forests”—the form or outline of the plantation undoubtedly the best to afford the greatest amount of protection against winds is the curved. We do not mean an outline with one unbroken sweep of curve—an arc of a circle—but a combined curved line; in other words, a waved curve or line, somewhat like the well-known “line of beauty” of Hogarth. This kind of line has a wonderful effect in breaking more particularly the force of a wind which may come sweeping along in the direction of its length, reducing at the various curves what would be blasts almost impossible to stand against to currents of comparatively feeble strength. And even when the wind is in a direction at right angles to the length of the plantation, and therefore to that of the waved curve forming its outline, the projecting or convex parts of the curves break the force of the wind, meeting it first, and causing it to sweep with comparatively gentle force down and along the inlying or concave parts along which it sweeps, breaking again on the next projection. The best proof of the value of waved outlines is the preference invariably shown by animals to

plantations formed with them, as compared with those with straight outlines, and the love they have for the shelter of the concave parts more particularly. A wind seems sometimes and somehow to gather redoubled force as it careers along a straight line. These effects are more observable in walls than in plantations, but the principle holds good alike in both. Towards the cultivated land side, should the plantation be on one side only of the land under culture, it may be said that cultivating operations will be interfered with by those waved lines; but this will not in practice be found to be a very great difficulty, as the fields can be ploughed square up to the headlands, and the curves on the outside of these will be generally of pretty large lines, having a wide sweep. The advantages, however, of the waved outline will, as a rule, outweigh any disadvantages of this kind. Where the cultivated land is wholly enclosed by sheltering plantations or by narrow strips of trees the curves at the corners, if objected to as difficulties in ploughing, &c., may be dispensed with and the corners left square; but a large and an easy curve will be almost as easily ploughed round as an angle, and, as before said, the curve will be of pretty large radius. Plantations of an extensive kind have the trees, considered as a whole, arranged in form very much according to the nature of the land which they occupy. Generally, they are in long stretches, unbroken in their length; sometimes breaks are found here and there, arising from some fault in the ground—the existence of a quarry, a piece of water, &c. The trees, in place of being placed down irregularly on the land, should be put down on a certain plan, either in rows or lines parallel to one another, forming a series of squares. This arrangement is necessary not merely to assist the formation of the drains where these are necessary, but when the timber is thinned out the gaps are made more easily uniform—an important point, as the trees then grow up more uniformly all round, and do not throw out wood to one side more than another.

In large and regular plantations, walks, or what are technically known as “drives,” are formed at certain parts, not only to gain access to the trees for the purpose of working round them, attending to the plants when young, and in thinning them out, but also to gain access from one part of the wood to another. These “drives” are usually formed in a very simple manner, having but little of the character of the ordinary roadway given to them. Where the soil is of close retentive clay, it will be well to form open drains at the sides, and to round the path off with the centre highest, so as to lead the water to the sides and prevent it stagnating on the surface; but if of a free or gravelly kind, they may be but a species of shallow open trenches, of width corresponding to the drive required, the main drives being of course broader, say with a breadth of from 8 feet to 10 feet, than the branch or subsidiary ones. In process of time they gradually become Grass-grown on the surface, and left very much to themselves, being rarely repaired.

#### DRAINING AND PLANTING.

The planting of the trees, upon whatever plan carried out, is an operation which requires to be done with care. Before planting, however, the land must be drained if wet, or if the soil be very retentive. Drains, as a rule, in plantations are open ones, a prejudice being in favour of these, not only as the cheapest made, but because they are more easily kept open, the rootlets of the trees not being allowed access to them, closed drains on the ordinary agricultural system being supposed to be very

liable to this accident. No doubt this is quite true, unless special means are taken to make the drains in such a way that the rootlets cannot gain access to the inside of the drains. That this can be done is without a doubt, by using collars or saddles, &c.; still it is true that the cost and labour incurred are considerable, and it is therefore only under special circumstances that this work is likely to be undertaken. The open drains should, however, be carefully, not slovenly, formed; it is needless to say that their sides should be at such an angle as will prevent the soil from slipping into the drain; the “natural angle of declivity” of the soil will give a guide to this, but that of the sides of the drains should be, of course, greater than this. The bottom of the drain should be of regular declivity or slope, uniform in surface from end to end, no inequalities being allowed to interfere with the flow of the water, and the rate of inclination should be as great as can be obtained. The drains should be formed in dry summer weather, the season preceding that in which the land is to be planted. The “outfall” will be a ditch or rivulet, &c., at the lowest part of the plantation. That drainage is of as essential importance to the well-doing of trees as of any other vegetable growth is a point which need scarcely be here dwelt upon. The roots of trees descending into soil thoroughly saturated with water, which remains often in holes and cavities, in wet seasons sometimes approaching the condition of small wells, get rapidly into a state in which all healthy growth of the upper parts is impossible. The tree pines and dwindles, making no progress worth naming, and the roots and lower parts frequently rot, giving ocular evidences, if others were not present, that something is radically wrong. Drainage of plantation land, like that indeed used for other crops, is only for the removal of the water which remains and stagnates round and about the roots, not for that moisture which is essential in the soil for the healthy growth of the trees.

After the land has been drained, it must next be prepared for the reception of the young plants or trees, and the method of doing this depends upon the peculiar circumstances of the locality, position, and altitude, soil, and general and special characteristics. Where the altitude is great, and the land, as it generally is in such situations, broken in surface and rough and uneven in special characteristics, the best must be made of the circumstances, for attempts at cultivation properly so called, in which implements are used, may be considered as out of the question. But at lower levels, and with surface of land more favourable, such as is not seldom met with, what may be called initial or rough culture may be attempted. In such cases the grubber will be found to be the best implement which can be employed, the plough being, as a rule, not available; but even in certain parts of such situations, from the character of the soil surface, grubbing may not be available either, so that, as in the higher altitudes, the trees must be planted on the natural surface in the best way available. Where favourable spots are met with, some previous preparation may be made before the plants are put in, which is done on what is called “pit” planting, “slit” planting being that adopted on the rough and high grounds above alluded to.

But on the low-lying lands, as in heathy land, where the surface-soil is not full of stones and land-fast boulders, good work in preparing the land can be done by the plough and the grubber. Where the soil is very favourable and spade work available, the best results will be obtained by spade or fork trenching. In marshy lands



so called, although some lands of this kind should scarcely be classed as such after being drained, the steam grubber or plough is the implement for doing the work, not only in the most effective way, but on the largest scale, and is the quickest and most economical. Of course it is only available, in a paying sense, where large tracts of land are to be put under plantation; but if one proprietor has not such tracts to plant, and other neighbouring proprietors have, by joining together they can avail themselves of the services of this wonderfully useful power at the rate which will be found truly economical. For an example of what steam can be made to do in reclaiming land, and making it available either for plantation or for general cultivation purposes, we refer the reader to the short account we give in another part of this volume of the work of reclamation now being done on the estates of the Duke of Sutherland. Where steam power is not, for one reason or another, to be used on the estate, the land of the kind now being considered must be worked either by manual labour—spade or fork work—in trenching and digging, or by horse-power in ploughing or grubbing. We confess, in the use of the latter power, to a great preference for the grubber in bringing land into good condition for planting.

#### HEATH PLANTING.

ONLY a few years ago it was the general opinion that trees could not be grown on the Danish heaths because the subsoil was too poor, and in many places hard ahl was to be found which could not be pierced, and also because the west wind forced the trees almost to creep along the surface of the earth. All these assertions have proved to be unfounded.

It is true that the ground is in places thin and sandy, but in former times, until far into the fifteenth and sixteenth centuries, there have always been forests of greater or less extent on the heaths of Jutland, as is clearly proved in the society's paper, "The Forests of Jutland in Former Times." Both in Jutland and North Germany a good many successful Pine plantations are to be found, even on very poor soil, which shows that trees have grown and are still able to grow there. But attention must be paid to the nature of the soil and the choice of the trees. As a rule, only trees with acicular leaves can thrive there—the Norway Spruce (*Picea excelsa*), and Mountain Pine (*Pinus montana*), with sheltering belts of White Spruce (*Picea alba*) and Mountain Spruce (*Pinus montana*). On better soil the Silver Fir (*Abies pectinata*) will also thrive. The Scotch Fir (*Pinus sylvestris*) will probably grow there, but the common German Fir will not thrive on the heath.

With regard to the effects produced by the wind on the heath, the mound islands of course contain many parts that are perfectly sheltered by high eminences, and when the soil is good, the best areas for planting are to be found there, but the mound islands also contain many hilly slopes facing west and north-west, and these are, on account of the wind, very unfavourably situated for planting, particularly for the Norway Spruce (*Picea excelsa*). On the almost horizontal flats the wind may be said to be generally favourable, especially for the larger plantations, as a sheltering belt facing west and north-west of about 100 feet in breadth will sufficiently break the force of the wind. Indeed the wind is not generally very troublesome, except, as before said, on the slopes facing west and north-west, and in districts in the vicinity of the North Sea. On the contrary, the con-

tinental climate prevalent in the interior of Jutland brings sharp night frosts in April, May, and the beginning of June, which are quite as injurious as the west wind.

What is most troublesome in heath-planting is the injurious influence of the heather stratum on both needle and broad-leaved trees, an influence which demands the greatest attention, and which was discovered a few years ago, chiefly by means of the Heath Society. This injurious quality of the heather stratum is explicitly described in several of the Heath Society's publications, especially in the paper "On Planting in Jutland, chiefly in the Heath Districts, 1877." These injurious qualities arise from the circumstance that the uppermost one-third to one-half of a foot, which contains partly living and partly dead organisms arising chiefly from the heather, reacts sourly, while the trees require a soil acting neutrally or basically in order to flourish. The heather stratum contains a superfluity of humus acid and tannic acid, and these acids must be removed before the growth can be vigorous. When this injurious quality of the heather stratum is not counteracted, Nature will sometimes, it is true, do it herself, for the acicular trees will not all die out, but many will be sickly and grow slowly, and chiefly in breadth. After the lapse of some few years, often about twenty, the side branches of the trees will have covered a portion of the surrounding heather vegetation, have smothered it, and produced a fermentation in the heather stratum by which the sourness or acidity will be removed; then for the first time the plant will begin to increase in height. These twenty years are called the "stationary period," and most of our older, now flourishing, State plantations have passed through it. However, all kinds of trees are not affected in the same way by the sour heather stratum. The broad-leaved suffer most, and the Birch (*Betula*) and Mountain Ash (*Sorbus Aucuparia*) excepted, it will be useless to plant foliferous trees on the heath, for they will die. The Firs, both the White Spruce (*Picea alba*), Norway Spruce (*Picea excelsa*), and Silver Fir (*Abies pectinata*), as a rule, are long in passing through this stationary period. The Pines can best withstand sourness; the Mountain Fir (*Pinus montana*) is but little affected by the sourness. Heather sourness may be removed by turning up the soil around the plant to a considerable depth and exposing it to the air, by double ploughing or double digging. Exposure to the air will remove the sourness in from five to six years; the effect it produces is seen in the rapid growth of the plant and a rich production of Grass, especially of *Aira flexuosa*; but after time the ground falls together again, the sourness increases in about from the fifth to the seventh year, the heather begins to choke the Grass (*Aira flexuosa*), and the growth of the Firs is simultaneously stopped. The aim is not to be attained thus.

As before stated, the Mountain Pines do not suffer by the heather sourness; they are therefore employed intermediately among the Firs, in order, with their help, to get the ground quickly covered; for when this object is attained, the heather is choked, fermentation is produced in the surface of the ground, and the sourness is removed. A great many Mountain Firs are required per td. of land to cover the land in from the fifth to the seventh year. The society of late years, as a rule, has employed 50 per cent. of Firs and 50 per cent. of Mountain Pines, about 3000 plants of each sort to each td. of land.

During the last few years the society has recommended beginning with a cheap cultiva-

tion of the Mountain Pine, and only later, when the Pines have attained the height of an ell, to set the Firs among them.

When it is by any means possible, it is more advantageous to cultivate the land before planting it. This can be done either in the usual manner by ploughing it, letting it lie fallow two or three years, top-dressing it with marl, &c., and by growing one or two crops of corn, whereby a portion of the expenses is covered; or if the heather stratum contains from 3 inches to 4 inches of "moors," by which is understood a cohesive peat-like mass, the heath may be cultivated by surface-ploughing it, burning it in furrows, ploughing in the ashes, and growing one or two crops of Rye upon it.

Pretty nearly the same result may be obtained by the so-called comb on ridge culture, which consists in surface-ploughing the heath, after the lapse of two or three years ploughing it again or harrowing it, and when the surface soil has by these means been completely aired and crumbled, the mould is heaped into ridges, which are then planted. But as neither marl nor fire has been used, the heather can easily come again in a few years and stop the growth of the Firs; therefore the employment of Mountain Pines intermediately is advisable.

**Valuing damage done to timber.**—Would some of your readers who have experience in such matters be so good as to inform me on what basis and at about what figure it is customary to assess costs for damage to timber trees, underwood, and young trees in cases where the plantations form part of the demesne or park, and are kept up for pleasure as well as for profit, and the expense of culture, &c., being consequently greater than is usual in plantations of ordinary timber trees? An answer from anyone competent to speak on the subject would much oblige, as the valuers employed cannot agree. —THE SUFFERER.

**Thinning or clearing plantations.**—I have recently been noticing some plantations of Larch, of small area it is true, but which I consider would have been much better if cleared away entirely and replanted than to have been left in the way they are. The crops consisted of poles of moderate size, growing thickly, with here and there a very small pole. The poles which were large enough for use have been felled and the small ones left, which, probably, are not a tithe of the original number. The result, of course, is that these few remaining ones are the sport of every wind to bend and twist and finally tear up by the roots. It may appear like waste and loss of time in growth to make a clean sweep when all the trees are not fit for a given purpose, but in the end the small sacrifice would be amply repaid by starting off a fresh crop, which would in all probability be worth something when grown. —J. N. B.

**Buying and selling timber.**—A reader sends the following cutting from a contemporary: "A traveller in the south of France was recently passing through a forest, when he suddenly met a dozen, as he thought, suspicious characters. His first thought was how to make his escape; but, to his great astonishment, one of them came forward, and, after some general conversation about trees, suddenly offered one hundred napoleons if he would retire. The traveller said he had no objection, and, to his surprise, the sum was given him, and he went his way rejoicing. He applied to the authorities, when he discovered that a large sale of forest trees took place that day, to which the local buyers had been bidden, and these men composed a "knock-out"—that is, conspired to prevent anyone else bidding, in order that they might obtain the timber at a cheap rate. The traveller was supposed by them to be a well-known timber merchant, and to have entered the forest for the purpose of bidding; so he was bought off."



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## INDOOR GARDEN.

## SEPTEMBER CHRYSANTHEMUMS.

A CLASS of Chrysanthemums that has attracted a good deal of attention recently is that consisting of early-flowering ones; some of these may be had in bloom by midsummer, but, as a rule, they are not much appreciated till summer flowers of other kinds have commenced to fade—an occurrence which generally takes place in September. Chrysanthemums that flower in that month and October are especially valuable where supplies of cut blooms have to be maintained. Then freshly-opened Chrysanthemums come in very opportunely. These September-flowering varieties are especially adapted for growing in the open border, as, owing to the early part of the season at which they bloom, they are enabled to escape severe frosts. Specimens in borders are very effective, but the blossoms are purer in tint if the plants are removed under glass just before the flowers expand. All the summer-blooming kinds may be so grown, that instead of flowering in June or July, they will bloom in September, but, with the exception of Madame Desgrange, they are all Pompons, while of those that flower during the last-named month several (especially among the newer kinds) are of the Japanese type.

A SELECTION of the best September and October flowers should, as far as my experience goes, include the following: Of new kinds that flower at this season may be named *Roi des Précoces*, a short, sturdy Japanese variety with narrow petals, bright crimson in colour when first expanded, but afterwards changing to buff-red. From its dwarf habit and freedom of blooming, this promises to be a good companion for the well-known *Madame Desgrange*. *Fleur d'Été* is a very full double flower, with a high centre and broad drooping petals of a pleasing shade of rosy purple, the reverse side being white. This, too, belongs to the Japanese section, and is of medium height, but very sturdy in growth. *Lakme* is an extremely attractive kind, short and stiff in habit, with large blooms of a bright reddish cinnamon on the outside, shaded with yellow towards the centre; *Mandarin* is a light, full flower with narrow petals suffused more or less with purplish rose; *M. Ghys* is a large flower, with partially quilled petals, curled and twisted in a curious manner, and in colour light rosy lilac, the reverse side being yellow. These all come from M. Délaux, who announces *Roi des Précoces*, *Mandarin*, and *Fleur d'Été* as early-flowering Japanese kinds; the two others, *Lakme* and *M. Ghys*, though with me just as early blooming, are classed with those that flower at the usual period. Besides these, M. Délaux sends out two other Japanese sorts this season as early bloomers, which, as far as my experience of them extends, are inferior to the others; they are named *Bouquet Estival* and *Été Fleurie*. The new yellow sport from *Mdme. Desgrange* (*C. Wermig*) is very beautiful, and the parent form itself is by far the best white in its class for September and October blooming. Older kinds that flower during these months

are—*Alexandre Dufour*, a sort with medium-sized bloom of a bright rosy purple; this was awarded a certificate a couple of years ago as an early-blooming variety, and for usefulness is not yet surpassed; *Simon Délaux*, bright red shaded orange, is another good and striking flower. My selection from the above would be *Alexandre Dufour*, *C. Wermig*, *Fleur d'Été*, *Lakme*, *Mandarin*, *Madame Desgrange*, *Roi des Précoces*, and *Simon Délaux*, which will afford a good variety of the Japanese section suitable for September and October blooming. The flowers may not be so large as those of some of the later ones, but they are all good-habited, free-blooming sorts, available for general decorative purposes as well as for maintaining a supply of cut blooms.

OF POMPONS, or medium-sized flowers, that bloom at this season the number is much greater. Not only can the summer varieties be had in bloom at that time if desired, but there are many others that commence to open their earliest blossoms during September. With such a number from which to choose, a selection is of course necessary, and in the event of a dozen being required, my choice would be the following—*Anastasio*, violet-purple; *Inimitable*, amber; *Fiberta*, pale yellow; *La Vierge*, white; *Lyon*, rosy purple; *M. Luquet*, purplish amaranth; *Pomponium*, bronzy orange; *Virginia*, pure white; *Souvenir de M. Rampont*, violet; *Mr. W. Piercy*, red; *St. Crouts*, pink; and *Sœur Melanie*, pure white. Of these, *Fiberta*, *Lyon*, *Virginia*, *Souvenir de M. Rampont*, *Mr. W. Piercy*, and *St. Crouts* can be had in bloom earlier in the season, but all make good September bloomers if grown for that purpose, while the remainder will naturally flower during September and October. When the last-named month has well set in, what may be regarded as the bulk of the collection will commence to expand their blossoms, an advance guard being formed of such kinds as *Mrs. G. Rundle* and its sports, *Lady Selborne*, *Mr. J. Laing*, *Margot*, *Fernand Féral*, *Brise du Matin*, *Helvétie*, and others. M.

## TYPES OF GLOXINIAS.

I TAKE it that, having regard to the habit of growth of the modern forms of *Gloxinia*, it may be said that there are three distinct types—the erect, the horizontal, and the drooping flowered. The horizontal-flowered type is the drooping flowered with the blossoms raised to a horizontal position, the flowers standing out almost or quite straight with the stem. This is one of the results of careful selection. Has any record been kept of the first appearance of the circular erect-flowered type? Where and with whom did it originate? It is, perhaps, doubtful if any reliable record has been kept of the occurrence. So far as I have seen of the newer forms of *Gloxinias*, I have not detected any tendency on the part of the drooping flowered strain to take the form of the erect-flowered type, but it is possible others may have done so. There is one feature about *Gloxinias* to which I may allude, and that is that the colours of the brightest flowers come out better in heat than in a cooler atmosphere; if removed from the former temperature to the latter they become pale in colour rapidly. This is particularly true of scarlet varieties; it is the same with purple shades, and, indeed, all the lighter shades are finest in heat. On the other hand, the white-flowered are purer in a cool atmosphere than in a hot one; in heat the flowers will be almost certain to show tints of colour.

It is surprising what fine plants can be had in June and July from seeds sown in January.

Years ago it was the custom to sow seeds in July and August, and so produce plants that would flower in spring. Now, admirable plants can be had the same season from seeds sown in the first month of the year, but to do this they should have special treatment. What is required is to sow the seeds thinly in clean pots filled with a light and fairly rich soil, having the pots well drained, and placing a thin layer of Moss over the drainage to prevent the soil being washed down among it. A warm, moist heat soon starts the seeds, and a light sprinkling overhead with water assists the process. The forwardest seedlings should be lifted as soon as large enough to handle, pricked off into pots of soil, and placed in heat, taking care not to disturb the remaining seedlings in the pots. This process can be adopted until all the plants are so transferred, and in pricking off the plants the leaves may rest on the soil, but the hearts must not be covered. As soon as large enough the plants should be potted off singly and grown on until 3-inch or 4½-inch pots are reached. If some large specimens are required for exhibition purposes, they should be grown on, shifting as necessary, but the act of repotting postpones the time of blooming; therefore, seedlings of the same year should be used only for exhibitions at the end of August. *Gloxinias* must be grown on in a moist heat until they are pretty well in flower, and then they should be removed to a cooler house, as moisture in the atmosphere disfigures the blossoms. Two evils may be said to beset the *Gloxinia*—viz, rust and thrips. But both can be kept at bay by careful cultivation. Nothing can be more disappointing in the way of flowering plants than to see *Gloxinias* bearing good flowers, but with the foliage disfigured. When the plants are in heat an occasional fumigation will keep them clean, and careful watering will keep the leaves healthy. When placed in a cool house to bloom the plants should be shaded from the sun, and air given cautiously and with judgment. R. D.

**Nerines.**—The following is a list of the *Nerines* which I have in cultivation here, viz:—

amabilis	humilis angustifolia
atrosanguinea	major
Cami	japonica
cinnabarina	O'Brieni
corusca	lilacina
curvifolia	Plantii
elegans	profusa
caerulea	pulchella
carinata	pudica
Elwesi	rosea
excellens	sarmentis
flexuosa major	insignis
caerulea	i. rosea
Fothergilli major (perhaps identical with corusca major)	undulata
	venusta

and several new species and varieties.  
---MAX LEICHTLIN, *Baden-Baden*.

**Boilers.**—I should like to hear through your columns the opinions of gardeners—amateur and otherwise—on the subject of independent dome-top boilers. I have about 800 feet of 4-inch piping to heat, and the position will only admit of this class of boiler being used. In the lists of some of the best makers I find that conical dome-top boilers are not made. Why is this, it being an admitted fact that "hanging up" of the fuel is less likely to occur in the conical form than in any other? There are two forms of dome-top boilers in the market: one with the feed-door and flue at the top, the other with the feed-door and flue some distance below the top. Which is found to be the better? I propose casing my boiler, when purchased, with a non-conducting material. Is there anything better for this purpose than the woolly iron slag material which we use for covering the boilers and exposed steam-pipes in our steamboats? One more question and I have finished. Formerly, I used the "expansion joint" process for fitting together my



pipng. I have now discontinued using it, as I find that in close stove plant houses where the expansion joints have been used there is a very perceptible odour of india-rubber. This I have proved to be prejudicial to the health of delicate plants such as *Adiantums*. I now use ordinary socket pipes and india-rubber rings, and afterwards fill in with Portland cement; this makes an excellent joint, and, of course, there is no smell of india-rubber. Here, however, my difficulty is in pushing the pipe with the india-rubber ring on it into the socket; I find that it is more than one man's strength can accomplish. Possibly there is a knack in doing it; if so, I should be glad to know it. —ST. MAURICE.

## FRUIT GARDEN.

### AMATEUR FRUIT-GROWING.

**PEARS.**—According to my experience, Pears have never been more delicious than they are this season, and I have not the slightest doubt that many amateurs are debating with themselves as to the advisability of either attempting their culture or enlarging their sphere of operations in that branch of gardening. Without any wish to discourage the inexperienced, I must point out that the mere fact of buying trees and entrusting them to the tender mercies of a jobbing gardener, or a careless and, perhaps, over-worked singled-handed gardener, is by no means a sure method of securing desirable crops of choice fruit. In some few cases where the soil, perhaps, is most suitable for fruit culture the trees may make excellent progress and continue for a long time to produce abundantly, but, as a rule, badly planted and badly tended trees prove most unsatisfactory to all concerned. Many are tempted to purchase trees resembling those figured in some catalogues, and which are to produce good crops the first year, but in unskilful hands the first comparatively heavy weight of fruit simply ruins the tree, and it merely cumbers the ground, perhaps, during the rest of its existence. Instead of planting trees haphazard, an inexperienced cultivator should first take into consideration the size of the garden, the character of the soil, and the stock best suited to it, and go to work accordingly. If he has plenty of wall space and garden room, with a fairly good depth of loamy soil, then he will do well to aim at securing large trees as being most profitable and planting trees grafted on what is known as the Pear stock. If, however, on the other hand, both wall and garden space are limited, and the soil perhaps light and shallow, then trees worked on the Quince should receive preference. The former is both stronger-growing and deeper rooting, the consequence frequently being a slower arrival at a bearing state, but as a set-off there is a greater certainty of the trees longer remaining in a good bearing state, even if somewhat neglected. Trees on the Quince stock are frequently singularly precocious; recently a writer in an evening contemporary mentions having planted cordon trees in March, and in September following gathering a crop of fruit that in Covent Garden would have cost

double the outlay of the trees. This is, as it was meant to be, very encouraging to those who hesitate to plant trees owing to the proverbial slowness of the Pear in arriving at a bearing state, but at the same time it may also prove somewhat misleading. These miniature trees—and I include in the category the majority of those on the Quince—must receive the most liberal treatment throughout their life; otherwise the first heavy crop which they perfect will check all further growth, and, as has just been stated, a stunted, profitless state is arrived at. As their naturally slow growth is accompanied by a correspondingly close as well as a shallow root action, they quickly impoverish the soil in which they are growing, and must, therefore, be either occasionally lifted and replanted in good fresh soil or have a trench cut round, say within 2 feet, or even less when the trees are small, of their stems; this trench should be refilled with fresh garden soil or compost. In addition, the ground about the trees must also be annually mulched with good manure in order to both preserve the moisture about the roots and to afford support for them. Under this treatment it is surprising what fine crops of grand fruit may be grown, and these well repay the apparently extraordinary outlay in the shape of labour and manure. Those who study nurserymen's catalogues will have observed that there are

**VARIOUS SYSTEMS OF TRAINING** Pear trees in vogue. For effectively furnishing walls I am of opinion that double or triple cordons, either trained obliquely or vertically, are to be commended to amateurs as being easily trained and soon producing extra fine fruit. For low walls or shallow soils those on the Quince stock are best, but for high walls either stock is suitable, our best cordons being really on the Pear stock. They can usually be purchased with the two leading branches evenly started, and, failing these, maidens can always be had. The latter require to be cut down to within about 2 inches of the stock, and, as a rule, there will be no difficulty in thereby securing two well placed shoots, which should be carefully secured to the wall at about 18 inches apart, all other shoots being pinched back to about three joints. If either of the reserved shoots is disposed to grow much more strongly than the other, it should be depressed considerably, thus diverting the greater portion of the sap to the weaker shoot, and when this has gained sufficient strength both may be placed in an upright position. When once the two growths are fairly started it is a mistake to ever stop or prune them in any way, and this also applies to those with two or more main branches. When main branches are laid in to their full length, they naturally form spurs at nearly every joint, and fruit-spurs, too, very frequently, but if pruned in winter or even stopped in summer it not unfrequently happens that shoots are formed on the upper portion of the branch only, and fruit-buds rarely. During the summer all lateral growths should be pinched back, say

to about four or five joints, or at a safe distance from the main branch; otherwise, the back buds may be induced to break prematurely or else form wood-buds only. This close stopping naturally encourages the desirable strong growth of the main branches, and it must not be neglected, or the walls will not be so quickly furnished. I ought to add that these double cordons are usually planted about 30 inches apart, by which it will be seen that a considerable number of trees may be planted round a house or against a wall. Single cordons may also be grown, and these should be planted 5 inches, or rather more, apart. The five-branched cordons, or *Palmette Verriers*, are also very profitable, but are not so easily formed as at first sight may appear. If they can be bought with the five branches already trained, amateurs would succeed with them, and they might be planted about 9 feet apart and vertically trained. The majority of Pear trees against garden walls are horizontally trained, that is to say, they have one upright main stem from which branches are laid in horizontally on each side. It is a slow method of furnishing walls, and in many instances, where the trees are planted at too great distances apart, all the available space is never properly occupied, this being most frequently the case when the Quince stock is used. The latter may well be planted about 15 feet apart, while trees on the Pear stock ought to be planted at, say, 20 feet apart. Trees of these kinds can be purchased with either two or three tiers of branches already formed, and these should not be pruned, but should be treated as recommended for cordons. They ought to be not less than 12 inches apart, and in order to secure another pair the following summer after planting, the central leading shoot must be shortened back during the winter to within about 13 inches of where it was last pruned to. This should result in the formation of several young growths, and from these the three uppermost and most conveniently disposed must be selected, one to take the lead and continue the formation of the main stem, and the others—one on each side and as nearly opposite as possible—to form permanent horizontal branches. In some favourable positions a second pair of branches may be secured by an early summer shortening of the main branch, but the inexperienced may easily fail with this practice, and they will find it the safest plan to be content with securing one strong pair each season. Sometimes the lower branches do not keep pace with the more favourably placed upper ones, and it is generally advisable to train the latter horizontally and the former in a natural or somewhat oblique position till such time as all are of about equal strength, when the whole may be trained horizontally.

**FOR THE OPEN GARDEN**, espaliers, cordons, pyramids, bush and standard trees are available. The first have, perhaps, been longest popular, and I am of opinion that the espalier is the very best form of restrictive training for either large or small gardens, but more espe-



cially the latter. In the home counties, notably Kent, Surrey, and Sussex, there are numerous gardens well stocked with espalier-trained trees, but neither in the midland nor western counties of England are many of them to be seen. Why I cannot imagine, as it is quite certain no form of tree takes up less room, and, according to my experience, none produces better crops of large fruit. One rectory garden that I have watched for about twenty years has a row of espaliers nearly all round it, and numerous baskets of luscious fruit annually find their way into many invalids' and friends' houses besides those which the rector reserves for his own use, and all this is done without unduly encroaching on the ground devoted to vegetable culture. These trees can be planted on each side of the walks and about 2 feet, or even less if only one row is planted, from the edge, while the ground can be cropped up to within 12 inches of them. They are trained and otherwise treated similarly to horizontal trees, the main branches being either fastened to an ordinary wire fencing, consisting of wires 12 inches apart and tightly strained, or they may be secured to stout upright stakes. The latter require occasional renewal, but on the whole they are to be preferred where only a few widely disposed trees are grown, and besides many would object to the appearance of a continuous wire fence round their gardens; the original outlay also would be too heavy for the majority of the proprietors of small gardens. If the pointed ends of the stakes employed are either charred or dipped in boiling creosote before being inserted they will last much longer. Matured shoots of yellow Willow answer well for fasteners, or, failing these, stout tar twine is the most durable. A height of 5 feet will admit of five pairs of branches, and if on the Pear stock, the branches will eventually extend a distance of 10 feet each way, while those on the Quince may not grow more than 8 feet each way. Espaliers, in common with dwarf lateral cordons, are comparatively easily protected from frost when the trees are in bloom, and they are not often stripped of their fruit by heavy winds. The whole of the wood being well exposed, it is certain to ripen well, and plenty of fruiting spurs are usually the result, especially if due regard be paid to summer stopping.

**DWARF LATERAL CORDONS** find favour, but I cannot speak highly of them. On the Pear stock they refuse to fruit satisfactorily, and on our heavy land those on the Quince made no progress whatever. I have, however, no doubt that such cordons are profitable on warm light soils, and as they are usually supplied about 1 foot high, and have only one single branch or two trained in opposite directions they naturally require very little room indeed. They are suitable for fringing walks or for planting on the sunny side of a row of either espalier, pyramidal, or bush-shaped trees. I have seen several instances in which both cordons and espaliers have been allowed to form one or more strong upright branches

from the centre of the tree; these naturally develop rapidly at the expense of the lateral branches, and render them of little or no use. If the trees are too luxuriant to be fruitful, root-pruning must be resorted to rather than risk spoiling them. Pyramids are most frequently planted, but it is very doubtful if they repay the amount of trouble expended on them, and it is certain that beginners will rarely succeed in forming such handsome trees as are sometimes figured in works on fruit culture. Occasionally, very handsome pyramids are to be met with; some of the best I have seen were at Cardiff Castle, and there are also many good ones at Elvaston. In both cases the trees are very productive, and now they are fully formed, but little labour need be expended on them to keep them in good order. Knowing the time and trouble necessarily expended before these pyramids are formed, I can safely assert that it is better to allow the trees after they are received from the nurseries to grow naturally and freely. Only those of very close, erect habit, such, for instance, as Louise Bonne of Jersey, should have their main branches shortened in order to induce a more spreading habit of growth, as the majority will assume a spreading, semi-pyramidal habit. All the pruning which naturally-grown pyramids receive is a thinning-out during winter of the lateral branches, none of the main limbs being pruned at any time, unless they are taking too strong a lead. In the case of very young and badly furnished trees it is frequently necessary to freely shorten some of the lateral branches, and this is usually followed by a sufficiency of young shoots to form a well-balanced tree. Later on an occasional shoot may be left at the winter pruning, and this, if left unpruned, will soon become clothed with fruit spurs. There are several naturally grown pyramids on the Pear stock in a garden near here; they are about 15 feet high, and they rarely fail to blossom most abundantly. Bush-shaped trees are best adapted for small gardens, and for these the Quince stock only is suitable. They can be kept about 4 feet high and as much through, and once in full bearing they will be found to give very little trouble indeed. The only difference between these and pyramids is they are not allowed to form a central or leading shoot. The removal of this strengthens the side branches, and these again should not be shortened, unless more branches are wanted, till such times as they reach their limit. Most nurserymen can supply bush trees, and amateurs cannot possibly make any mistake with them, *i.e.*, if they receive plenty of manure when in full bearing. Standards are seldom planted in kitchen gardens, but if allowed to grow in a natural or somewhat erect form, they do not interfere to any appreciable extent with the surrounding crops, and in favourable seasons yield fruit by the bushel. In many gardens there are a few of these fine old natural standards always on the Pear stock,

but I often wish there were many more and better sorts. Windsor, Williams' Bon Chrétien, Autumn Bergamot, and Beurré de Capiaumont, and one or two stewing Pears would appear to have been the greatest favourites with former generations, or else these sorts only were considered suitable for standards. There are various plots that might well be utilised for growing widely-planted standard Pear trees, notably drying grounds, poultry yards, and the paddocks adjoining numerous detached residences. Given a good start, the stems being well staked up and protected from cattle or sheep, they will soon form good heads and commence bearing three or four years after they are planted. Market growers usually, during the winter in which their standards are planted, cut back the young growths to about 4 inches of their base, after which the knife is rarely used, unless it be to shorten irregular shoots, or to thin out where they are unduly thick.

**SELECTIONS OF VARIETIES.**—For wall culture, whether as cordons or horizontally trained, the following are suitable, viz.: Jargonelle, Beurré Superfin, Louise Bonne of Jersey, Thompson's, Marie Louise, Doyenné du Comice, Passe Colmar, Beurré Diel, Glou Morceau, Beurré d'Arenberg, and Easter Beurré; and if a second lot are required to the above, may be added Williams' Bon Chrétien, Brown Beurré, Hacon's Incomparable, Gansel's Bergamot, Van Mons Léon Leclerc, Beurré Bachelier, Beurré Rance, Winter Nelis, Napoleon, Maréchal de la Cour, Nouveau Poiteau, and Josephine de Malines. For open garden culture, either as cordons, espaliers, pyramids, or bushes, select Williams' Bon Chrétien, Beurré Superfin, Louise Bonne of Jersey, Huyshe's Victoria, Duchesse d'Angoulême, Doyenné du Comice, Beurré Diel, Forelle, Zéphirin Grégoire, Bergamote d'Esperen, Beurré Rance, Beurré d'Arenberg, and if more are wanted choose Beurré d'Amanlis, Marie Louise, Huyshe's Prince Consort, Comte de Lamy, Althorpe Crasane, Passe Colmar, Urbaniste, Knight's Monarch, Beurré Bosc, Glou Morceau, Ne Plus Meuris, and Easter Beurré. For standards I can recommend Jargonelle, Williams' Bon Chrétien, Beurré d'Amanlis, Beurré Superfin, Hessel, Marie Louise, Marie Louise d'Uccle, Fondante d'Automne, Beurré Diel, Beurré Rance, Beurré de Capiaumont, Bishop's Thumb, and to these may be added Citron des Carnes, Autumn Bergamot, Comte de Lamy, Hacon's Incomparable, Louise Bonne of Jersey, Knight's Monarch, and Suffolk Thorn. The best stewing Pears are Black Worcester, Catillac, and Uvedale's St. Germain. W. I. M.

**Root-pruning.**—When carefully carried out, there is nothing that pays fruit growers better than pruning the roots of over luxuriant trees, and in low-lying, cold districts such restriction is of far more importance than many would imagine. In the gardens here two streams of water are constantly running, and very beautiful they are in their way, but the fog that arises from them and settles on the wood of fruit trees during nearly the whole of an autumn day is the



reverse of beneficial; therefore we are compelled to root-prune in order to check an over-abundance of crude unripe wood, and to encourage the growth of that of medium-size furnished with well ripened fruit buds. We have a Lord Napier Nectarine which will this season fill a house 30 feet long and 12 feet wide. This tree has been root-pruned every year for the last seven years, and yet it grows rapidly, and has never failed to produce a full crop of excellent fruit. The way in which we proceed is to take out a trench 4 feet from the stem, and, with a sharp knife, cut hard back every root that is inclined to ramble, taking care not to injure the fibres. These we carefully spread out, and work in among them a good supply of rich loam and burnt garden refuse. After a good watering is given, a mulching of manure is put on, and care is taken to give plenty of water at all times, even in winter. The roots, which are outside, are never allowed to get dry. Last year I lifted and root-pruned some Apricot trees, treating them as just described, and they carried a crop of good fruit; and an old Beurré Bosc Pear was also operated on one side only in the same way, and the crop which it produced was in every way satisfactory. The object is to increase the number of feeding roots, and at the same time take care not to destroy those which the trees already possess. With plenty of fibrous roots and good feeding a full crop may be reckoned on, but it is useless to feed where there are no roots, or, rather I should say, where they are out of the reach of the food given them. —G. MERRITT, *Kimpton, Herts.*

### QUESTIONS.

5418.—**Rabbits and rats.**—Can any reader of THE GARDEN tell me if there is any trap that will catch rabbits and rats and kill them at once? —J. T.

5419.—**Spiræa palmata.**—Will some reader of THE GARDEN kindly give me a little information on the treatment of this Spiræa? Will it bear forcing as well as *S. japonica*? Is it hardy? —G. P.

5420.—**White Chrysanthemums.**—Will some one kindly furnish me with the names of the best white Chrysanthemums to grow in order to be able to keep up a constant supply of bloom from August to January? —BETA.

5421.—**Mealy bug.**—Will some of your correspondents kindly say what they recommend for destroying mealy bug on Vines? What is the best thing for winter dressing, and what is the proper thing with which to syringe the woodwork? I may say that the houses are old. —J. H.

5422.—**Tuberose.**—We have this season grown a considerable number of American double Tuberose, which have flowered to our entire satisfaction. Would some of your correspondents who have flowered them kindly tell me what treatment the bulbs should receive after flowering, and whether they will flower the next or following season? —A. W.

5423.—**Iris.**—The following is a list of Irises found in Central Asia by Messrs. Atkinson and Semenov. I should like to know how many of them are in cultivation, and where:—

#### *In the valley of the Amoor.*

Bloudowi	pauciflora
dichotoma	sibirica
Guldenstadti	uniflora
lævigata	ventricosa

#### *In Siberia and Mongolia.*

brachycarpus	ruthenica
dichotoma	setosa
flavissima	sibirica
Guldenstadti	spuria
halophila	tenuifolia
Pallasi	ventricosa

#### *On the Kirghis Steppe, Altai, Kara-tai, and Tarbagatai.*

flavissima	humilis
longispatha	biglumis
setosa	Guldenstadti
tenuifolia	songorica
ruthenica	caucasica
uniflora	glaucescens

—M. P. F.

5424.—**Late Grapes.**—Will Mr. Coleman or some other good Grape grower kindly tell me what good late keeping Grape I can plant to take the place of some Black Hamburgs which we have in a large greenhouse. We have not much use for Grapes early in the season, but would like a few late hanging ones. The house from September onwards is very full of greenhouse plants of the usual character, one-half of which are large; they therefore require a good deal of water. The flooring is very low down—some 3 feet below the top of the Vine border in front, and nearly 4 feet from the bottom of the front sashes; therefore after watering, the flooring and walls become very wet, a condition which lasts during the whole day and night. Now we want a Grape that can stand a little of this better than the Hamburgs. We cannot keep a high temperature in spring, on account of the plants. We have now in the greenhouse some good Hamburghs, but they are beginning to rot in places. —R.

### WORK DONE IN WEEK ENDING NOV. 10.

NOVEMBER 4.

ANOTHER rainy day has again prevented outside work of every description, and as to inside work for outdoor hands, particulars of it have of late been so frequently given that any further remarks on that head are unnecessary. Fruit rooms on such days always get a fair share of attention, and at the present time they need it—Pears in particular, that are just now ripening in quantity, and that should be used before decay sets in. We have at least a dozen kinds now ripe, and of these not more than four keep longer in condition than a week or ten days. The best keepers are Beurré Diel, Marie Louise, Doyenné du Comice, and Duchesse d'Angoulême. It is such kinds as these that should be grown in preference to kinds that decay almost as soon as ripe. Potting bedding plants, painting Peach trees with Gishurst for the prevention of insect pests, and tying the trees in early house to trellis. Picked over and rearranged flowering plants in Strawberry house; early Primulas and double-flowered Pelargoniums now make a grand show, and will be presently followed by Cinerarias, that are at present in a pit with a north aspect.

NOVEMBER 5.

The weather to-day has been a little finer, but only a very little; however, we have so much planting on hand, and want to get it done, that between the showers we managed to grub up some old fruit trees, and began trenching the borders by way of preparing to plant young trees. Our soil is naturally poor, but there is plenty of depth—about 4 feet—and we go to the bottom, and add a little fresh loam, crushed bones, and chalk, and what other manure is needed we apply by means of surface mulchings of the best stable or farmyard manure. Such a quantity of rain necessitates great watchfulness in respect of Grapes still hanging on the Vines; we make a rule of examining them closely twice a week to cut out bad berries, and fire heat is constantly on, and this, in combination with the ventilators always being kept a little open, keeps the air of the house so light and dry, that we are never bothered to any appreciable extent with decay of the berries. Chrysanthemums are now in full flower, and, contrary to the notion that they will not stand warmth, the plants and flowers that have had it, and still have it, are much finer than those that have been left in a cool house, and though I have not yet tested the matter fully, my present impression is that the flowers will last longer. Of course, what I mean by warmth is not stove temperature, but one ranging between 55° and 60°. Tying Peaches to trellis and pruning others, and finished potting all bedding plants that at present have been lifted to complete the winter bedding out, a job that still waits for fine weather.

NOVEMBER 6.

To-day has been as bright and fine as yesterday was gloomy, and we have all but completed the winter bedding; only a few vases now remain to be furnished with creepers, such as the green and variegated Periwinkles, Ivies, and Cotoneasters. The common variegated Iris makes a capital plant for vase furnishing, as also it does for intermixing in beds of dark-foliaged shrubs, such as Portugal Laurels, Mahonias, and Cupressus. Trenching and grubbing have been our other outdoor jobs; indoor work has been Peach tree tying and painting with composition to destroy and prevent the attacks of insects. Put lights on second Peach house; the border, an inside one, having got sufficiently wet by the heavy rains, fresh straw mulching has been put over it, that we may utilise the space for late Chrysanthemums and Marguerites, also for shrubs that are to be forced till such time as they require to be put into the forcing pit. Got fresh leaves into pits in which our first batch of Strawberries are to be started. They are well trodden down, and in the course of a week or so will have subsided sufficiently to allow of the plants being stood (not plunged) on them. Bottom heat is not essential, but it is, I think, helpful to the plants when started at this dull season; at any rate I have found the plan so effective, that I commend it with confidence.

NOVEMBER 7.

Again we have been favoured with fine weather, and our winter planting of the flower garden is com-

pleted, and there only now remains the pricking-up and re-surfacing with a bit of fresh gravel all the walks to make all neat for the winter. Swept up all walks and roads. Sweeping and rolling the lawn is now shirked as much as possible, for, till the leaves have all fallen, it is labour lost. Besides the usual Saturday's thorough clean up of houses, Primulas and Cinerarias were taken from a north and arranged in a pit having a southern aspect, a few more of the earliest Primulas that are required very soon for baskets and vases in the mansion being put into a warm house to get them into full flower quickly. Bouvardias and Tree Carnations have also been given additional heat. Gardenias are seldom out of flower, and, being full of buds and a number being required very shortly, additional heat has been turned on to the pit that is wholly devoted to their culture. A minimum night temperature of 65°, and as high as 75° by day, is now maintained. The plants being partially plunged in leaves in which there is warmth, and the leaves and walls being syringed every afternoon when the lights are closed, there is plenty of atmospheric moisture without overhead syringing, which we discontinue in winter. Looked over Grapes to cut out bad berries, and cleared away all decayed foliage.

NOVEMBER 9 AND 10.

Thick fog on both days, and fires have been kept going in vineries where Grapes are still hanging, and slightly also in vineries at rest, for the sake of Chrysanthemums that are now in full flower, damp being quite as injurious to them as frost. Closed up early vinery for forcing. We start them very gently, beginning with a temperature of 50° by night, and lower if very cold, and from 55° to 60° by day, and for the present vines, walls, and floors will be well syringed early in the afternoon of each day, but as soon as circumstances will admit of it, a bed of leaves with a little litter added will be made up on the floor of the vinery, and the humidity arising therefrom will prevent the necessity of syringing at all, except on bright drying days, and the bed we shall use for forcing sundry plants that do all the better for a little bottom-heat. Got up our first Seakale for forcing, only a small quantity, for as yet there has not been sufficient frost to cut off the foliage, and, as a rule, we do not care to begin forcing till this has died away, as then it starts into growth more quickly and the Kale comes finer. We force it in pots, stood about in any warm corner about the houses covered with Seakale pots, and old sacking over these to effectually block out the light. Apples are so abundant with us, that Rhubarb forcing will not this season be required. Lightly forked over flower garden walks, sprinkled with new gravel, and rolled them till firm. Some of our other walks need the like treatment, but these will have to wait till Rose, fruit tree, and shrub planting are finished, at which kind of work we are high busy. Lifted Autumn Giant Cauliflower and a few of Veitch's Protecting Broccoli that were ready for use, and heeled them in under a north wall, where they can readily be protected should occasion require. Snow's Early Purple and White Cape are only just beginning to heart; hence the value of the two preceding varieties.

HANTS.

### FRUITS UNDER GLASS.

PINES.

Dark, dull, miserably wet days are now upon us, and the Pine grower must shape his course accordingly. Sometimes we have bright dry pleasant days throughout October and November, when the gradation from summer to winter temperatures steals almost imperceptibly upon us, and we find ourselves within a few weeks of early potting time before we realise the fact that dead winter treatment must be strictly adhered to. This year we stepped suddenly out of a bright period into a mild murky autumn, which renders the greatest caution in the management of top and bottom heats absolutely necessary. Young stock often suffers through being kept too close and warm during November and the following months, particularly when the plants are plunged near the hot-water pipes, where the roots soon become dry, and a long way from the glass often in close pits which induces



elongation of the foliage. To avoid the disasters and disappointment which generally follow these conditions, the tyro in Pine culture will do well to pay particular attention to the condition of the plunging bed, and if he finds it has subsided and become too dry or too cold, he must take advantage of the first favourable day for correcting these evils by the addition of more well fermented material and raising the plants until the points of the leaves nearly touch the glass. If, on the other hand, the tan or leaves only show a tendency to the dry side and the plants are well up to the light, the danger may be averted by the application of hot water to the bed, as disturbance and replunging during the resting months should, if possible, be avoided. In mild weather the temperature may range from 56° to 60° by night, and from 65° to 70° on bright clear days; but when it becomes cold or dark 5° less with some kind of night covering will keep the plants in satisfactory condition, provided the bottom heat does not exceed 78° or fall below 70°. If possible, a little air should be given every day if only for half an hour, and a chink on the back lights will benefit the plants during the time they are covered up at night. Stronger plants that is thought necessary to keep growing through the winter must be carefully looked to with water, otherwise, although firmly potted in 6-inch or 8-inch pots, their near proximity to the hot-water pipes may produce conditions favourable to premature starting in the spring. To prevent this mishap water should be directed quite as much to the beds as the pots, and atmospheric moisture may be secured by damping the surface with tepid water on fine mornings.

#### FRUITING PINERIES

containing plants in all stages, from late starters to others that are more advanced, must be kept at a temperature of 68° to 70° at night with a corresponding rise by day. Let the bottom heat range about 80° or 85° at the bottoms of the pots, and assist the plants by filling the evaporating pans with diluted liquid and syringing the surface of the bed with the same on fine days. Root-watering will not be nearly so frequent as during the summer months, but with strong fire-heat above and below, the plants cannot be expected to swell off their fruit without it; therefore, to prevent premature ripening, water freely with diluted liquid as often as may be found necessary, and feed the stem-roots by syringing over the tops of the pots as soon as the axils of the leaves become dry. Plants in flower and the Black Jamaica section should be kept in the driest part of the house. Cayennes and Rothschilds will stand more water and moisture. All must be well kept up to the light, and an important point will be gained by keeping the glass clean. Where only one fruiting compartment is at command, great inconvenience is sometimes experienced in the management of fruit in different stages, as it is simply impossible to do full justice to fruits that are ripening without checking others that are swelling. A small efficiently heated pit should therefore, if possible, be extemporised, if only for the winter months, for finishing off Pines that it is desirable to keep for any length of time after they are ripe. Indeed, Pines so ripened, although they may be wanted for use as soon as they are ready, are so much improved in colour and flavour that it is worth a strong effort to provide a pit in which they can have the full benefit of dry heat as soon as they begin to change colour.

#### FORCING ORCHARD HOUSE,

With such an almost endless number of extra early varieties of Peaches and Nectarines to select from, many gardeners as well as amateurs whose trellised houses are limited now obtain their first crop of fruit from trees established in pots, and very tractable and profitable subjects they are when carefully prepared and properly managed, but, like Strawberries intended for early forcing, they must have filled their pots with roots, and the wood must be well furnished with buds and thoroughly ripe by the end of August, otherwise the result can hardly be counted on as a certain success. Where such kinds as Hale's Early, Amstden June, Alexander, and Early Grosse Mignonne Peaches, Advance, Lord Napier, Murrey, and Elruge Nectarines, are in suitable condition for forcing, a batch may be taken in for starting about the end of the month or

early in December. Some of them, it is true, are not equal to our best midseason sorts, but all of them are well coloured, and their extreme earliness in a certain measure counterbalances their deficiency in size and flavour. Light efficiently heated span-roofed houses have recently become very fashionable for early work, and although they are more expensive in fuel, doubtless they are to be preferred where the situation is thoroughly sheltered, but not overshadowed by trees or buildings. In high and exposed gardens, a well appointed house placed against a south wall answers best, as the pot trees can be arranged on the front border, whilst the wall, covered with trained standard or half-standard trees, affords invaluable shelter from the time the house is started until the fruit is ripe. If head room admits, the pot trees may be placed on inverted pots for the twofold advantage of preventing them from rooting into the border and the introduction of a liberal supply of fermenting material, which will economise fire-heat and direct syringing, while the moist warmth playing about the crock roots and charging the atmosphere will favour the swelling and bursting of the flower-buds. The tree should be slowly excited at first, as forcing will be carried on for many weeks without the assistance of more than a passing ray of sunshine, but the gentle bottom heat will stimulate the roots, and a constant circulation of air will strengthen the buds and keep them well in advance of the foliage, a sure sign that the trees are not being over-excited. If frequently renovated, the fermenting leaves will nearly, if not quite, keep up the necessary warmth in mild weather; but should this not be the case, early morning will be the best time to turn on fire-heat, as it will favour the admission of more air during the hours of daylight, and insure the drying of the trees after they have been syringed before nightfall. As many failures are brought about by undue haste, the temperature through the month of December should not exceed 45° to 50° through the night, and 55° by day with a rise of a few degrees when the ventilators are open and the sun is sufficiently bright to make its influence perceptible over every part of the structure. One of the most important items in the management of pot trees is the application of water, for much as the Peach enjoys an abundant supply when in free growth, it must be efficiently, but carefully watered through the early stages. The trees should never be allowed to become dry, as such treatment would result in the loss of the best buds; neither should they be unduly watered when the compost is thoroughly moist and they do not actually require it. Soft water if at command should always be used both for watering and syringing, and great care must be observed in its application at a temperature slightly in excess of the mean of the house. Pond or river water stands next; last of all we have spring water; but this should never be used if it can be dispensed with, or certainly not until after it has been for some time exposed to the softening influence of the atmosphere. If the trees have been well top-dressed, they will not require stimulants until after the fruit is set. Peach and orchard houses should be lightly fumigated twice or thrice before the trees begin to expand their flowers; a calm day when the trees are dry answers best, and the three operations may extend over ten days or more.

#### THE FIG.

Although the Fig tree is considered fairly hardy in the south and west of England, where it succeeds as a standard, it does not pass through severe winters in the midland and northern counties, even when planted against a wall, without the aid of slight protection. Various modes, all of them more or less untidy, of affording shelter to the branches are adopted. Some allow the trees to remain against the wall and protect with small flat Yew branches neatly tucked in, and fairly well this protection answers against good walls in warm gardens in ordinary seasons, but branches alone are not sufficient in low-lying districts; where the wood is pithy and does not always ripen well. Others unvail the trees, tie the branches up in bundles, and encase them in straw or Fern, when the bundles are again fastened up to the walls. This plan during the dormant season is undoubtedly the safest, but great caution is needful when the sap begins to rise, otherwise the young points become tender and suffer from the effect of morning

frosts after they are uncovered in the spring. In such situations it may be said that the light obtained from outdoor culture does not pay for the candle. Such, however, is not the case where the system which is followed here is adopted, as we never fail in securing a good crop of Brown Turkey, still one of the best for the open wall, the Fig case, or the forcing house. Here, the first thing to be considered is the border, which is thoroughly well drained, limited in extent, and, contrary to the usual practice, composed of poor, light soil, plentifully intermixed with old mortar rubble. Although the roots are not allowed to travel beyond the line of the wall path, some 3 feet in width, they are checked every autumn, and frost is kept out of the soil by a thick covering of Fern or horse litter. When the leaves have fallen naturally, and the approach of severe weather is expected, the walls are thatched with dry Bracken—a material at once cheaper and better than straw, as it allows the air to pass through it; a broad projecting coping board shelters from snow and wet, and the trees are considered safe for the winter. Early in March we commence the removal of the Fern, piece-meal, and when the branches begin to show, frigi-domo, kept for the purpose, is dropped down from the coping every night, and drawn up on fine mornings until danger of sharp spring frosts is over. The trees are then thinned and nailed in for the season. When growth commences and the young Figs begin to push, good rotten manure takes the place of the straw mulching, and the borders receive frequent and copious supplies of water. Outdoor Figs kept in check by root-lifting should never be pinched, as they have not time to break and ripen a second point, neither should half-swelled fruits be allowed to remain on them after the last ripe Fig is gathered in September. Indeed, the operation of breaking out summer shows should be commenced much earlier, as their removal induces the formation of incipient Figs, which will pass through the winter and be the first to ripen in the following summer. How, then, it may be asked by the amateur, are we to proceed if overcrowding is not to be prevented by pinching, and by what means are we to secure a relay of young wood over every part of the tree, when it is well known that wall fruit can only be obtained from growths of the preceding year? Why, simply by training all the main branches horizontally or fan-shaped, and laying in the laterals on their upper sides. Every alternate lateral can then be cut back to a good eye, at the spring pruning, for a young growth that will be made during the summer. The laterals of the preceding season will be left to bear fruit, when they, in their turn, will be cut away at the following spring dressing. In warm sunny nooks in sheltered gardens, where trees are pruned with bill-hooks, or not pruned at all, this systematic mode of pruning and training does not find favour; but these remarks are written for growers who are less favourably situated, who cannot afford to leave a single operation neglected, and not unfrequently they succeed where others who can dally with favouring elements partially fail. In a warm, sheltered garden, not two miles from this place, there is an old Brown Turkey Fig tree from which several of mine have been raised. More than five-and-twenty years ago its branches formed a complete bower, quite 4 feet from the wall. The memorable winter of 1860 never harmed it; it receives very little attention, and yet it never fails. If the younger trees taken from it and planted on our cold marl sub-soil were treated in a similar way, we might soon require a bill-hook to cut out the dead branches; but certainly they would never carry a single fruit to maturity.

#### VINES.

*Late vineries.*—We have now entered the worst month in the whole year, particularly in low damp situations, for the preservation of Grapes in a sound condition. Dry fire heat and judicious ventilation are two important factors, but the first must be applied with great caution, otherwise the Grapes will shrivel, and the ground ventilators must not be opened when there is danger of cold, damp air being drawn in by a too rapid circulation. If every bit of lateral has not been removed quite down to the main buds in the Lady Downes house, this operation should no longer be delayed, as every young leaf and growing point



ps the sap in motion and retards the ripening of the main leaves. Until these have fallen naturally from the Vines look over the bunches two or three times a week for faulty and decaying berries, pick up the dead leaves every morning, and ply the hair broom gently when the floors require sweeping. Mark all faulty places in the roof when rain is falling and repair when fine, as it is simply impossible to keep ripe Grapes in good condition until Christmas, the proper time for cutting and bottling, where drip is constantly charging the atmosphere with moisture.

*Muscats* now quite ripe will require the greatest possible care, for if kept too warm they will begin to shrink, while, on the other hand, if kept in too low a temperature, some of the berries, often the finest, will rot at the point or canker at the footstalk. Observe every precaution with regard to ventilation and the removal of the foliage as it drops, and by way of preventing the escape of moisture from the borders, cover with a foot or more of the driest Bracken that can be secured. If not already done, apply waterproof covering of some kind to the external borders, but keep it well up above the surface to admit of a free circulation of air, otherwise the moisture that is constantly rising will be drawn through the front ventilators into the house, when the remedy will prove worse than the danger which the covering is intended to avert. Where waterproof covering cannot be obtained for throwing off cold rain and snow the next best safeguard is a good layer of long litter, thatch, or Fern. We have just completed the covering of our Muscat border with sheets of corrugated iron left open at front and back, and quite clear of the front ventilators. In wet seasons we cover a little earlier, as the Grapes are always quite ripe by the end of September, but we have this year allowed them to take more rain, as the border lies high and dry, and we have more than 2 feet of open, well-ventilated drainage beneath it. If the internal borders in late Muscat or Lady Downes houses require renovating, the work should not, as some imagine, be taken in hand as soon as the Grapes are cut, for the simple reason that the two or three intervening dead months will greatly injure the mutilated roots. The compost may, however be prepared, provided it can be kept dry and fit for use when the buds show signs of swelling in the spring.

Eastnor Castle, Ledbury.

W. COLEMAN.

## KITCHEN GARDEN.

### PEAS AND BEANS IN AUTUMN.

MANY do not sow Peas and Beans in autumn, as they think they would never stand the winter and early spring, but those who have tried them year after year know that the weather must be very severe indeed to injure them, and when properly sown and cared for they succeed very well. After sowing them in every week from the 1st of November until Christmas, I have come to the conclusion that the middle of November is the best time to put in the seed. When sown earlier the young growths are apt to become too tall before the end of December, and then the wind is almost sure to injure them. Indeed, I would prefer sowing very late to very early, as dwarf sturdy growths are more desirable at midwinter than tall ones, but mid-November sowings will be neither the one nor the other, but right, in almost all parts of the country. As to the benefits to be derived from autumn sowing, the main one is the earlier bearing of the autumn plants compared with those sown in spring, and the little trouble experienced by the November plants early in the year. When established, they are very hardy, and March and other winds which check spring-sown plants, or those put out from under glass, do little or no harm to those which have been out all winter. Autumn-sown Peas, however, will not succeed in every position. It is useless trying them in the shade, or in a cool spot. A sunny border is the proper position for them. Where the soil is heavy they must be sown near

the surface. If sown deep in heavy wet soil the seed will perish. In dealing with such soils the drill should not be more than 3 inches deep, and if made deeper some light sandy soil should be put in the bottom. Sow on the top of this, and fill up with more light soil; this will prevent the seed from decaying, and as the growths develop, the roots will penetrate beyond the light soil to the stiffer material underneath, which should be rich. In light soils they may be treated differently; trenches should be taken out to the depth of 15 inches or so, then dig in a quantity of manure and sow on the top of this. When soil is put on the top of the seed the surface of the row may be 8 inches or 10 inches below the level of the surrounding ground. This will afford them protection until the growths are strong and the worst of the weather past. The trenches need not be more than 1 foot or 15 inches in width, and the system is well worth practising. For Peas, the rows should be from 6 feet to 8 feet apart, and none but round-seeded early sorts should be sown. Earliest of All, William the First, Daniel O'Rourke, and Ringleader are good sorts for present sowing. The seed should be put in a little thicker than in summer, and snails must be kept off them or caught, especially when the young growths are coming up. Mice are also often troublesome, but the means of catching them are so many and simple, that they need not be referred to at any length here. When the growths are about 3 inches high stakes should be put to them, but undue coddling in autumn or winter only increases the chances of their being checked in spring. They are perfectly hardy, and should be treated as such. Beans of the Broad section, which is the only one that can be sown in the open now, like a strong soil, and the rows need not be more than 4 feet apart. They are less liable to meet with mishaps than Peas, but a good position should be given them, if possible, at this season. Early Mazagan is very hardy, and so is Green Gem, both of which are better for present sowing than any of the very long-podded sorts.

M.

**Planting out Cabbages.**—A good many people plant Cabbages further apart than is necessary, especially early kinds. A square foot is quite enough for an Early York. Where a brisk demand exists for Cabbages, they will be cut as fast as they become fit for use, and so anyone that seems inclined to grow a little larger than the others will have room to do so. Fifteen inches apart each way is quite enough space for the Enfield Market variety, for no one cares for a large hard-hearted Cabbage—at least, not in a private establishment. Plant in drills, and firm the plants well in the ground; I have not planted on freshly dug land for many years. Our Cabbages follow the Onions, and therefore the land is rich enough for them. A dressing of soot is, however, often given, hoeing it in deeply; the drills are drawn with the corner of the hoe, and the plants set out in the drills at varying distances according to kinds, but mostly 12 inches to 15 inches apart. —E. HOBDAV.

**Late Potatoes.**—These are by no means so good a crop as was anticipated early in the summer. The protracted drought has seriously affected the yield, and the tubers are mostly small. Early sorts, such as the varieties of Early Rose, Beauty of Hebron, White Elephant, and others of that type, produced good large tubers before the drought much affected them; and late varieties, up to midsummer, looked most promising. Aided in growth by slight showers, they made an exceptional quantity of haulm, but very hot weather setting in during July and August, accompanied by parching east winds, arrested the crop in the very midst of its growth, and the extra amount of haulm acted injuriously by reason of excessive evaporation. The moisture of the early part of the season having induced more surface roots to be made than in seasons that are continuously dry, they were,

therefore, sooner affected by drought than they would otherwise have been; at least, such is my experience. In the summer of last year the drought set in earlier, yet we had a capital crop of all kinds of Potatoes, but not nearly so much top growth. —J. GROOM.

## NOTES OF THE WEEK.

**Finsbury Park.**—The display of Chrysanthemums in this park is uncommonly fine this year. There is an extensive collection, comprising the best of the old sorts and a large number of new. The arrangement of the groups is likewise better than has been carried out here previously. Such a fine free exhibition as this is highly appreciated, especially by residents in North London.

**Vanda cœrulea.**—A considerable number of the species of Vanda are much healthier and flower better when grown in a house of intermediate temperature than when kept all the year round in a tropical or what is usually termed an East Indian house, and to this number belongs the beautiful blue Vanda. It may, of course, be kept in fair health in an ordinary stove, but only if it be removed into a lower temperature, say 55° to 60° by day, and 50° by night for the three or four coldest months of the year. In the summer this plant likes light, heat, and moisture in abundance; it should be grown either in baskets, so that it can be suspended near the glass, or if planted in cylinders, as is usually advised for this plant, they should be placed as near the glass as possible. No peat is necessary—at least we find the plants thrive best without soil of any kind, a few crocks in the bottom of the baskets or cylinders and a layer of living Sphagnum being all that is required. When healthy and properly rested, V. cœrulea is the freest flowering of all the Vandas, plants not more than 6 inches high often producing two and even three spikes with from eight to a dozen flowers upon each, and the flowers are as much as 3 inches across, well filled in, of good substance, and in colour varying from pale milky blue to a good sky blue. There are plants of this species now in flower at Kew.

**Ipomœa Horsfalliæ.**—Planted out in a bed of rich soil and liberally supplied with water, this fine Bindweed makes most luxuriant growth every season, and in the early part of winter this growth produces an abundant crop of rich very deep rose-coloured flowers, which in November and December are most welcome, as indeed such beautiful flowers would be at any season of the year. The buds of this species are almost black and shining like Sloes, and they are produced in dense cymes, which spring from the axils of the leaves, almost every axil producing its bunch of black buds, which expand one by one. For covering pillars or for draping the sides of a stove, or for any position where a vigorous growing free-flowering climber with handsome dark green foliage is required, this Ipomœa is unsurpassed. There is a fine specimen of it trained along from pillar to pillar, and covering several rafters in the stove at Kew, and this plant is now covered with flower buds, which have already begun to expand. In the Water Lily house in the same establishment is a plant of the new I. Thomsoniana, which will flower freely in a week or so, as it now bears a good number of buds. In the same house I. rubro-cœrulea, both the blue and the white-flowered forms, is also just now commencing to flower. This last is an annual of very rapid growth. We gave a coloured plate of it in the last vol. of THE GARDEN.

**Impatiens Jerdoniæ.**—This rare little Indian Balsam is a most beautiful flowering plant of free growth when liberally treated, but owing to the belief that much care or rather coddling is necessary to keep it alive, it is rarely allowed to display to the full its free-growing free-blooming characters. In the T range at Kew may now be seen a specimen of what we should call very exceptional size and beauty. It is planted in a large pan of soil, as rich as is used for I. Sultan, and is liberally supplied with water, and in consequence of this treatment it is now 8 inches high by nearly 2 feet in diameter, the branches hanging over the sides of the pan, and completely hiding both it and the soil. The leaves are of a bright soft green, and springing from the axil of



almost every leaf is a flower-stalk bearing on its end a bag-like flower, an inch or more in length, the bottom pointed and curving outwards, whilst the colour is a brilliant scarlet with bright yellow round the top. These flowers in their form have been aptly compared to a sabot. The stems of this species are thick and fleshy, which no doubt enables it to survive the seasons of excessive drought, which in its native country succeed the growing seasons. Under cultivation the plants require to be kept dry for about three months immediately after they go out of flower.

**Sonerilas.**—These pretty little stove plants deserve to be more widely known than they appear to be, for no plants of the same size are capable of making a greater display than is made by a collection of *Sonerilas* when nicely grown. The prettily mottled and marbled foliage which characterises many of them is of itself a sufficient charm to win for them a place among favourite ornamental-leaved plants, but when seen covered with little bunches of pale flesh coloured flowers they are really delightful. To keep them in health they require a tropical moist house in which they should have a position near the glass; they should be kept constantly moist at the root, and be syringed once or twice a day during the summer. It is a mistake to suppose that either these plants or their cousins, the *Bertolonias*, do not like a liberal supply of water, for our experience with them has proved to us that it is only when the moisture at the root and overhead is tardily given that these little *Melastomads* grow weakly and fall victims to spot. A collection of some of the most distinct of the *Sonerilas* is grown at Kew, and these are now covered with flowers. Some of the plants are growing in wire baskets a foot across, and are simply dense balls of silver-spotted foliage and graceful flowers. In winter these plants are removed into a propagating house, and kept on the shelves till the spring.

**Schizostylis coccinea.**—This plant is known in many gardens only as a useful pot plant for cultivation in the greenhouse and conservatory, where its rich cardinal flowers are welcome for autumn and winter decoration; but its beauty when grown in pots is as nothing compared with the display which it makes out of doors when planted in a moist, sunny border. The leaves retain a healthy green, and the flower-spikes are tall, stout, and well clothed with bloom, which expands even in dull, frosty weather, whilst in sunshine their petals spread out to their fullest extent, and simply glow with colour. A large patch or colony nestling against a south wall or under a warm hedge has at this time of year a special charm, lending as it does a warmth which in the dull, foggy days of November is rather exceptional in gardens generally; and yet no garden, not even the smallest, is incapable of growing this beautiful *Ixiad* to perfection, and we hope in time to see it as plentiful as the Pansy. A pinch of seed sown in a pan in spring, and the seedlings afterwards pricked out on a bed of rich soil, will yield a stock of strong flowering plants in a single season. It likes water, rich soil, and bright sunshine, and, more important still, it is not injured nor prevented from flowering by frost or fog in autumn. It may now be seen in fine condition against the Orchid house at Kew.

**Nerines.**—From Dr. Cam, of Hereford, who has been successful in raising several distinct crosses from *Nerines*, we have just received a set of flower-heads of some pretty kinds. He writes: "I think you cannot bring the *Nerines* before the readers of THE GARDEN too often. By the remarks you have inserted lately in THE GARDEN, you may induce many growers of conservatory flowers to cultivate the *Nerines*, and others who are well acquainted with them to send you their experience with different varieties, with the view to assist in reducing the confused nomenclature of the genus to something like order. I send you a flower of *N. flexuosa*, which I received some years ago from Messrs. Henderson as the true plant of that name. [A distinct form, with a compact head of a dozen flowers, each of which is of good substance, broad petalled, arranged as in *N. pudica*, and about the same size, whilst the colour is white, tinged with pale rose, and with a band of a deeper rose down the

middle of each segment; it is no doubt a seedling from *N. pudica*, crossed with some other kind.—ED.] I also send a flower of *N. Fothergilli* × *undulata*, which I raised some years ago, and which I have dispersed under the name of *N. Cami*. [This is said to produce flowers at the same time as the leaves; the umbels are composed of about ten flowers on tall stalks, each flower 1½ inches across, bell-shaped, the segments linear, sharp-pointed, edges wavy; colour rosy pink, flushed with blue. It reminds us of *N. O'Brieni*.—ED.] You will also receive a flower of *N. flexuosa* × *undulata*, named by me *rosea-crispa*, and another from the same parents with broader segments." [Is this last what we received from Dr. Cam in 1883 as *N. erubescens*? Both of the last-mentioned are pretty and of good character as regards size and texture; they may be considered as belonging to the *N. undulata* or *crispa* set, upon which, however, they are improvements. We shall be glad to get flowers or information respecting *Nerines* from any of our readers, as we propose shortly to give a comprehensive account of the genus as far as is possible with the material and information in our possession.—ED.]

## FLOWER GARDEN.

### OUTDOOR CHRYSANTHEMUMS.

ON a late autumn day, when the wind is rough and keen from the north, and the drifting leaves have hidden the few Violets and Colchicums, or whatever remnant of flowers the frosts have spared the borders, it is delightful to walk down a long south wall covered with a sheet of Chrysanthemums. I speak of the varieties which are usually seen under glass at this season, not of the earlier-blooming sorts, which, it must be owned, are, with very few exceptions, entirely inferior in form, colour, and value, since they come when there are still plenty of other hardy flowers to be gathered. Such a wall I have in my garden, made, like most of our old garden walls in this neighbourhood, of flint and chalk rubble, protected from the weather by a coping of thatch, which, with a thicket of overhanging trees and shrubs, makes an efficient screen from frost and wet for all flowers beneath its shelter. Here my Chrysanthemums safely withstood more than a dozen degrees of frost last year, brightening some 120 feet or 150 feet of wall with masses of lovely colour throughout November, and even far into December, and here they are again expanding their beautiful blossoms in increased numbers. To those who are ignorant of Chrysanthemums, except under glass, and can find them such winter quarters as these on a sunny wall with some sort of coping, I will give some brief directions from my own experience, and can promise them a new pleasure; for grown out-of-doors after this fashion these Chinese and Japanese Daisies are green of leaf and stiff of stem far beyond their companions indoors; their colours, too, are rendered distinctly more vivid when no film of glass comes between them and the sunlight. Moreover, the greenhouse may thus be reserved for a precious store for Christmas and new year of late-blooming kinds, for all varieties, except the very latest, may safely be entrusted to a warm wall topped with a permanent or temporary

coping of glass, thatch, or board, wide enough to secure the perfect dryness of the flowers in all weathers. My thatch is 20 inches wide, and under it the flowers are always dry, and therefore indifferent to a few degrees more or less of frost. The most successful and least troublesome plan of cultivation I find to be the following: Supposing that cuttings of desirable varieties have been taken and grown on in the ordinary way to strong plants in flowering pots by the middle or end of June, I then stretch a few temporary fences of strongish stakes and galvanised wire across the whole width of my kitchen garden wherever a narrow strip of ground can best be spared between the vegetable crops. About 6 feet above the ground will be found a suitable height for the stakes, which may stand about 4 yards apart. Those which I use are such as can be bought of a woodman for about eighteenpence a dozen, and with care will last some years. Five lines of wire thin enough to stretch easily and cost little will suffice for this height of stake; in a less windy garden than mine fewer might do. Run a brush dipped in common white paint once over the wires; this is quickly done, and will prevent them from injuring the young shoots, and help them to last a very long while. Stand the plants along these fences on slates, tiles, or ashes, and as they grow tie them securely to the wires; thus no winds will break them, and each branch will get the fullest benefit of air and sun, while they are conveniently placed for inspection and watering. The pots need not be placed more than 1 foot or, at the most, 18 inches apart, for the branches may cross one another a little without injury; care, however, must be taken to tie them all to the same side of the fence, that they may easily be removed.

**STOPPING.**—As a rule, I stop my plants once, but it is well not to treat all the plants alike in this respect. Some varieties, such as *Barbara* or *Julie Lagravère*, are naturally dwarf and branching, and require no pinching back; others, such as *Roseum superbum* and *Jardin des Plantes*, are of so tall a habit as to almost outgrow a wall if not a high one. These should be stopped at least once. When several plants of one kind are grown, it will be advisable to let some grow to their natural height and shorten the rest; in this way they will flower at different heights, and some earlier, some later, since stopping retards the flowering.

**DISBUDDING.**—A further irregularity in height of plant and season of flowering may be secured by preserving in some plants the earlier, in others the later buds; and the greatest difference in habit of flowering is obtainable by a judicious variation in the disbudding process. Thus *Elaine* and *James Salter* will, if severely disbudded, give immense single blooms; if all, or nearly all, their buds are suffered to remain, they will produce large sprays or clusters of flowers, varying and beautifully contrasting in size.



By an irregular treatment in these respects the beauty of a wall of Chrysanthemums is much enhanced; the dwarf plants, interspersed with the tall, break the uniformity of the line of bloom, the staple varieties of foremost excellence are made to considerably prolong their period of blooming, and the flowers may be admired or cut now singly and now in bunches. But, speaking of the plants as a whole, it is well not to disbud too severely, for the wall should be well clothed with bloom, and enormous flowers of "exhibition" size, whatever may be thought of their beauty, are certainly not nearly so useful for all ordinary purposes as those of more moderate dimensions. It will also be found that the warmth afforded by the surface of the wall gives an additional ripening to the wood, which brings a mass of medium-sized flowers to a greater fulness and perfection of form than they reach under other conditions.

**FEEDING.**—As a general rule it is wise to give no strong stimulant until the flower-buds are visible. Weak clear soot water twice a week will keep the plants strong and healthy through the summer; then the pots may be surfaced with an inch of old stable manure or a pinch of some artificial preparation as soon as the buds can just be seen, and when they have grown to a good size, sulphate of ammonia or some other liquid stimulant may follow. Experience, however, will point out exceptions to this rule. I find that Elaine and a few others of the more vigorous and free-blooming sorts are improved by a stronger diet in their earlier stages. Early in October the plants may be cut loose from the wires and transferred to their winter home. This is an easy operation, since they will already have been trained flat so as to need very little fastening to make them cover the wall in a natural way. The pots should be plunged as close as possible to the foot of the wall (under my permanent coping the soil is loose and dry), and the branches lightly fixed with a few small nails and shreds, or tied to Roses, Ivy, &c., wherever the wall is clad with them. My wall is at the back of a flower border, but I find that a few old bricks put down for stepping-stones quite prevents any harm being done to the plants.

**SUITABLE VARIETIES.**—As observed already, all but the very latest may be grown successfully in this way. The following, which I have at present on my wall, will be found a useful selection. Those marked with an asterisk (\*) should be grown in quantity: *White*—\*Mrs. Rundle, Empress of India, Album plenum, \*Lady Selborne, \*Elaine, Mdle. Lacroix, and Mrs. Forsyth. *Sulphur*—\*George Glenny and Golden Empress. *Golden*—\*Mrs. Dixon, Jardin des Plantes, and \*Fulton. *Bronze, &c.*—Barbara, \*Pile des Plaisirs (or early Red Dragon, a most excellent variety for this purpose), and Source d'Or. *Red*—\*Julie Lagravère, Prince Alfred, Mons. Moussillac, \*Tokio, and Cullingfordi (very fine indeed). *Pink*—Alfred Salter, \*Bouquet Fait, James Salter, \*Roseum su-

perbum. Treated in this way, Chrysanthemums may fairly take rank with hardy flowers. Even when grown in pots, as they must be where the coping of the wall is permanent, their culture is not so artificial as that bestowed upon many alpine, &c. Certainly nothing can take their place for brightening the dull months and helping us to make both ends of the year meet with an abundance of flowers. By growing my main stock of Chrysanthemums in this way out-of-doors and filling my small greenhouse with the latest varieties, I succeed every year in making the last Chrysanthemums greet the first Snow-drop. On November 3 (on the morning of which day the Grass close to the plants was stiff and white with frost) I gathered a handful of flowers from my wall as an average sample for THE GARDEN, and have no doubt



The Rue-leaved Knapweed (*Centaurea rutæfolia*).

that I could send more and as good three weeks or a month hence.

G. H. ENGLEHEART.

*Appleshaw, Andover.*

\* \* Along with the above came some lovely blooms of Chrysanthemums from a south wall out-of-doors. The latter, Mr. Engleheart informs us, is between 40 yards and 50 yards in length, and is covered with Chrysanthemum blooms charming in colour and large in size for plants not severely disbudded.—ED.

**Narcissus major superbus.**—In spring, should there be flowers of this Daffodil in condition at Tooting, when the committees meet at South Kensington, it will afford me great pleasure to put before them my specimens. I will, however, leave it to Mr. Engleheart to guide the committee, and if he does not possess the *Gardeners' Magazine of Botany* with the plate of *N. major superbus*, I will lend him my copy for the occasion. In fact, I will afford him every opportunity to disprove, if he can, the correctness of my conclusion. If Mr. Engleheart left my Daffodil grounds last spring in "hungry expectation," he had a remarkably curious way of showing his feelings. I am certain that during the hours he spent amongst the Daffodils he could not have looked at one-third of them, and I am sure did not examine a

tenth part of them, and then appeared to be suffering from repletion. I have no recollection of his asking to see *N. major superbus*, or I could have shown him the plants in bud. Surely Mr. Engleheart does not seriously mean it to be understood that he last spring sent me flowers of his supposed "twins" of *N. major superbus*, and I "denied them even the remotest kinship." Would he kindly favour me by narrating the circumstances and giving the date or dates relating to the occurrence?—PETER BARR.

#### GARDEN KNAPWEEDS.

KNAPWEEDS, or Centaureas, are, perhaps, next to Michaelmas Daisies, the largest genus belonging to the huge Order of Composites in cultivation, and although large numbers of them may be unceremoniously dismissed from gardens as unworthy of a place there, the variety in height, colours, singular flower-heads, and ornamental foliage of those remaining give us ample opportunities for selecting sorts suitable for almost any purpose or position. Such as Sweet Sultan (*C. moschata*) and its handsome varieties, the annual Blue-bottle (*C. Cyanus*), and others may well form part of every collection, however small. Than these, few of our ordinary hardy summer-flowering plants are more easily managed, or give such a good return for the labour expended on them. They simply require sowing in autumn or early spring, keeping them free from weeds, and singling them out or thinning them to avoid overcrowding. The ornamental-foliaged kinds, such as *C. Clementei*, *C. candidissima*, *C. ragusina* and its variety *compacta*, *C. argentea*, and many more that might be added, are extremely useful in summer for edging beds, both out of doors and in the conservatory, and also for pot culture. Most of them will stand the winter in light well-drained soils in the south, and charming plants they make dotted here and there on a well-sheltered rockery, or even clumped in the open border. Where grown for the sake of their foliage alone, much of their beauty is lost by allowing them to flower. One, if it will, may, however, be allowed to ripen seed, but we prefer propagating them by means of cuttings, and we also lift and pot our old plants when the beds or borders have to be cleared for spring bedding. *C. dealbata*, which may be taken as the type of the medium-sized class of Knapweeds, includes many really beautiful border and rock plants, all of which are easily managed as far as keeping them within bounds is concerned, and a few of them are most useful for their green foliage during the winter season. *C. dealbata*, which is a hardy perennial, bears large rose-coloured flowers, and makes a handsome border plant. The mountain Knapweed (*C. montana*) also makes a handsome border plant; its flowers resemble those of the Blue-bottle, but are in larger heads. It is grown for market, where it is much in request. *C. rutæfolia*, represented in the annexed illustration, combines beauty of foliage and passable flowers. Its leaves, which are deeply divided, are covered with a fine wool, like that of *candidissima*, as is also the whole plant; it has very numerous branches, and each bears two or three flowers. Amongst tall-growing members of this genus may be mentioned *C. sphærocephala*, a kind with curious large spiry heads; *C. babylonica*, *C. busambarensis*, &c., all of which are suitable for backs of borders or for planting in shrubberies, the two last-named kinds being specially interesting. K.

**The pot Marigold.**—We sowed a number of patches of this annual in the kitchen garden borders in April last. The produce of this sowing came into



bloom in July, and has been in flower ever since. At the present time plants of it are more fully in flower than any other annual, and their large flowers are exceedingly showy both on the plants and in a cut state. There are crowds of buds yet to open, and to all appearance blossoms will be continued up to Christmas at least. I do not know of a better very late flowering annual.—J. MUIR, *Margam, South Wales.*

### SEEDLING DAFFODILS.

TAKING the first paragraph of Mr. Engleheart's article in *THE GARDEN* (p. 456), I suppose he means by "all the world" the United Kingdom; if so, the postscript to Haworth's monograph proves beyond a doubt that he had an extensive knowledge of Daffodils as living plants, and Dean Herbert confirmed this in his "*Amaryllidaceæ*" (pp. 292-332) by continually referring to Haworth's plants, and confessing that he had not seen the flowers. Haworth, in the postscript just alluded to, writes thus: "For the liberal presentation both of many roots and specimens, without which the foregoing Enumeration of Narcissæan Plants could not have been completed, I have to thank the following Royal and Public Gardens, Private Gentlemen, and Nurserymen" (then follow the names of those alluded to). Haworth continues: "In the course of the above Enumeration will be found all the species and varieties contained in the just-published seventh volume of Schultes' celebrated edition of Linnaeus's '*Systema Vegetabilium*,' and nearly all the species and varieties of Parkinson are likewise given; a few from the less accurate '*Hortus Eystettensis*,' the rare '*Campi Elysii*' of Rudbeck, Barrellier's '*Icones*,' the '*Florilegium*' of Swertius, Trew's '*Floræ Imagines*,' the '*Theatrum Floræ*,' Madam Merian's '*Icones*,' and many other works." Then Haworth further states, "I have carefully preserved specimens of almost the whole, and they will be hereafter my vouchers for the truth," and towards the close of the postscript are these words, "Half a century's experience constantly amongst the living plants might be expected to have effected more. But *non omnia possumus omnes*." From the foregoing, I fancy readers of *THE GARDEN* will not think the less of my work amongst Daffodils in my endeavour to fit into the "empty labelled pigeon-holes" of so great a master species and varieties of Daffodils, which I have no reason to suppose are modern seedlings, and that come to me from so many sources. I have never made any secret of how I matched the plant to the "empty labelled pigeon-hole," and I am grateful to Mr. Engleheart for affording me the opportunity of thus making the fact publicly known, as it may stimulate others to do likewise, and this will be a great boon to garden nomenclature. I by no means hold my conclusions to be beyond challenge, but it is something for me to know that the twenty years during which I have been working on Daffodils have not been lost, more especially as the plants have now a fixed name instead of several names. That Haworth did not know the Welsh Peerless Daffodil is not remarkable, as it may have been one of Leeds' escaped seedlings, or it may be a plant of ancient date; be that as it may, I am sending Mr. Burbidge papers to investigate that may lead up to a knowledge of the origin of this plant.

I was, perhaps, the first in this country to flower *spurius coronatus*, and whether a modern or ancient plant of Dutch gardens, I have not yet been able to discover. I do not think, however, that there is an "empty pigeon-hole" into which it will fit. With regard to Irish *Narcissi*, if Mr. Engleheart will send me flowers,

I will try and match them. I have a great many correspondents in the green isle, and some of them are assisting me in every way they can as regards *Narcissi*. Up to last spring there are but two, a white and a yellow, for which I have not found an "empty pigeon-hole," but this may be my fault. I may yet discover that Haworth knew them. Mr. Engleheart appears to have conceived an exaggerated opinion of Herbert's knowledge of Daffodils. I entirely fail to discover that either he or Haworth troubled themselves much about having Daffodils collected from their native habitats, but confined themselves mainly to the fine collections then existing. I fail also to discover any evidence that Dean Herbert was in the habit of distributing his plants, and were anyone to trace up the subject and find who the dean's successor was at Spofforth, very likely they would find that he cared nothing for plants. The dean died, if I mistake not, somewhat suddenly, and his *Croci*, *Narcissi*, &c., doubtless shared the fate which has happened to the collection of many another industrious amateur—*i.e.*, wasted or sold.

In regard to paragraph two (p. 456), I do not wish Mr. Engleheart to attempt to prove anything that is impossible. That *Narcissi* were widely distributed in gardens throughout the country we have no evidence whatever, and as to the wholesale extermination in favour of *Geraniums* and *Calceolarias*, I doubt not that any amount of rubbish was thrown out of gardens, but very few really good plants. We are greatly indebted to the bedding-plant mania, inasmuch as it cleared our gardens and lasted long enough to prepare the soil for a new and better state of things. As to paragraph three (p. 457), I am of opinion that neither Leeds nor Backhouse had any of Dean Herbert's seedling Daffodils; and as regards the insinuation that Leeds slavishly danced to Dean Herbert's music, let us turn to Herbert's "*Amaryllidaceæ*" (pp. 306 and 416), where he discusses *N. Sabini*. He there claims for it specific rank, and now that we have the work before us of the two great hybridisers, whose productions are the joy of many, it will be seen that both men raised forms similar to *N. Sabini*, and which I named *N. Nelsoni*; but what says Leeds in the *Gardener's Magazine of Botany* for 1851 (p. 169):—

There is no end, Leeds writes, to the varieties and elegant forms that may be obtained. It is quite clear, however, that *incomparabilis* is no species. I think *bicolor* is not a species, and that the number of species is very small. The late Dean Herbert, in his papers on this tribe, mentions *N. montanus* (or *Tros poculiformis*) as being difficult to obtain seed from. I have three crops of seedlings from this crossed both with long and short-tubed kinds; it will cross with *Ajax* of all sorts, with *poeticus* and *angustifolius*, and I think with the Rush-leaved species. *Calathinus*\* never seeds with me, but its pollen fertilises the long-tubed species. *Bicolor* seeds occasionally, but not freely; I have varieties from this with *angustifolius*, *poeticus*, and *poculiformis*, also *pumilus*. They are all very distinct and curious. *Moschatus* and *tortuosus* seed pretty freely; they will cross with *poeticus*, *poculiformis*, and any of the long-tubed kinds, and the produce is always beautiful. I think much remains to be done in the production of fine hybrids of this beautiful tribe of plants, and it may be mentioned these are not ephemeral productions, like many modern florists' flowers, but will last for centuries with very little care, as the common kinds have done in our gardens. To obtain good varieties it is needful the previous season to plant the roots of some of each kind in pots, and to bring them into the greenhouse in spring to flower, so as to obtain pollen of the late flowering kinds to cross with those which otherwise would have passed away before these were

\* *N. calathinus* referred to is doubtless *N. odoratus* (see *Bot. Mag.*, vol. xxiv., tab. 934).

in flower. With me the plants always seed best in the open ground. When the seed-vessels begin to swell, the flower-stems should be carefully tied up and watched until the seeds turn black. I do not wait until the seed-vessel bursts, as many seeds in that case fall to the ground and are lost, but take them off when mature with a portion of the stem, which I insert in the earth in a seed pot or pan provided for their reception. I place them in a north aspect, and the seeds in due season are shed, as it were, naturally into the pot of earth. I allow the seeds to harden for a month on the surface before covering them with half an inch in depth of sandy soil; the soil should be two-thirds pure loam and one-third sharp sand, the drainage composed of rough and turfy soil. In October I plunge the seed-pots in a cold frame facing the south, and the young plants begin to appear in December, and throughout the winter according to their kinds and the mildness of the weather. It is needful in their earliest stages to look well after slugs and snails. The seedlings should be protected from frosts, but should have abundance of air, or they will soon become drawn. As soon as they will stand exposure, plunge the pots under some sheltered wall or hedge, and they will form their first bulbs. Let them become dry in summer, and if it be a wet season, turn the pots on their sides until the time for them to grow again. Let them remain in the seed-pots, and top-dress them with fresh loamy soil. When the bulbs are two years old, prepare in an open airy situation a bed of good loam mixed with sharp sand; prepare the bed as for Tulips, &c., covering the entire surface with sand, in which the bulbs should be embedded; plant the roots in rows 3 inches apart, and each root an inch apart in the row. They will stand three years in this bed, when they may be finally removed into a fresh bed of similar soil to flower; a few will flower the fifth year, but the greater portion not until the seventh. I do not take up the flowering roots oftener than every third season, but top-dress the beds every autumn. A little thoroughly decayed hotbed manure mixed with the surface soil aids them to produce fine flowers, but it must be well decomposed, or it will do harm. The beds should be well drained, the prepared soil at least 2 feet deep, and the situation sheltered from north and east winds, which do much damage to flowers.

In reference to paragraphs four and five (p. 457), I shall, I trust, in the spring of 1886 be prepared to produce proof as to my conclusions regarding Dean Herbert's seedlings figured in the Linnean Society's Transactions—first, that figure 3 is reproduced in *N. Burbidgei* Little Dirk; figure 5 is reproduced in *Incomparabilis* Mary Anderson; and I will go further, and suggest that this latter may not have been a seedling of Dean Herbert's at all.

At page 312 of the "*Amaryllidaceæ*," Herbert says: "I have seen the Orange Phoenix, when becoming semi-double, with the three styles quite distinct. They were parted in the process of doubling the flowers, and when it became accidentally single they were not re-united." Thus Herbert knew of Orange Phoenix becoming single, and his flower (fig. 5) is most probably Single Orange Phoenix, and the Dutchmen are of opinion that Mary Anderson is simply Single Orange Phoenix. The red loop round the cup of the flower figured in the plate of the Linnean Society is doubtless an error of the colourist, and stands for nothing. As to fig. 2, let anyone take a young flower off a weak bulb of *albicans* and put it beside the plate, and they will, I think, be of my opinion. Fig. 6, *Queltia incomparabilis*; fig. 4, *Spofforthæ* var. *spurius*—Dr. Lowe will be able to match these in one flower, and if not, I daresay I can in 1886. It is generally supposed that *N. albicans* is a wild Pyrenean plant, but up to the present time there is no evidence of its having been collected wild. If Mr. Engleheart's anticipations are realised, then we may expect to find in a wild state many others of our garden *Narcissi*. The white



Daffodil collected last April on the Pyrenees I am expecting will prove to be *N. moschatus*, or if not, it will be *N. cernuus*; but of this I shall know for certain, as I have roots collected two years earlier from the same locality. On what authority does Mr. Engleheart base his opinion that *N. minor* does not exist on the Pyrenees? Taking Parkinson as my authority, I should think we have only as yet touched the fringe of the mine of wealth in Daffodils to be found in the higher Pyrenees, districts seldom trodden by the foot of man.

As to paragraph six, Leeds states the age of seedling Daffodils before flowering to be from five to seven years; Herbert, on the authority of Miller, says five years, but the flowers are finer the two following years. Personally, my experience is but relative, and I suggest from what I know that a batch of seedlings may be twelve years in hand before all have flowered. My aim is to show that the prospects of new Daffodils raised from present sowings are remote; and, further, that the young fledglings may not have plumage equal to that of standard kinds. If Mr. Engleheart will in spring bring a handful of his poeticus angustifolius to the Daffodil show, a comparison can then be made between it and the Burbidgei group.—PETER BARR.

—Mr. Engleheart is quite right in telling us frankly of his own individual opinions as to what are good Narcissi, and *vice versa*, and I am very pleased to see him glorify the good work done amongst the Daffodils and other plants by the late Dean Herbert. On the other hand, all this might have been done without in any way detracting from the merits of other workers in the same field. When Mr. Engleheart tells us (p. 456) that "Haworth for the most part followed Parkinson, taking him largely on trust, and did comparatively little in the way of searching for living plants," he is making an assertion which I challenge him to prove. The fact is that Haworth was most assiduous in his searching after living Narcissi of all kinds, and the collections in Young's nursery, as also those at the Horticultural Society's gardens, and in the Apothecaries' (or Physic) garden at Chelsea, were, in a great measure, the result of his labours, which at least extended from 1819 to 1830. The late Mr. Osborn, of Fulham, showed me the remains of Haworth's collection of Daffodils in that nursery in 1872, at which time they certainly bore Haworth's generic and specific names—quite a common thing—indeed, the best system known until Mr. Baker published his classification in 1869. Haworth was constantly in communication with Narcissus growers, and some of his letters which I have seen prove him to have had a more than mere superficial or book knowledge of these flowers. To Haworth, and especially to the late Rev. H. T. Ellacombe, then of Bitton, lovers of Narcissi owe far more than most of the present day growers are aware; in fact, it was mainly owing to the exertions of these gentlemen and to those of Salisbury, Sabine, and Sweet that Dean Herbert was enabled to study the genus so well as he did in his "*Amaryllidaceæ*" (1837), and later in the journal of the Royal Horticultural Society (1847).

I have now before me a letter written by Herbert himself from Spofforth on August 30, 1828, in which he regrets not being able to assist a correspondent in these words: "I should be very willing to assist you in making your collection [of Narcissi] if I were able, but I really have never much attended to the Narcissi." This is a suggestive statement, and that Herbert did take up the Narcissus was,

no doubt, mainly due to the authors and cultivators above named. That his views were far in advance of Haworth's from a physiological point, I willingly at once admit, but Haworth's work had made his studies easy, and instead of being thankful for this, he kicked down the ladder up which he had climbed. Again, Mr. Engleheart is a day behind the fair in attributing the practical work of the late Mr. Backhouse and Mr. Leeds to Dean Herbert's publications. Mr. Brockbank suggested this some time ago (*THE GARDEN*, 1884, Nov. 29, p. 455), and, as I pointed out in a subsequent number of *THE GARDEN* (December, 1884, p. 496), a correspondent of a contemporary suggested the same thing as long ago as 1879 (see *Journal of Horticulture*, May 22, 1879, p. 383). Mr. Engleheart will find a description and references to figures of Leeds' earliest authenticated hybrids with their parentage in *THE GARDEN*, 1884, p. 426.

Mr. Barr is alive and quite able to defend himself, and, considering what he has done for the popularity of Daffodils, he can afford to take good-humouredly remarks so harmless as are those of Mr. Engleheart. But Haworth, Leeds, Backhouse, and Horsefield are not with us, and I for one would rather utilise what is good in their labours than fling stones at their work.—F. W. BURBIDGE.

#### GROUPING HARDY PLANTS.

IT must be apparent to visitors to Kew that during the past few years the Royal Gardens there have been greatly improved from an ornamental standpoint, both in the houses and out-of-doors. At last it seems to have been discovered that the garden may be made attractive without in any sense detracting from its value as an educational garden. Every year witnesses some important improvement; the plants in the houses are made to assume a more natural appearance; pots and stages are being abolished where practicable, and the interiors of the houses are thus made to look better. But perhaps the greatest strides in this direction have been made out-of-doors. Now no longer can it be said that Kew has no decent rock garden, for the new one could be made, by means of a few alterations, one of the finest in the land, not only admirably suited for all kinds of mountain plants, but also picturesque in appearance. The work of improvement may also be seen in other departments, more particularly that devoted to hardy plants. Here there has been a laudable attempt, and a most successful one, too, to group the families, or rather genera, in a bold way, and beautiful effects are the result. The beauty of a group of Flame Flowers (*Kniphofias*) in September was so striking, that we at once obtained a photograph of it, and annexed it a reproduction of it. This group consists of all the species and varieties of *Kniphofia* grown in the gardens, and being of various sizes the effect is excellent. The giant variety of the common *K. Uvaria*, which appropriately bears the name of *grandis*, may be seen above all the rest, while others of varied stature fill up the space between this and the boundary line, held by the modest little *K. Macowani* and other dwarf sorts. The various shades of colour also add a charm to the combination, and as an example of a picturesque group it is well worthy of illustration. Here we have botanical grouping, and see no reason why other genera could not be so massed? What beautiful effects could be produced by groups consisting of such large genera as *Asters*, *Evening Primroses*, *Larkspurs*, *Sunflowers*, and we can imagine

how delightful bold masses of such noble-leaved plants as *Acanthus*, *Polygonums*, and *Yuccas* would be. By carrying out a system of natural grouping it is evident that the grounds at Kew might be made far more attractive, and the public would appreciate them even more highly than it now does; nor would the scientific value of the garden be lessened in the least. We should then probably see better grown specimens of hardy perennials than now exist there, for then the plants could be arranged as best suited their requirements. Let us look forward to the time, then, when Kew may be an example of true gardening from an ornamental, as well as from a scientific, standpoint. We hope to give other illustrations of what we consider to be commendable features of Kew created during the past few years.

#### THE SO-CALLED GERMAN IRISES

I HAVE so often to explain to my friends that the "German Irises" of the trade have nothing to do with *Iris germanica*, Linnæus (the error being sometimes aggravated by such phrases as "50 best varieties of *I. germanica*"), that I should like to take an opportunity to state how the case really stands.

*I. GERMANICA*, Linnæus, is the well-known large blue Flag, an old inhabitant of our gardens, flowering with us in May or June, a native of Central and Southern Europe, and also found, with variations, wild in Asia. It may be recognised by the shape and colour of its flowers, by its spathe valves, by its long ovary, and especially by its inflorescence. So far I have met with some half dozen Irises which I can admit as varieties of *I. germanica*. One of these, figured as *I. nepalensis* in Bot. Reg., t. 818, and often called *I. germ. var. nepalensis*, or *var. orientalis*, differs from the type chiefly in size, but somewhat in colour. Another form is of the same size and shape as the type, but differs in having more red in its purple.

There are also the varieties known as *I. germ. var. purpurea*, *violacea*, *atropurpurea*, *atroviolacea*, all self-coloured or nearly so, *i.e.*, with the outer and inner perianth segments of nearly the same colour, differing, however, in growth and stature, in depth of tint of colour, and to some extent in the form of the perianth segments, but all exhibiting the characteristic traits of *I. germanica*. *I. australis* (Todaro) and an Iris which I have received as *I. Kochi* seem to be identical with one or other of these self-coloured varieties, all of which I imagined to be natural wild varieties, though I have so far failed to learn their exact habitats. A wild Iris from Northern Asia Minor which I flowered this year turned out to be a variety of *I. germanica* different in tint from any of the above named.

The above-mentioned forms are the only Irises in which I have been able to recognise any distinct relation to *Iris germanica*. Nor do I wonder at this, seeing that *I. germanica* seeds very rarely, and has so far resisted all my attempts to make it either bear viable seed or adequately fertilise by its pollen



any other Iris. I have several times obtained a swollen pod of *I. germanica*, and occasionally an imperfect seed but never one which I have succeeded in getting to germinate.

An Iris sometimes called *I. germanica alba*, and otherwise known as The Bride, Prince of Wales, &c., appears to be a variety of *I. albicans*, an Iris which is absolutely distinct from *I. germanica*, as shown by its spathe valves and inflorescence, to say nothing else. Indeed, it is not only distinct, but very far removed from *I. germanica*, much more so than the other common white Iris, *I. florentina*, the identity of which with *I. germanica* would be rejected by everyone.

The other "German Irises" of the trade are varieties or hybrids of the following Irises: *I. pallida*, *variegata*, *sambucina*, *squalens*, *lurida*, all of which occur wild, and *I. neglecta*, *amoena*, *plicata*, *Swerti*, which occur only in gardens, and, as far as I can learn, have never been found wild.

There is no difficulty in recognising as offspring of *I. pallida* the forms such as Queen of the May and others, whose spathe valves lose all their greenness and become silvery white long before even the bud is swollen. The typical *I. pallida* (the handsomest form of which is the large Dalmatian kind, or *I. pallida* var. *dalmatica*, sometimes called *I. dalmatica*) has broad foliage and large, pale blue, fragrant flowers with broad segments, bright orange beard, a short tube, and a thick, ribbed ovary. The plants of which I am speaking diverge from the type not only in colour, ranging from very pale blue, nearly white, to a rather deep blue, many having a distinct reddish tinge, but also in the form of the flowers and in foliage. But they all have more or less distinctly the withered papery spathe valves, and this feature is in all cases, or nearly all cases, accompanied by other traits of *I. pallida*; so that one is justified in concluding that they are all either simple sports or hybrid descendants of *I. pallida*.

#### I. VARIEGATA "blood"

is similarly obvious in the forms, such as Darius, with bright golden standards and rich purple-brown falls.

So also the bronze-tinted or smoky forms, such as the one found in many catalogues under the name of Arnoldi, are clearly descendants of *I. sambucina*, *squalens*, or *lurida*. These three wild forms are very closely allied to each other; so closely indeed, that few authors agree in their application of the three names, the *I. squalens* of one being the *I. lurida* of another and the *I. sambucina* of a third, and

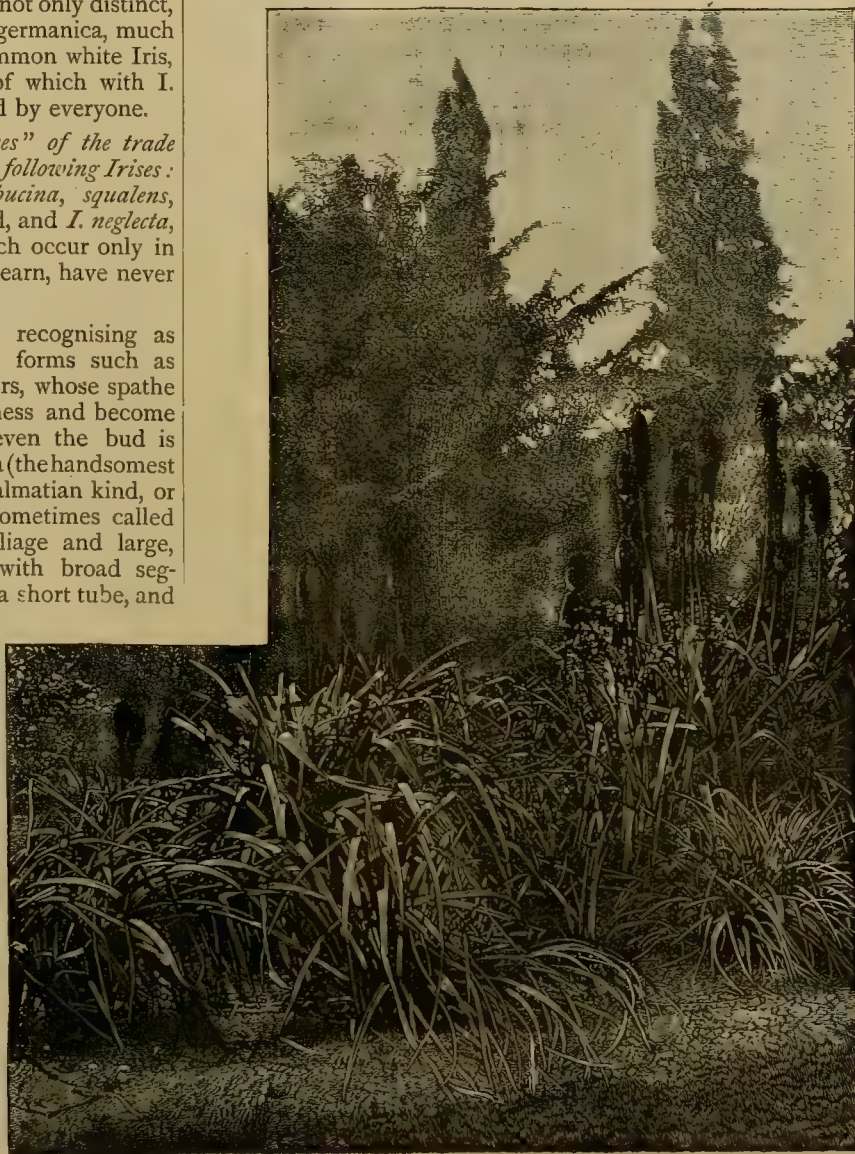
so on. The three, in fact, form together a group, which, whether it be called a species, with each of the three as a variety, or by some other term, is equipollent with the group denoted by the species *I. pallida*.

The two Irises, *I. neglecta* and *I. amoena* or *hybrida*, have, as I just now said, not been found wild, and therefore are presumably hybrids, or sports arising during cultivation,

The sagacious Spach spoke of *I. amoena* as *I. variegata* var. *amoena*, and in many of their characters, putting aside colour, *I. amoena* and *I. variegata* are exceedingly alike. Two or three years ago I raised a number of seedlings of *I. variegata* crossed with the variety of *I. pallida* known as Queen of the May, the latter being the pollen-bearing plant. One of the seedlings was a nearly pure white, closely resembling a garden form known as *Innocenza*; one or two others were white except for purple or violet veins on the falls, and although I did not thus succeed in reproducing the typical *I. amoena*, I obtained evidence supporting Spach's conclusion that *I. amoena* is a derivative of *variegata*, the change being probably effected by hybridisation.

A large number of the same seedlings presented characters closely resembling *I. neglecta*, and this was still more the case with a batch of seedlings raised by crossing the same plant of *I. variegata* with the pollen of typical *I. pallida*. Out of these two batches of seedlings, in fact, I reproduced tolerably exact facsimiles of many named garden Irises, which if *I. neglecta* were a true wild species would undoubtedly be spoken of as varieties of that species.

The particular plant of *I. variegata* which I thus used was unfortunately not a pure wild *variegata*, but a garden variety slightly removed from the type. It may, therefore, have carried in itself some amount of foreign blood. It



Group of Flame Flowers (*Kniphofias*) in the Royal Gardens, Kew

of other wild forms. The two resemble each other closely, both having falls and similarly standards of a white ground marked with veins of some shade of purple; but while in *I. neglecta* the purple veins predominate over the white ground, in *I. amoena* the standards are of a pure white. Of the garden Irises, many more or less closely resemble the typical *I. neglecta* of Horn; a handsome one of the kind is frequently called Fairy Queen; others, again, such as the great favourite Victorine, may be regarded as variations of *I. amoena*.

could not, however, have had much foreign blood in it, or the foreign blood must have been latent, for it was not far removed from the type; and even making full allowance for the hidden potentialities of the admixture, I do not think my plant could have produced so many distinct forms of *I. neglecta*, except for the reason that *I. neglecta* itself is a hybrid of *I. variegata* crossed with *I. pallida*. As at present advised, at all events I consider both *I. neglecta* and *I. amoena* as hybrids of these two wild forms. Neither the one nor the other has the slightest connec-



tion with *I. germanica*. Some of the garden forms bear a superficial resemblance to *I. germanica* in having deep purple falls and light purple or lilac standards. But the falls have not the long tongue-shape of *I. germanica*; indeed, the whole form of the flower is different, the ovary is short and six-ribbed, instead of being long, cylindrical-trigonal, without marked ribs; the spathe valves are often green and persistent (a token of variegata blood) instead of withering early; and the inflorescence is wholly unlike. The inflorescence of *I. germanica* is very simple; the stem ends in a bud of two flowers, and each lateral bears, as a rule, one flower only. In *I. pallida* and *I. variegata* not only may the terminal bud be composed of three or even four flowers, but the lateral buds are similarly composite. In these features the plants I am speaking of resemble *I. pallida* or variegata, so that their resemblance in colour to *I. germanica* must be considered as a quite superficial trait. Besides, plants having this kind of colouration appeared among my seedlings of *I. variegata* × *pallida*, though *I. germanica* blood was certainly absent from both parents.

*I. Plicata*, called by Ker *aphylla*, is also an Iris not known to occur wild; though it has been called *I. portugalensis*, I know of no evidence that it occurs really wild in that country. It is readily recognised by its tall stem with small flowers, the falls and standards of which are crimped or wavy at the edges, which are more deeply coloured than the rest of the flowers. There are several varieties of the garden Irises, such as *Mdme. Chereau*, which may be spoken of as varieties of *I. plicata*; and *I. Swerti* seems to be a low-growing form belonging to the same group.

Assuming *I. plicata* to be a hybrid (for it is far too distinct to be a mere sport from any known wild form), the question arises, what are its parents? No one who watches the buds of *I. plicata* growing, and observes their silvery white spathe valves, can for a moment doubt that one of the parents is *I. pallida*. There is a certain stage of growth at which I do not think I could distinguish a bud of *I. plicata* from one of *I. pallida*. But what is the other parent? The flowers of *plicata* are so unlike the other common Irises, that their features offer no help in the way of suggestion. But the results of hybridisation supply a clue. In the spring of 1882 I crossed *I. plicata* with the pollen of a form of *I. variegata*, not quite typical, and diverging from the type in a direction different from that of the *I. variegata* mentioned above. In the latter the falls were of a lighter colour than the type; in this they were of a fuller, richer, reddish purple-brown, in the way of *Darius*. I obtained five pods of seeds, and raised over 200 seedlings. Three or four of these flowered in 1884, and some two or three dozen this summer, 1885. *Without exception all these have so far turned out to be forms, which, if their history were unknown, would be called varieties of I. sambucina*; one or two of them, in fact, are nearly typical *I.*

*sambucina*. Not one, so far, resembles either parent. Since the care of these has been entirely in my own hands, I feel very confident that no error has crept in. My interpretation of the result is as follows. *I. plicata* is a hybrid of *I. pallida* crossed with *I. sambucina*.\* The *I. variegata* whose pollen I used was, I imagine, a garden form of variegata containing *I. sambucina* blood, though this did not appear very markedly in the flower. Thus to a mixture of *I. sambucina* I added another mixture of *I. sambucina*, and the result was *I. sambucina*. I have, in order to test this view, this year crossed a wild *I. sambucina* with pollen of a wild *I. pallida* (the converse attempt, viz., *I. pallida* crossed with pollen of *I. sambucina*, failed), and I shall watch the result with interest.

There is still another garden Iris to be mentioned, *I. flavescens*, a handsome pale yellow Iris, but I do not like to speak of this, for as yet I have not succeeded in obtaining a wild specimen, and, to be candid, I have some doubt as to what the true *I. flavescens* is. Some of the seedlings of *I. variegata* mentioned above were almost exact reproductions of what I have received as *I. flavescens*; and I feel pretty sure that the garden Iris known as *I. aurea* (the bearded aurea, not the beardless aurea) and the Iris called *Munite*, though often described as varieties of *I. flavescens*, are in reality forms of *I. variegata*. By the way, has any reader met with *I. imbricata* (Bot. Reg., t. 35), which seems to me in many ways distinct from *I. flavescens*?

To return to my theme. The various garden so-called German Irises are, in my judgment, varieties or hybrids of *I. pallida*, variegata, *sambucina*, *squalens*, and *lurida*, and possibly *flavescens*, neither *I. germanica* nor *I. florentina* appearing to take any part in them. Some of them are so like *I. pallida*, variegata, &c., that they may be classified under those names. Thus, *Queen of the May* is, to all intents and purposes, a *pallida*, *Darius* a variegata, and so on; but neither the one nor the other is a variety, in the sense of being simply a small divergence from intrinsic causes; both probably have foreign blood.

Many, again, are like *I. neglecta* of Horn, *I. amœna* of De Candolle, and *I. plicata* of Lamarck, and may be so classified. But this is hardly satisfactory; and, indeed, many other plants have as much right to an independent name as the above three, being, like them, hybrids, and, like them, distinct in character. The fact that these three particular hybrids received Latin names long ago is an insufficient reason for keeping them as types to the exclusion of their brethren; and, as far as I can at present see, the "German" Irises at present in cultivation which cannot be successfully arranged under the heads of *I. pallida* and other wild forms, which are so unlike these as to need some distinctive title, are so numerous and present so many different characters, as to

demand separation into at least some half-dozen groups. Even then the task is difficult, as I have felt when, during the last two summers, I have made hurried attempts to classify my friend Mr. Barr's collection at Tooting; but not, I hope, insuperable, and if I can spare the time, I may be able to do something in this direction. If we knew the exact history, that is to say, the parentage, of all these plants, we might arrange them into groups according to their origin; but we do not. And, besides, in many cases the blood is probably very mixed, hybrids of one strain mixing with hybrids of another strain to produce hybrids of the second or third degree, for these hybrids, like some other hybrids, are sometimes fertile, not necessarily barren. Hence such a classification, even if possible, would become an ingenious puzzle—a hindrance rather than a help. Two offsprings of the same parentage may differ strikingly in their most obvious features. Hence the most useful classification will probably be an empirical one, based on the most striking characters of the plants.

In any case it is wrong and misleading to speak of all these as varieties of *I. germanica*, or even as German Irises. M. FOSTER.

#### UTILISING WASTE LAND.\*

IN planting waste land it is essential to success to select that which is suited to the growth of the kind of trees desired. Before planting I would line out the land, setting stakes, to secure uniform intervals between the trees. Then, if there is much brushwood, I would remove it along the line of the row, and clear off the rest when other work was not pressing. All the smaller brush, like that of Huckleberry, Blueberry, &c., may be easily cut close to the ground. It should be raked up in piles between the spaces for the trees, and the holes should be dug in the cleared parts. For several years past I have asserted that, with the use of fertilisers, and the brush, grass, and other coarse material growing upon much of our stony land that cannot be cultivated, such land can be made to produce paying crops of fruit; while land that can be well cultivated should be used for other purposes. After an extended examination of our Apple trees, I find, as a rule, that the oldest, most healthy, and productive trees are generally growing in turf. In orchards that have been cultivated for a few years and then seeded down for a time and this process kept up, the trees soon become weakened and liable to disease, and often die long before they are fully grown. The vigour with which a newly-transplanted tree starts into growth—other things being equal—depends upon the amount of moisture and plant food in the soil in condition for the roots to take it up as needed. Trees do not start into growth as quickly when planted in turf as when in tilled ground, for two reasons: first, the moisture is rapidly carried off by the numerous leaves of the Grasses and other plants; and, secondly, the plant food is absorbed by active roots as fast as prepared. In cultivated land the moisture is kept from escaping by constant stirring of the soil, and, there being no other feeding roots in it, the trees get an abundant supply of food. The question, then, to be answered, in the turf system of planting,

\* The acute Mr. Baker long ago (*Gardeners' Chronicle*, vi., n.s., 1876, p. 806) suggested that it might be a hybrid of *I. pallida* and some variety of *I. squalens*.

\* By Professor S. T. Maynard, Amherst, in Massachusetts Horticultural Society's Proceedings.



is, Can we supply the proper conditions of moisture and plant food? If we can, is there any reason why our hillsides may not become covered with productive orchards? By the addition of a few handfuls of finely-ground bone, or bone and potash, to the soil used in filling in around the roots at planting, and by the use of mulching material, both of the above conditions may be easily and cheaply obtained, and trees thus planted will make as rapid growth as in cultivated land, and be much more hardy, and live to a greater age. If there is not enough mulching material on the land it may often be easily obtained from an adjoining lot, or such substances as shavings, sawdust, spent tan, wool waste, bristles, straw, leaves, and similar materials may be used. It will be urged by some that the effect of the mulch will be to cause the roots to run so near the surface as to be injured. This might be the case upon land that is cultivated, but here it is only needed until the trees have become well established, and is spread only a few feet around the tree. If the land is given up to the growth of trees only, the decaying Grass and leaves that fall down annually will keep up the fertility of the soil until they begin to bear, when, if annual crops of fruit are to be expected, additional plant food in some form must be used. Should the brushwood growing upon the land after a few years not be needed for mulching, it may be piled up while green, and in a few more years will become a mass of vegetable mould, that will make the best kind of top-dressing for fruit trees or other crops. The following are the details of a plan based upon the experience of planting a twenty-acre piece of land recently cleared of heavy wood, and a part of an old pasture now in process of preparation for spring planting.

IN PLANTING FRUIT TREES we must, as has been stated, select land suitable to the growth of the fruit we intend to produce. The Apple succeeds best upon a deep, moist, sandy loam; the Pear, Plum, and Quince upon soil heavier than is required for the Apple, and the Cherry upon lighter and higher land. The process of clearing and planting is as follows: With a reel containing No. 14 galvanised wire, with drops of solder at intervals of 15 feet, to mark the place for stakes, the land is laid out by first staking off two opposite sides, at proper distances; then from side to side stretch the wire taut enough to raise it above obstacles like large stones, stout brush, &c. At intervals of 30 feet put a large stake for an Apple tree, and midway of each space put a smaller stake for a Pear, Plum, or Cherry tree. Then 15 feet from this set a row of small stakes for trees of one kind, of lesser growth than Apples, and 15 feet from this line stake out a line like the first. In this way we have the spaces marked out for Apple trees 30 feet apart, and the others intermediate. The distance for the Apple trees will be considered by many to be too small; but if, instead of pruning the trees by cutting out only the inner branches, as is commonly done, so as to form a straggling head, the end branches are occasionally headed in, there are but few varieties that will need more than that space. After having the land staked out, if there is much brush—and the more small brush the better—it may be cleared off, as already suggested. If the winter offers no time for cutting the brush, as described, it may be mown off in August. The process of digging the holes should begin as soon as frost is out of the ground, or it may often be done in the autumn previous to planting. It is generally advised not to use any fertilising material, except the

surface soil, in planting fruit or ornamental trees, but I have never seen injury result from the use of well decomposed manure, ground bone, or bone and potash, in moderate quantities, mixed thoroughly with the soil. Before planting, from one to five handfuls of ground bone, or one to three of bone and potash, may be thrown so that a portion shall fall into the hole and the remainder upon the pile of soil used for filling in about the roots. After planting, the mulching material should be drawn about the trees, covering a space of from 3 feet to 4 feet in diameter. Trees planted in the manner described will make a vigorous growth at once, and will be more hardy and live longer than those planted in cultivated land; while the cost of preparation will be far less than if the land were smooth and cultivated. Until the trees are large enough to bear the land should be devoted wholly to their growth, and after they begin to produce fruit more plant food must be applied in some form.

AS TO RESULTS, a few examples must suffice. Colonel Hodges set out about 1000 Apple trees, and about 800 of them are now large, healthy trees. Most of the orchard is on a steep hillside, and if the Apples drop they keep on rolling until they reach the bottom. The ground is very rocky and good for little else, but the exposure and conditions are favourable for the growth of the Apple. Sheep are allowed to run in the orchard, which the owner considers an element of its success. It is an off or odd year orchard, except one portion, which has worked round to bearing the even year. The crops for the past sixteen years have been as follows: In 1871 the yield was 1200 bushels; 1873, 2500 bushels; 1875, 2000 bushels; 1877, 600 bushels; 1879, 600 bushels; 1881, 900 bushels; 1882, 800 bushels; and the present season, 1000 bushels. Of newly planted orchards I will give an example or two as illustrations of the use of fertilisers to give the trees a start. During last spring Mr. James Gregory, of Marblehead, planted 100 Apples trees in turf on the borders of an old pasture, and he now reports them all alive and as having made a good growth. Upon a piece of very stony land that had many years ago been ploughed, but which was fast being covered over with Pitch Pine trees and Blackberries, were planted last spring 175 small trees. The holes dug for them were not over 15 inches in diameter. At planting, a single large handful of bone and potash was thrown across the hole and upon the pile of soil. After the roots were covered with about 2 inches of soil another handful was scattered in, and the remainder of the soil filled in. After planting was over, about June 1, two more small handfuls of the same fertiliser were sown upon the surface around each tree, and a line of turf about one spade wide was turned over, so that the land was cultivated for about 3 feet around the tree. Only five or six trees died, and the remainder have made an entirely satisfactory growth. There being no mulching material near at hand, none was used; but, as the early part of the season was rather moist, they did not suffer from drought. The mulch will be applied next summer, and it is expected that in a few years they will form as fine an orchard of trees as can be found on any cultivated field of equal fertility. Mr. Gregory said that it had struck him as very reasonable that waste land could be utilised for fruit growing. A few years ago it was a question what growers should do with their Apples; but since then the great business of evaporation has grown up. The exportation of Apples has also grown to be an immense business, and we can almost claim that it belongs to us by our position in

the best Apple-producing belt which runs through Central New England. Outside of this belt there is no competition in growing Apples for market. The Western Apples are larger than ours, but consumers complain that when evaporated they are insipid and have not the high flavour desired in cooking Apples which ours possess. It behoves us to make the most of these facts, and now, to aid us in doing so, comes in the plan of utilising waste lands. Apples from strong, rocky pasture lands are superior in quality to those grown on rich, moist soils. It is rare now to see a young orchard. Cultivators were discouraged, by the glutted condition of the market a few years ago, from planting them, and have neglected those previously planted, but it is time now to begin again. People do not like to give their best land to orchards, but if they can be brought to see that waste lands may yield Apples, they will plant. I have planted Baldwin trees in pasture land on portions inaccessible to the plough.

Mr. Hadwen said Apples are not the most profitable crop on the best land, but if they can be grown on comparatively waste land when properly enriched it will be a gain, for a barrel full is better than one empty. He was favourably impressed by Prof. Maynard's idea of pruning Apple trees so as to keep them well in hand. There is a doubt whether the cultivation of Apples can keep pace with the foreign demand, and if anything can be done to supply it from our waste lands, it should be done. Mr. W. C. Strong thought the idea of cutting away brushwood and digging little holes to plant fruit trees sounded strange. Still, he felt that the first prize fruit would continue to come from cultivated orchards, though it might not always be of the finest quality for the table; and growing prize fruit is a very different matter from the profitable growing of fruit for sale, which he believed could be done on rocky land. People speak of the low price of Apples, but we should, he said, think of the prodigality of Nature and the low price at which they can be produced. We should aim to produce fruit at the least expense. Mr. E. W. Wood said we ought not now to anticipate a glut of Apples; the market is practically unlimited. He was not yet prepared to believe, however, that Apples can be grown in brush land. They can be planted there, but will not give good fruit without manuring. Fruit growers need not, however, take their most valuable lands for orchards. There is no question that a rocky hill-side is best for Apple trees, provided the soil is strong enough. He would not plant Pear trees between Apple trees. He did not believe in Apple trees flourishing in an old, compact soil; if one does, it must be in a spot peculiarly favoured otherwise.

Mr. Clement said in his vicinity waste lands are of very poor quality. Prof. Maynard did not mean such land as this, but strong soil that holds moisture pretty well. Thirty years ago he planted Apple trees in newly cleared pasture land, where in some places there was so little soil among the rocks, that he had to cart it in to get enough to set the trees in. These trees had done well. Cattle run among them until September, when they are excluded in order to save the windfall fruit. Apples can be grown without much cultivation, but if planted in waste land it must be the right kind; light soils must be left for Conifers. He has some trees fifteen years planted that look well; those thirty years old look as if they wanted something to help them along. He strewed a little ashes and bone around his trees, which improves the pasture. Some of his trees are in heavy land, where the springs are too near the surface. He advised



planting Apple trees where a growth of Oak or other hard wood had been cut off. Roxbury Russet trees were not satisfactory; the Baldwin succeeded best. Apples from young trees keep best, and a medium-sized Apple keeps better than an overgrown one. There is no difference in quality between Apples from cultivated and uncultivated land. Mr. Hadwen said it is well understood by everyone who grows Apples that they must be fed with proper fertilisers, and neither Professor Maynard nor anyone else can do it without them. The question is, whether it is any more expensive to give nourishment to trees in Grass than in ploughed ground. Prof. Maynard recommends not to cut the Grass around the trees, but to leave it on the ground, as crops removed from the ground exhaust it. I have, he said, an orchard planted in 1843, and ploughed and fertilised since then. The trees have grown very large, but if not pruned the fruit is not so large as in Grass. Fruit ripens earlier in tilled land than in Grass; the ploughed ground absorbs more heat. Some kinds, among which are the Northern Spy and Holden, will be a month later in Grass than in ploughed land. Trees in Grass, enriched annually, give the best fruit so far as regards quality. Prize fruit must be grown with the best cultivation.

Mr. Hersey gave an account of two orchards which he planted to ascertain whether it is best to keep Apple trees in cultivation or to mulch them, as Nature does. The land in which he tried this experiment consisted of half an acre of gravelly knoll running down to richer land; another portion was a little richer. All the trees had the same care in planting; the land to be mulched was not ploughed. The result was that at first the ploughed orchard grew rapidly, the other made shoots of only a foot or 1½ feet in length. When the cultivated orchard was ready to bear, many of the trees which had grown most rapidly were injured by bursting of the bark, and some were wholly killed, but he saved a majority of the trees. To check this excessive rapidity of growth the orchard was laid down to Grass. The other orchard was heavily covered with coopers' shavings—hardwood and Pine—8 inches or 10 inches in depth, and made a pretty good growth right along. Porter trees in it give four or five barrels of Apples every other year. Trees on the brow of the hill where the gravel shows, and the soil is so poor that Grass will not grow there, made good growth and gave some very good Apples. He afterwards discontinued mulching, but the orchard still gives good Apples. He did not wish to be understood as saying that the superiority of this orchard was due to its not being cultivated, and to the other being cultivated. The condition of the atmosphere is one point to be considered. He means to mulch again. He can use a great variety of material for mulching; Red Cedar boughs are one of the best materials. He would not use hay or Grass because it burns through, and he thinks trees need something cooling. His own experience taught him that 2 feet of common gravel over the roots of trees would start them up wonderfully; and he knew a case fifty years ago, where several Apple trees, then apparently past their prime, had 4 feet of gravel filled around them, which renewed their vigour, and they have continued to bear good crops until now. It is good to cover the ground 5 inches or 6 inches deep with peat.

Mr. Hartwell said that he has an orchard in good fruit soil and takes a good deal of pride in the trees; and another in Grass land, where the trees are not worth as much as when they were planted. He once knew a man who had

exceedingly fine Apples, when they were generally poor, from land in pasture for twenty years, but he thought there were few such situations as that. He would not advocate planting Apple trees in small patches in pastures, for they would be apt to be neglected. It might do to lay orchards down to Grass once in fifteen or twenty years.

## GARDEN FLORA.

### PLATE 518.

#### THE LEOPARD'S-BANE.\*

THE small class of plants comprised in the genus *Doronicum* contains only two or three of importance to the gardener. We are told in the "Genera Plantarum" that the total number of species is probably not more than ten, which are confined to the temperate regions of Europe and Asia. These species



*Doronicum caucasicum.*

include two or three dwarf mountain forms hitherto classed as *Aronicum*, but exclude several Indian plants described by De Candolle as belonging to *Doronicum*, but now referred to *Senecio*. The name *Doronicum* is said by the best authorities to be Arabic, and as the plant was in high repute amongst the old herbalists for its medicinal virtues, and many native plants of this nature became known in Europe by the foreign name of the drug extracted from them, we may accept the Arabic "doronigi" as the original name. It is usually pronounced as four short syllables, having the accent on the second, as if the *n* were doubled. The English name Leopard's-bane is the translation of a Greek word *Pardali-anches*, which literally means Leopard's-choke. This word has been adopted as the specific name for the type of the genus, though we have no means of know-

ing to what plant the ancient Greeks and Romans applied it. Indeed, Pliny, a Roman philosopher, who unfortunately in his voluminous writings tells us a very large number of popular superstitions about plants and animals, but very few scientific facts, has a whole chapter about *Pardalianches*, which he identifies with *Aconite*. He says that where leopards were abundant the natives laid meat soaked in a decoction of the plant, and thus rid themselves of these pests. He also tells us that the poison is so deadly to man, that the only chance after swallowing it is to take another equally deadly poison. The two poisons then fight in the stomach, like the famous Kilkenny cats, till both are destroyed, and the man is saved.

On referring to several recent authorities on the plants of Europe and Asia, I find the synonyms and cross-naming among the *Doronicums* very perplexing. Two of them are native, and each is taken as the type of a small group containing three or four species of ill-defined limits. They are *D. Pardalianches*, having woolly, round leaves, with a distinctly cordate or heart-shaped base, rather small flowers on branching stalks 3 feet or 4 feet high, coming out in May, a plant more for moist banks in woods than for garden ornament; and *D. plantagineum*, less tall than the last by a foot, and having flowers twice as large, called after its plantain-shaped or ovate leaves, which readily distinguish it. It might be admitted in gardens were it not entirely superseded by the subject of our coloured engraving, which will be described presently. Besides these, I know only three which are cultivated or worth cultivating in gardens, and to avoid troubling the reader with obscure botanical characters not obvious or important to the gardener, I will describe them as (1) the Lesser Leopard's-bane, (2) the Intermediate Leopard's-bane, and (3) the Giant's Leopard's-bane. These names sufficiently distinguish any at present known which are likely to come into gardens.

The Lesser Leopard's-bane includes the dwarf forms sometimes called *Aronicum*. Those who think that plant names must mean something would do well to note this name, *Aronicum*. The genus is intermediate between *Arnica* and *Doronicum*, and so the botanist who named it coined an intermediate name. This is quite legitimate in botany, and Asa Gray tells us that many of the generic names of American plants are only convenient combinations of letters. The dwarf class of which I am speaking includes *D. glaciale*, *D. scopioides*, and *D. Clusii*, plants which if distinct come very near one another, being all of them 3 inches or 4 inches high, with yellow flowers rather large for the size of the plant, but not freely produced. I have grown them on rockeries, but they are so vastly inferior to such plants as *Odontospermum maritimum*, of the same height and colour, and producing ten times as many flowers, that they are hardly likely to be in high favour.

\* Drawn from flowers sent by Rev. Wolley Dod, Edge Hall, Malpas, May 1.





DORONICUM FLANTAGINEUM HARPUR CREWE.







The Intermediate Leopard's-bane, called by botanists *D. caucasicum* and *D. Columnæ*, which gardeners may well consider as one, would be an excellent plant in early spring if the flowers were hardy enough to withstand spring frosts. It produces abundance of clear golden flowers on slender stalks about 18 inches high in April. If properly treated, it is a capital plant for forcing in pots, but it is only in warm soils and sheltered situations that it shows to advantage out of doors. Here it is almost useless, the flowers being disfigured year after year as sure as spring comes. In spite of its name, Boissier does not give Mount Caucasus as a habitat, but it is distributed over the warmer parts of South-eastern Europe and Asia Minor.

The Greater Leopard's-bane, of the flowers of which the annexed coloured plate is an excellent likeness, easily supersedes all others of the genus. It has been so frequently described, that little need be added to what has before been said. Its origin is uncertain, but as it has not been traced beyond the garden of the late Mr. Harpur Crewe, it has been named after that gentleman. He thought it came up in his garden as a spontaneous seedling, and it may be a cross between our two native Leopard's-banes. As it did not correspond with any specimen in the Kew herbarium, it was proposed to name it *D. plantagineum* var. *excelsum*. In rapidity of increase it surpasses any plant of the kind I ever cultivated. The fleshy root-stock may be cut up into pieces the size of a Hazel nut, and each will have become a large plant in a few months. It requires a moist rich soil, in which it will produce flowers from February to November, but an abundant succession of flowers is best obtained by dividing and replanting at all times of the year, the first flowers produced by a young plant being generally the finest. It does not increase by stolons, like *D. Pardalianches*, but only by multiplication of the crown, so that it can never become a troublesome weed. It is used for forcing, but I have never seen flowers or forced plants equal to those produced in the open border either in size or in richness of colour.

Edge Hall, Malpas. C. WOLLEY DOD.

**Sternbergias.**—Mr. Hartland (p. 456) may add some two or three more species of *Sternbergia* to his list which are cultivated in my garden. I have at least five sorts of it now. They are as follows: *Sternbergia lutea*, *S. angustifolia*, both of which are well known; *S. sicula*, of a pale yellow colour, and not so pretty perhaps as the others; *S. ætensis*, of which the colour is golden yellow and the leaves of a bright glossy green; and a *Sternbergia* which was given to me by Dr. Fox, of Brislington, near Bristol, and which he said would bloom not in the autumn, but in the spring. So far the first part of his prediction has come true, and I am curious to see what will come of the second part next spring. As far as my experience goes, *Sternbergias* will grow anyhow, provided only they have plenty of sunshine.—H. EWBANK, *St. John's, Ryde, Isle of Wight*.

**Hardy flower culture.**—The one object in my notes in THE GARDEN of October 3 (p. 338) was to elicit practical information, not quibbles or comparisons between things essentially different. I still would be grateful for an answer to my main question

as to the planting of a border 200 feet long and 12 feet wide. If I paint a picture and once get my light and shade and colour right, it remains so for all time. If I plant a border or "arrangement" of hardy flowers, I make an ever-changing picture, and, alas! too often one plant either objects to its neighbour's company, or, on the other hand, while lovely in itself, it, cannibal-like, either eats or strangles those near it in a remorseless way. Carpeting bulb beds, as often recommended, is a bad practice, and those who recommend the planting of rare Crocuses, such as *C. byzantinus* or *C. iridiflorus*, in the turf of an ordinary lawn surely cannot mean what they say in print. Any permanent carpet—*i.e.*, a close-growing covering—will ruin the hardiest bulbs I know. Still, I am anxious for the experience of others.—LEX.

#### PLANT-COLLECTING IN COLOMBIA.

OUR passports secured and luggage on the mules, we (myself and two Colombians) set out from Bogota one afternoon last January. We got out of the town without difficulty, which was more than we expected, as it was revolution time. At seven o'clock we arrived at the town of Quatreschinas, and put up at the inn for the night. Both my companions spoke a little English, and were engaged in the revolution. Next morning we were up at five, and started about six. Although the thermometer rarely falls below 45° Fahr. on the plains of Bogota, yet it was wonderfully cold, making the first rays of the rising sun quite welcome. About eight we began to descend the mountain side, and at two had reached La Mesa (the table), so called from its position on a small tableland. Hereabouts is found *Cattleya bogotensis*, and we noticed several plants of it in gardens. A recruiting sergeant bothered us here, as he wanted to press my servant, but our passports were all *en règle*, and we got through safely. We were now hourly expecting to reach the revolutionists, and everywhere were told that General Figararo, their leader, was quite close to us. We passed the night at Tocaima, and at seven o'clock continued our journey towards the river Magdalena, which we reached about 7 p.m. We stopped in the town of Flandes or Jiradot, as it is sometimes called. We might have done our last twelve miles in a train by waiting two days. A railway has been started from here to Bogota, and has been completed as far as the foot of the mountains. A conservative general named Casabianca, summoned to Bogota, passed us here, and from him we learned that after all Figararo was on the other side of the river half a day off. Next morning the younger of my companions left us and went down the river in a steamer to join the rebels at Honda. The plains about here are very fertile, and on our journey we passed quantities of brood mares. In this country mares are never used as beasts of burden, only horses and stallions. The Magdalena is spanned by a really good suspension bridge at Flandes, constructed by an American engineer, and the river Coello, which we passed in the afternoon, is crossed by another good bridge constructed on the same principles. These are the two finest bridges in the country. We passed the night in a little hut, and as I was not over comfortable, I woke my boy at 3 a.m. and made him saddle the mules. It was very pleasant journeying by moonlight, and not too hot. We passed a small range of hills and ascended about 2000 feet on to the plains, which run from here to the foot of the Andes, which are about twenty miles off. They looked grand in the distance, and the snowy tops of Tolima and some of the others presented a lovely appearance as the first rays of the sun shone upon them. About 10 a.m. we arrived at the town of Ibague.

IBAGUE nestles at the foot of a lofty range of the Andes called the Quindio. When first seen from the plains its white-washed houses, with a few Palms dotted around them here and there and tufts of the ever-graceful Bamboo, present a very pleasing appearance; but, like other towns hereabouts, distance lends enchantment to the view, for on a nearer approach it is found that it is not so clean as it might be. It lies about 3000 feet above the level of the sea, and the river Combeima runs down by it, a mountain torrent, which, like other rivers in this neighbourhood, has cut a deep channel, often several hundred feet lower than the surrounding country. These ravines often extend to a considerable width, and are favourite places, when not too precipitous, for the culture of the Sugar-cane. On the wooded slopes near these streams *C. Trianae* is at home, but never at any great distance from water. Unlike *C. Mossiae*, it never grows upon the rocks, but always on trees usually at some considerable height. To get at the plants it is necessary to climb the trees, or cut them down—the latter often the easier of the two. On my arrival at Ibague I found the people in a state of excitement, the radicals having just "pronounced" against the Government. I therefore presented my letters of introduction, and spent a short time in welcome rest. The following day I started for a ranche in the mountains, where I arrived in the afternoon, and made arrangements for people to bring me plants. Next morning, clad in the lightest of garments, equipped with axes and "machetes" and each carrying a sack, my boy and I started for a river about 2 miles off, up the course of which we made our way—rough work, but enjoyable. We clambered about looking for plants in flower, just selecting the best forms. Many which we wanted we were unable to get, as they were in inaccessible places. The two finest were in a large tree some 50 feet up, one at the time being furnished with over fifty flowers. We cut down a small tree and leaned it up against the first fork; then my boy swarmed up, and had got within a few feet of the plants, when he came down with a run, so to speak, tearing at his hair. He had disturbed a nest of bees, and they resented the intrusion. Bees here never attack the face and hands, but always the beard and hair. I suppose they are only accustomed to hairy animals, and so attack men on such places. We had to give up collecting these two plants, as the tree was a giant, much too large to cut down. Insects are the plague of a collector's life. Sometimes you just put your hand on a tree, and in an instant it seems as if on fire. On looking you find three or four large ants biting you, and so firmly do they hold, that it is necessary to pull them in two before they can be got rid of. Their bite, too, is slightly poisonous, and for a short time very painful. In the evening we shouldered our sacks and trudged home, pretty well tired. Next day I dried my flowers and numbered them, while my boy got me others. The next two weeks we spent in the same manner, making excursions to this and that river and occasionally up a mountain. When I had sufficient of *Cattleya Trianae*, as the news was that the river was still blocked I determined to make the ascent of

A SNOW MOUNTAIN, some days' journey off, up which no collector had yet been. It was necessary to make the ascent on foot, as there was no track up which a mule could journey. Accordingly, one morning we had breakfast early, and at 11 a.m. we found ourselves at the foot, and took a drink at a stream there, as my two guides said there was no more water till we reached our camping place, an unoccupied



hut. It turned out that they had not been up for some years, and at dusk they told me we were lost! As we had no water, we could not cook, so our dinner consisted of a little bread and sugar. We lit our fire, and I slung my hammock and rolled myself in my blanket. The others were up with the first streak of daylight, and complained much of thirst. They all went in different directions, and about 8 o'clock found water, and also the hut. Meanwhile, I had shot a wild turkey, which came in well for breakfast. The hut was only a skeleton, and had never been finished, and as it was over 11,000 feet here the cold was pretty severe. About 500 feet above us the forest came to an end; then there was another 500 feet of scrub and small bushes, and then the savannah, or Grass. Traces of deer were numerous, but I was not fortunate enough to secure one. One day I made an attempt to reach the snow, but it was much further off than we thought, and so we gave it up. We got a grand view from one of the peaks, but only in glimpses, as the day was thick and great clouds kept rolling over, sending a cold chill through us as they passed. I found several good plants on this mountain, some of which are unknown at present. Five days of this was sufficient, so we came down again and returned to Ibaguë, which we now found in the hands of the Government troops, the radicals having taken themselves off. News had just arrived that the Government had taken Honda after severe fighting, and that the river was now open. Next day the news was confirmed, so I got all my plants in and began packing. But now a new difficulty arose. General Casabianca, who had been in the fight at Honda, and was in command there, had sent out a commission for 150 mules. Consequently, no one would let me have any on hire to take my plants to Honda. I, however, at last succeeded in getting a man to find some. But I was to pay him double rates and secure all the necessary passports, for which I paid about £4. I then sent my boy off to the river, which was some two days' journey off, to secure me a canoe, or to make a raft, and get boatmen. Then commenced the work of packing the plants—no light job, there being sixty-six cases in all; and when at last they were all on the mules, my troubles were not at an end, for the beasts were bad, and kept throwing off their loads, rendering it necessary occasionally to mend the boxes. Once I managed to lose myself for about four hours in a wild part, but at length we got all safe to the river, and I found my raft already partially loaded with the cases that had first arrived. After a night's rest and a dip in the river, we finished the work of loading the raft, bought a few provisions, and about midday pushed off and began floating down stream. Just as we were ready to go, the man with whom my boy had contracted to take us down refused to go unless I gave him another twenty dollars. It was useless arguing, so I had to submit; but I had him afterwards. I held his passport, and when we reached Honda I would not give it to him until he gave me back the twenty dollars. If he had not had the passport they would have pressed him right away.

FLOATING DOWN STREAM was pleasant, but the sun was hot, so my boy cut some poles and fixed up a tent for me with my blanket and mosquito net, and then the journey was very comfortable. We reached Honda the third day, sleeping at a ranch one night and in the canoe the next. We could bathe, too, in the upper Magdalena, as there are but few alligators and these small ones. At Honda a fresh disappointment awaited me. The river was closed. At least the rebels had all the steamers but one,

and that was above the falls on the upper river. Mr. Hallam, an American, and vice-consul there, was most kind, and did all in his power to help me, but it was a week before we could get a canoe, and then they refused me a passport. So I telegraphed to the British minister in Bogota to get me one, and in four days' time it came, also some despatches for the British and American Governments to take down with me. Meanwhile the general at Honda wanted the canoe for an expedition, and took it from the man who was to have sold it to me. As there was no chance of getting my Masdevallias home now, I threw away twelve boxes of them, among them a new yellow one about the size of *tovarensis*. One day we heard of a big canoe lying on the rocks, and, on examination, found it would with a little mending serve our purpose. So we bought it, and with much trouble secured a crew—a helmsman, called a "patron," and four paddlers, or "bogás." Six foreigners now wanted to go down with me—three Frenchmen, a Dane, a Swede, and an Italian, all of whom I agreed to take for "a consideration." My boxes, now reduced to fifty-four, I sent down by train to Las Yeguas, a place below the rapids, and the boat was to go down the following morning, when at 7 p.m. a telegram came from the Government to say we were not to go—a great disappointment. At last, however, Mr. Hallam succeeded in persuading the general to let us go. We went down in a great hurry, and got off about four o'clock in the afternoon. Here I left ten more boxes, as there was no room for them, and we dared not stop to arrange them closer.

There had been a rise in the river the night before, so we went down merrily. We slept at night in little ranches on the bank. In eight days' time we reached Baranquilla, and I found that the steamers had discontinued calling. It was three weeks before one came. I went carefully through all my plants and put what might reach England alive in fifteen cases; the rest I threw away, as they were all more or less in very bad order.

ED. A. WALLACE.

Colchester.

**Sternbergia lutea.**—This flowers with us most profusely every year without fail, and we consider it one of the best autumn flowering plants which we possess. It grows wild in the south of Italy; we have found it growing chiefly on slopes in the Basilicata, in Calabria, and in Sicily. It evidently prefers sunny or half shaded places, and a stony but heavy and dry soil. It does not like rich and fresh compost. Its flowering period with us is from the end of August until November, according to locality. We lift the bulbs in May, and keep them on dry airy boards until August, when they often begin to throw up flower-spikes, which, as is well known, never prove advantageous to any class of bulbs. Seedling bulbs left undisturbed for several years are flowering as freely as bulbs lifted every year. We are, however, of opinion that in northern countries it will be best to lift the bulbs every year, keeping them as dry as possible, and replanting them as shallow as can well be done. We have found bulbs planted in light, sandy, or too rich a soil to be often attacked by insects, more especially by the *Narcissus* fly. This is indicated by the leaves dying off at an early period. There are several other varieties of *Sternbergia* which are often confounded with *S. lutea*, viz., *ætensis*, or *Amaryllis lutea minor*; this is the smallest of all. It has small Pear-shaped bulbs, narrow bluish green leaves, and sulphur-yellow flowers, the perianth segments of which are pointed. *S. lutea* is somewhat larger and its perianth segments are obtuse. *S. sicula* is the largest and best; its leaves are almost as large again as those of the other species, and its flowers are also larger and of a more brilliant colour; the bulbs, too, are much larger. *S. exscapa* is much

like *S. colchiciflora*; it stands between *S. ætensis* and *S. lutea*. *S. angustifolia* of Herr Max Leichtlin is in all probability nothing else but *S. exscapa*. —DAMMANN AND CO., Naples.

## FERNS.

### VARIEGATED FERNS.

THESE form only a comparatively small group, which, even including the variegated Selaginellas, barely number one and a half dozen species; of these, too, several can scarcely be reckoned as permanently possessing a variegated character, such, for instance, as the *Anemidictyon Phyllitidis tessellatum* and *Dictyogramma japonica variegata*, in which the variegation is only noticeable during a short time after the fronds are freshly developed, and which, when perfectly mature, exhibit hardly any trace of it whatever. Then, again, there are a few which may be termed accidentally variegated, in which stray fronds or parts only of them partake of the variegated character, such as one sometimes notices in *Balanium Culcita*, *Lomaria ciliata* and *gibba*, *Nephrolepis davalloides*, *furcans*, &c. All Ferns whose variegated character is constant well deserve special attention, being attractive at all times of the year, but particularly so now. Although not numerous, variegated Ferns must, for the sake of simplifying their culture, be divided into two sections—those requiring stove-heat and those which even during the winter months are perfectly satisfied with cool treatment. Of the first of these, the popular East Indian *Pteris argyrea* may justly be considered to be the best representative, being a robust grower with gracefully arching fronds, which under liberal treatment often attain 4 feet in length, and also on account of its variegation being particularly well defined and striking, the silvery white in the centre of the fronds and pinnæ contrasting pleasingly with the lively green by which it is surrounded in every part of the plant. Although it is sometimes recommended for growing in a cool house, where it does very well during summer, it evidently requires a higher temperature in winter, as under cool treatment it invariably shows a tendency to assume a brownish colour, clearly indicating its dislike to cold. Then there is the charming *Pteris tricolor*, also an East Indian species, but unfortunately one which is generally considered to be somewhat difficult to manage; indeed, it is only now and then that one hears of anyone having succeeded in growing it to perfection, and in all cases seemingly without anything special in the way of cultivation. Its well-being appears to depend more on local or climatic influences than on skilful treatment. As a proof of this it may be stated that in some places where the plant was once thriving well it will now hardly grow, in spite of unchanged treatment and conditions; whereas, in other places, where for years it only contrived to exist, it occasionally makes a sudden rush, and for a certain time grows apace. One particularly



successful instance came under my notice some few years ago, when, to my astonishment, I beheld, in an intermediate house and among some Camellias planted out, two grand self-sown specimens with fronds fully  $2\frac{1}{2}$  feet long, having the centre of each pinna throughout the whole plant of a bright rosy red, with a margin of white on either side of it; these colours were most beautifully set off by the rich, glossy green of the other portions of the fronds. The most singular part of the case is that hundreds of seedlings from the identical patches to which the two plants just referred to belonged were at the same time pricked off and grown in pans and pots, some on shelves close to the glass, and others on the Camellia bed of the same house, but with results altogether unsatisfactory; none of them ever got over the stunted stage in which this beautiful Fern is generally seen. *Doryopteris nobilis* is another plant, requiring stove temperature, well worth a little extra attention. This Brazilian Fern produces fronds which, in their young state, are simple or sagittate, but which, as the plant gains strength, become palmate, when they sometimes measure from 12 inches to 18 inches in height and nearly as much in width; their colour is bright green, and the centre of the fronds or of the segments is ornamented throughout with a broad white band, which becomes gradually fainter as it approaches the edges. Several *Adiantums* have also at different times shown some indications of a strong predisposition to variegation. Thus Mr. Herbst, at Richmond, had for several years a well variegated *Adiantum decorum*, which, contrary to expectation, never produced him a stock distinguished by the same characteristics, although one of the most striking features pertaining to variegated Ferns is that, with scarcely any exception, they faithfully reproduce themselves from seed. There is also known on the Continent a variety of the New Zealand *Adiantum formosum* whose fronds, produced from slender underground rhizomes, are of equal size to those of the green or common species, measuring from 2 feet to 3 feet in height, and densely furnished with numerous small pinnules of a light green colour, but copiously dotted and splashed all over with pale yellow. The most admired, however, among these variegated Maiden-hairs is undoubtedly an extremely pretty form of the West Indian *Adiantum macrophyllum*. This has preserved its erect habit, and its fronds, rising from a creeping rhizome, attain from 12 in. to 18 in. in height. As is the case in the species, its large pinnæ when young are of a delicate pink or red, and, moreover, splashed freely with yellow; and although with age they change to a bright green, the yellow markings, which in the undeveloped state are the principal ornament, remain perfectly distinct and prominent.

OF SELAGINELLAS, two variegated forms are especially adapted for stove culture; these are the sub-erect Mexican *S. Mertensii* variegata and *S. Kraussiana aurea*. The for-

mer grows to about 10 inches high, and its numerous stems, which produce from their underside a great quantity of roots, are densely clothed with broad dark leaves, profusely blotched with white, contrasting strikingly with the glossy green leaves. The other is the lovely *S. Kraussiana aurea*, a bright golden-tipped form of what is commonly, though erroneously, often called *S. denticulata*; it may be kept in a cool house, but in that case it is really effective during summer only, the brightness of its golden colour being increased in proportion to the amount of heat and moisture to which this little border or edging plant is subjected.

GREENHOUSE FERNS. — Amongst these may be found some finely variegated kinds. The one which might reasonably claim to be the most distinct, and at the same time the most generally useful, is the widely spread *Pteris cretica albo-lineata* from Japan, the appreciation of which is sufficiently well shown by the tens of thousands of it which every year, in all sizes, pass through our London flower markets. Its well-deserved popularity is undoubtedly due as much to its hardy character as to the beauty of its variegation; it is particularly well adapted for dwelling-room decoration, where, provided it receives careful treatment, it will remain for a long time in perfect health, the broad silver bands which occupy the centres of its leaves and the bright green colour peculiar to their edges being very attractive. Contrary to other *Pterises*, the barren and fertile fronds of this species are dissimilar, the barren ones forming the body of the plant, while the fertile ones, erect and well above the others, give it a highly ornamental appearance. *P. nemoralis* variegata is another greenhouse variegated Fern, but as in *P. serrulata cristata* variegata, which also thrives well under cool treatment, the variegation, though constant, is not very distinct. In the comparatively new *Lastrea aristata* variegata, which only a few years ago was imported from Japan, we have a most excellent addition to the group of variegated Ferns. Its constitution is all that can be desired, its variegation, which is a light yellowish green on a dark shining ground, is very good and clear, and the texture of its foliage is of such a character as to render it one of the most enduring of all cool-house Ferns. There are two more greenhouse species, the fronds of which are perhaps not strictly variegated, but dotted all over with white spots, producing quite a variegated effect. These are the South American *Nephrodium albo-punctatum*, a plant of medium growth, whose foliage, which is of a leathery texture and dark in colour, is copiously dotted with white, and the Australian *Gymnogramma Muelleri*, now exceedingly rare in collections. This species bears no outward resemblance whatever to any other *Gymnogramma*, but, to a casual observer, seems allied to *Ceterach*, as, besides its general aspect being similar to it, its pinnate fronds are stiff and furnished with roundish pinnæ, whose undersides are densely clothed with brown scales, while

their upper surfaces, which are of a bright green, are dotted all over with scales of a brilliant silvery hue, producing a pleasing effect and simulating a sort of regular and perfectly constant variegation entirely distinct from that of any other. Another very handsome kind of medium growth, which is moreover perfectly hardy in most parts of England, is the Japanese *Athyrium Gorin-gianum tricolor*, which, as its specific name implies, is endowed with a foliage partaking of three colours. Its very graceful, but equally brittle, fronds, from 10 inches to 15 inches long, are somewhat lanceolate in form, and are abundantly produced from a fleshy underground rhizome; they are principally remarkable for their pretty claret-coloured rachis, provided on each side with pinnæ, variegated with white, and furnished throughout their entire length with a central whitish band, which, as the fronds get perfectly matured, becomes of a greyish hue, very distinct from the dark green ground which surrounds it. Although the colours are not so bright as in *Pteris tricolor*, it bears a great resemblance to that species, but is much more easily cultivated, succeeding very well in an ordinary greenhouse or even on the outside fernery, if the latter is in any way sheltered.

OF SELAGINELLAS, only two variegated forms are adapted for cool treatment; these are *S. Kraussiana variegata* and the lovely *S. involvens* variegata, the latter belonging to the tabuliform section of the Club Mosses. It is a native of Japan, and forms a pretty dwarf tuft consisting of an overlapping series of branches disposed round a central axis, and furnished with innumerable small branchlets, some of which are creamy white, and these, being abundantly produced and mixed with the green ones, form a plant elegantly variegated. The other variegated *Selaginella*, better known under the name of *S. denticulata* variegata, is a variety of the ordinary species so extensively used for edgings and for covering pots kept in dwelling-rooms. Although not adapted for this last-named purpose, it is found exceedingly useful for edgings, pot culture, or for planting on rockeries, in all of which positions its minute and dense foliage, beautifully tipped with white at all the growing points, renders it very effective. During the winter months this interesting little plant requires keeping close to the light, in order to avoid damping off.

I may also take this opportunity of stating that, from numerous experiments personally conducted with a view to ascertain the effects of various soils on the variegation of Ferns in general, the results in most cases have been perfectly ineffective, and where they have been effective at all, it was only in such a small degree as to lead one to conclude that no real alteration is produced by the use of different potting materials. S.

*Neillia opulifolia aurea*. — The common Nine-bark of the United States is a most useful hardy



shrub, producing a profusion of umbel-like corymbs of white flowers which are succeeded by swollen membranaceous purplish fruits. The golden-leaved form is quite as hardy as the type, and grows about as freely. For foliage effect it is thoroughly deserving of a place in the shrubbery or by the woodland walk. This shrub is also known as *Spiræa opulifolia aurea*.

### EXOgonium PURGA AND TECOMA JASMINOIDES.

Of all autumn climbers there is none in my opinion which is superior to *Exogonium Purga*. All that it wants is a sheltered corner and a warm situation. In the southern counties of England it will do quite well in the open air. In the Isle of Wight its blossoms hold on till late in November, and on this most dripping morning (November 4) I can count very nearly fifty of them which are still fully expanded on the south side of my house. *Exogonium Purga*, I believe, a native of Mexico; it is the true jalap of commerce, and its rather dark coloured tubers, which grow to a large size, are used for medicinal purposes. As an ornamental plant of very great value, there cannot be two opinions about it. The salver-shaped blossoms, with their very long tubes and rich violet-purple colour; the prominent anthers with milk-white filaments; the fresh green foliage, of which there is generally an abundance; the luxuriant growth of the main stem to the height of 15 feet or 16 feet from the ground (and it would go much higher than this if it only had the chance), all go to make a picture which for beauty is not very often excelled, and which strikes the beholder at once.

The Jalap plant will grow, as a rule, very quickly if it is planted in light rich soil. It will, however, ramble over a fruit tree, or climb through a trellis, but what I am sure it likes most of all in this country is to be placed near a wall and to have some wire netting to cling to. It then feels completely at home; it enjoys the radiation of heat from the wall while it still has fresh air, and it shows its satisfaction in a way which cannot be mistaken. In some places it must of necessity be grown under glass, but it never seems so happy as when it is subjected to the conditions I have named, and it is liable

to be attacked by red spider in a greenhouse unless it is very frequently syringed. I think I remember seeing it at Kew in one of the houses, and in an open border as well. Its matchless excellence is exhibited best in the latter case if the locality be suitable to it. I advise anyone in the south of England who wants to have a glorious sight in the autumn to devote a corner on the south side of his house to *Exogonium Purga*, and to give it freedom in festooning to the right hand or to



The Jalap Plant (*Exogonium Purga*) and *Tecoma jasminoides* on a wall in Mr. Ewbanks's garden, St. John's, Ryde, Isle of Wight.

the left as much as it likes. One other point of merit should just be noticed. The Jalap plant is most easily increased by division in the spring, and very small pieces of its tuberos roots will soon grow into size. In a sort of sisterly embrace, *Tecoma jasminoides* is in my garden alongside of, and very much intertwined with, the plant I have described. No better combination could be desired; they are most happy together. I had great doubts

about the hardiness of this *Tecoma* even in the Isle of Wight, but it grew to such a size in my greenhouse that it became necessary either to let it have the whole building to itself or to expose it to rougher treatment outside. I determined to run this risk with it some three or four years ago, and the result has been very satisfactory, and I think its safety is now quite assured. It has not blossomed yet quite so freely as I should like in the open ground, but I think this will come in due time. There were a few racemes of its Gloxinia-like flowers this year, and I expect there will be more next season.

H. EWBANK.

**Autumn flowering Kniphofias.**—In an article on these (p. 456) is an erroneous statement relative to *K. Macowani* which I venture to correct. *K. Macowani* is by no means identical with *K. corallina*; this latter was raised in the garden of M. Deleuil at Marseilles, and is an accidental hybrid between *K. Macowani* (female parent) and probably *aloides*. *Macowani* has glaucous leaves, whilst those of *corallina* are bright green and a little narrower and longer; *corallina* grows a little taller, and the spikes too are much longer and narrower than those of *Macowani*. The individual flowers are thinner and opener at the mouth of the tube, and also of a much brighter colour. All things considered, *corallina* is a better plant; it readily bears seeds, but the seedlings are variable. *K. Leichtlini distachya* is a very fine late flowering species, or rather variety; the flowers are yellow with bright red protruding stamens.—MAX LEICHTLIN, *Baden-Baden*.

**Narcissus bicolor maximus** and other seedlings of Leeds's.—"F. W. B." inquires (p. 308) if the figure in the *Gardener's Magazine of Botany* (vol. iii., p. 289) is *N. Michael Foster* or *Dean Herbert*. I feel no hesitation in giving my opinion in favour of *N. Michael Foster*, and as it may be serviceable to some of the readers of THE GARDEN, I further offer my opinion on the other seedling Daffodils of Leeds's figured on the same plate. No. 1 is now called *incomparabilis Fair Helen*, No. 2 *incomparabilis Bianco*, and the plate (p. 169) of the same vol. is now called *Leeds's elegans*, No. 2 *incomparabilis Leeds's Figaro*, and No. 3 retains its original name, *N. major superbus*.—PETER BARR.

**Galanthus octobrensis.**—In answer to Mr. Allen's inquiry, allow me to say that I have the few bulbs of *Galanthus octobrensis* which were in our lamented friend's (Harpur Crewe) garden. They have flowered every year in the last week of October. I should very much like to know the origin of this plant, which I expect must have come from some of the Greek coasts or islands. Why does not someone introduce the Greek *Galanthus Reginæ Olge*, which is also an autumn-flowering plant, and has been one of my special desiderata for some years? Another rare bulb now in flower is *Colchicum Troodi Kotschy*, a really distinct species, with many small white flowers, from Cyprus, which will shortly appear in the *Botanical Magazine*. Whilst many autumn bulbs have flowered late and scantily this year, *Tritoma Macowani* has been the best thing in flower for a month past and seems to resist the alternate frost and rain of the worst October I ever remember in a wonderful way. Can anyone tell me if it will stand a really hard winter outside? I doubt it.—H. J. ELWES.



## TREES AND SHRUBS.

## GROUPING TREES FOR PROTECTION.

THE dotting style of planting trees is cold as well as meagre; nevertheless it has its uses; it shows what individual plants can become under difficulties. It also brings individual specimens and species into the sharpest contrast. It has also enabled cultivators to grow the largest number of species and varieties within a given area. Useful as a school in which something may be learned about trees, it is worse than useless as a means of improving landscape effects; nay, more, the dotting plan mars every landscape on which it is practised. What play of light, or shadow, or repose could be obtained by a series of dots, even though they consisted of trees faultless in form and symmetry? Trees so disposed might be enjoyed as specimens, but a pleasing landscape consisting of solitary trees is plainly an impossibility. Not only, however, is the dotting style inimical to landscape beauty, but it is also opposed to cultural perfection.

Trees and shrubs are gregarious by nature, and if we compel them to grow in solitary isolation, we must take the consequences; and we do so in the form of slow and stunted growth in summer, or of ruthless destruction by cold in winter. It is not good for trees to grow alone. Each wind that blows beats against them with full force; the sun and dry air drain each leaf and bough of its rich juices, and, worse than all, the extremes of heat and cold do their worst as regards the exposed roots. This exposure of the roots to direct solar and atmospheric influence is altogether unnatural, and consequently injurious. But there is no need to rest the case on such general statements. It is only necessary to trace the palpable effects of the frost throughout our pleasure grounds, after an exceptionally hard winter, to discover that the single trees are often cut down, while groups of the self-same sorts escape unhurt. The seeming exceptions but confirm the rule.

These exceptional groups killed or injured will be found in a lower situation or a moister locality. In the former the air is colder, as cold air will shoot down valleys into plains with as much certainty as a stone will roll down a hill; in the latter the plants are also more tender. Excessive moisture may help growth, but it hinders maturity, and it is maturity that enables plants to withstand cold. Hence it follows that groups may in such exceptional localities be cut down, while single trees at a higher level, if more thoroughly matured, may escape. But let the threefold conditions of soil, site, and maturity be alike, and the results will be wholly in favour of the groups. It is necessary, however, to bear in mind that there are "groups and groups." It is not only possible, but easy to render groups tender by overcrowding or over-feeding, and when such is the case, groups may be swept away by a frost that will hardly brown the leaves of a solitary tree. It may be well to add that excessive stimulation, from whatever cause, results in weakness, that leaves the plants more liable to injury from cold than more hardy treatment.

The object, however, is to show that the conditions of growth being the same, Conifers planted in groups endure winters better than those dotted about singly. There is more than one reason for this; the tops are warmer and so are the roots. Planters can scarcely realise the amount of shelter that plants afford each other when planted in groups. Most plants are crippled or killed from the roots upwards, and not from the tops downwards. This is what kills isolated trees. The best roots are often

considerably beyond range of the tops. Of course, the feeding roots sweep out, and are, in ever-widening areas, in search of new and better food. Just then the frost comes down upon them with full power, and either paralyses or kills them. Old roots might be frost-proof, but young ones are not. The former deprived of the latter are as useless as detached gas or water pipes cut off from the mains. The collecting roots being crippled or killed, the main ones become useless, and the tree begins to languish and die, or, in other words, is starved by the amount of cold at its most sensitive extremities, which planting in groups would have protected most effectually. There is another powerful inducement to planting in groups.

The dead leaves may be left to protect the roots along with the overshadowing tops. The former, in many cases, would afford the better protection. It is astonishing how many leaves fall off Conifers just before winter; whole barrowloads of withered leaves lie under large trees of *Pinus excelsa*, *P. Sabiniana*, *P. macrocarpa*, and others. Under single trees these are, in most cases, carefully swept or raked up, as so much unsightly litter, or are blown away by the wind. This is simply to lay the most sensitive part of the tree open to the cold. In a state of nature these dead leaves accumulate to such an extent as to cover the ground under the trees ankle deep. They decompose very slowly, and their texture, form, and non-conducting powers are such that a very thin layer of them forms a frost-proof barrier. I have proved this, and no one who has not noted the power of the tops above and leaves below to resist cold could form a proper estimate of their potency. In group planting there is no temptation to remove the dead leaves, and the wind is powerless to drive them out. Hence trees in groups cannot suffer at the roots, and, as a rule, they winter safely.

**The Golden Robinia.**—The *Acacia*, as *Robinia Pseudacacia*—the Locust tree of the Eastern United States—is familiarly called in British gardens, has furnished a host of sports and seedling varieties. Habit and size of tree, colour of flower, size of foliage, &c., are exhibited in the large range of cultivated forms to a very considerable extent. The Golden *Acacia* is, perhaps, the most distinct of all in its foliage characters, the leaves being a rich golden green; it is a tree, moreover, which grows freely and does not scorch—a common fault in many golden-leaved shrubs and trees. A specimen of this in company with dark green foliage trees forms a striking object during the early summer.

**The Sea Buckthorn.**—The different fruit-bearing trees and shrubs form a very conspicuous feature during the autumn months, but amongst all, the bright orange-coloured berries of *Hippophae rhamnoides* stand out almost alone. Indeed, yellow-berried shrubs are not plentiful, the most noteworthy besides the Sea Buckthorn being the golden-berried Holly, and these two are totally distinct from each other in hue. The Sea Buckthorn when well grown has the long slender twigs closely packed with its showy fruit, which, especially in the sunshine, are very beautiful. While the portion of the branches on which the berries are borne is almost devoid of foliage, the narrow silvery leaves are retained towards the points of the shoots. Probably from the reputation it has somehow acquired of being strictly a sea-side shrub, this *Hippophae* is very rarely planted, yet it thrives as well and fruits as freely when far inland as it does when by the sea, provided soil and situation be alike favourable. With regard to soil, however, it is in no ways particular, but needs a position where the roots are, even during the summer, at least fairly moist. Apart from the high ornamental quality of its berries the beautiful silvery foliage is during the summer months a very attractive feature, especially if in association with more sombre-hued trees.—ALPHA.

## SOCIETIES.

## CRYSTAL PALACE CHRYSANTHEMUM SHOW.

NOVEMBER 6 AND 7.

AMONG the numerous Chrysanthemum shows held in and around London, that which takes place annually at the Crystal Palace is generally one of the most extensive and best, and that of Friday and Saturday last seemed to be more important than any that have preceded it. The liberal prizes which the company offered were sufficient to entice the most noted growers in the south to exhibit, so that one could see at this show some of the finest blooms that it is possible to produce. Although the date of the show was fully early for some of the exhibitors there was a large show, every class being well represented and some numerously. The schedule was most comprehensive, for no fewer than twenty-one classes were included, thirteen for cut blooms the rest for pot plants. The cut flowers were excellent throughout, some being of superlative merit, but the pot plants, with the exception of a few of the groups, were decidedly poor, and cut a sorry figure.

The classes were with one exception open to all comers, the first and principal being for a collection of forty-eight blooms, to include twenty-four of the incurved section and twenty-four Japanese, not fewer than eighteen varieties, and not more than two of a sort. Although this is a number which only the largest growers can command, there were no fewer than ten competitors, the four prizes being £10, £7, £5, and £3. The first prize-winner was Mr. Myers' gardener (Mr. Molyneux), Swanmore Park, a well-known Chrysanthemum exhibitor, and who has proved himself the champion at the chief London exhibitions. On this occasion he showed in eight classes, and took six first prizes, one second, and one third. His large collection was simply magnificent, every bloom being perfect, representing the variety in the highest perfection both as regards size, form, and colour. As the selection of sorts by such an experienced exhibitor may be useful to some of our readers, we append the names of the sorts shown.

**INCURVED VARIETIES.**—Queen of England (2), Lord Alcester (2), Alfred Salter, Lord Wolseley, Emily Dale (2), Princess of Wales (2), Jeanne d'Arc, Empress Eugénie, Jardin des Plantes, Prince Alfred, Princess Beatrice, Refulgens, Lady Hardinge, Mr. Bunn, Nil Desperandum, John Salter, Golden Empress, and Empress of India.

**JAPANESE VARIETIES.**—Mme. C. Audiguier (2), Sceptre Toulouse, J. Délaux, Criterion (2), Mme. Deville, Elaine, Mme. Marrouch, Mme. Lecroix, Belle Pauline, Meg Merrilies (2), Val d'Andorre, Baronne de Prailly, M. Astorg, Soleil Levant, Mme. de Sevin, Duchess of Albany, and Fair Maid of Guernsey.

The other collections in this class, particularly those shown by Mr. Gibson, of Morden Park, Mitcham, who was second, and Messrs. Drover, of Fareham, who were third, were highly creditable, some of the blooms in Mr. Gibson's stands being extraordinarily fine. Other exhibitors in this large class came from Eastbourne, Hastings, and Reigate.

Eighteen incurved varieties were shown by nine, Mr. Molyneux being the most successful, his collection representing grand blooms of the following: Golden Empress, John Salter, Alfred Salter, Lord Alcester, Queen of England, Empress of India, Sir S. Carey, Emily Dale, Princess of Wales, Empress Eugénie, Cherub, Mr. Bunn, Prince Alfred, Refulgens, Jeanne d'Arc, Jardin des Plantes, and Novelty. Mr. Berry, of Roehampton House, who was second in this class, deserves a word of praise for his fine collection, although his blooms were not of such uniform large size as those from Swanmore Park.

Twelve incurved varieties were shown best by Mr. Wyatt, of Braddenhurst, Caterham Valley. He had Prince Alfred, Baron Beust, Mrs. Dixon, Cherub, Lady Hardinge, Mr. Bunn, White Venus, Nil Desperandum, Venus, Lord Wolseley, Empress of India, and John Salter. There were eight other collections. The best incurved variety was Alfred Salter, from Mr. Molyneux, who had six splendid



blooms. Other exhibits in this class were so poor, that the second prize was withheld.

**JAPANESE VARIETIES.**—The finest collection of eighteen Japanese varieties among eight was that from Mr. Ridout, gardener at Woodhatch Lodge, Reigate. He had magnificent blooms of the following varieties: Dr. Macary, Comte de Germiny, Red Gauntlet, Peter the Great, The Daimio, Japonaise, J. Délaux, Mdme. Rendatler, Mdme. Deveille, Criterion, J. Laing, Fair Maid of Guernsey, Mdme. C. Audiguier, Soleil Levant, Mdme. de Sevin, Mdme. Lacroix, Mons. Tarin, and Chang. This was an excellent class throughout, the collections of Mr. Springbett, who was second, and Mr. Berry being praiseworthy. The best dozen Japanese sorts also came from a Reigate garden, Mr. J. Brown, gardener at Great Doods, being the first prize-winner. He had the following sorts: Mdme. C. Audiguier, Mons. Astorg, Comte de Germiny, Peter the Great, Criterion, J. Laing, Japonaise, J. Délaux, Mdme. B. Rendatler, Dr. Macary, Fanny Bouchardet, and Val d'Andorre. Ten other collections were shown, the second being from Mr. Molyneux, whose dozen were scarcely so uniform in size as Mr. Brown's, while Mr. Wyatt was third. The best six blooms of any Japanese variety was from Mr. Molyneux, who had huge examples of Mdme. C. Audiguier. Mr. C. Orchard, of The Leigh, Coombe Wood, was second with fine blooms of Mons. Henri Jacotot, a splendid rich crimson sort, and Mr. Burnett was third with Triomphe du Nord. Other sorts shown were Mdme. C. Audiguier, Elaine, and James Salter.

**REFLEXED VARIETIES.**—These were admirably shown by one or two exhibitors, the finest dozen blooms being those from Mr. Molyneux, who had the following selection: Mdme. Madeleine Tezier, Distinction, Golden Christine, Phidias, Cullingfordi, Dr. Sharpe, Félicité, King of the Crimson, and Pink Christine.

**ANEMONE-FLOWERED SORTS** were shown best by Mr. E. S. Cole, Woodside, Bristol, who had beautiful examples of Lady Margaret (2), Georges Sand, Prince of Anemones, Margaret of Norway, Glück (2), Acquisition, Fleur de Marie (2), Empress (2).

**POMPON VARIETIES** were shown by five, Mr. Molyneux being the most successful. He had the following sorts: Pygmalion, La Purété, President, Black Douglas, Adèle Presette, Prince of Orange, Golden Circle, Prince Victor, Atala, Rose d'Amour, and Mdme. Marthé.

**POMPON ANEMONES** were also shown best by Mr. Molyneux, his selection being: Antonius, Margaret de Coi (2), Perle, Marie Stuart, Mr. Astie (2), Regulus, and Mdme. Montet.

**JAPANESE ANEMONE-FLOWERED SORTS** were only shown by five. The six best blooms came from Mr. Cole, who had Mdme. B. Pigmy, Sœur Dorothee Souillé, and Mdme. Clos. Other sorts shown well in this class were Fabias Maderanaz, Marie Louise, and Bacchus, the last a particularly richly coloured sort—a deep crimson-purple.

**POT PLANTS.**—The best of these were the groups arranged with a view to the best effect. These were really above the average merit as seen at shows. There were three classes set apart for them, one being for a collection of incurved varieties only, the second for Japanese sorts, and the third for a mixed collection to be shown by amateurs only. The finest amateur's group was that from Mr. Galsworthy's gardens at The Leigh, Coombe Warren, and a better group of well-grown plants with correspondingly fine flowers we have seldom seen. The selection of sorts, too, being well chosen, made the group most effective. Mr. Stevens' first prize group of incurved sorts only was also good, as likewise Messrs. Laing's Japanese group, which comprised a number of new or little-known sorts, all admirably grown. The trained pot plants were not remarkable, and by the side of the excellent untrained group

new varieties were not numerous. Among those shown by Messrs. Laing two were awarded first-class certificates. These were both Japanese sorts. The first—Mr. John Laing—is a rich-coloured cinnamon-red sort with long narrow curled florets; the second—Mdme. Laing—is a fine flower of a

delicate blush pink; and a third, named Alpha, was commended. Messrs. Carter also received a commendation for a new variety, named Bronze Queen of England, a sport with bronzy yellow flowers distinct from every other sort, retaining all the fine points of the superb Queen of England, and only differing in colour. Messrs. Cannell, of Swanley, showed a selection of new sorts, one named Triumphant, a large pale pink Japanese kind, being the most noteworthy, as it is not in commerce. Other sorts of special note were W. Robinson, a large bronzy brown Japanese; M. Délaux, M. Lacroix, M. Brunet, and M. H. Jacotot. The new Cullingfordi was shown in several of the collections, and was, in fact, the brightest flowered sort in the whole exhibition.

## ROYAL HORTICULTURAL.

NOVEMBER 10.

ON this occasion there were but few exhibits and a poor attendance—a contrast to the brilliant series of gatherings that have taken place here during the past six months. The following four plants were awarded first-class certificates:—

**CYPRIPEDIUM INSIGNE WALLACEI.**—A distinct and handsome variety in the way of Maulei, but the flowers are smaller, darker in colour, and with more white on the upper sepal. The plant shown by the New Plant and Bulb Company, Colchester, was, however, scarcely in the best condition to judge of its merits.

**AMARYLLIS AUTUMN CHARM.**—One of the hybrid race, to which the sorts Autumn Beauty, Mrs. Garfield, and others belong. It is an extremely beautiful variety, with large well-formed flowers of a bright carmine-crimson netted and striped with white. Shown by the raisers, Messrs. Veitch & Sons, Chelsea.

**CHRYSANTHEMUM MAIDEN'S BLUSH.**—A large and handsome Japanese variety. The blooms are fully 6 inches across, very full, the florets forming quite a dense globular head of the most delicate blush-pink. It stands out distinct from among the crowds of varieties now grown. Shown by Mr. Stevens, Putney.

**CHRYSANTHEMUM MONS. A. VILMORIN.**—A Japanese variety with shaggy blooms, the narrow florets being of a rich cinnamon-red colour. It is a smallish flowered sort and pretty. Messrs. Veitch.

Among the rest of the exhibits the collection of Barkerias from Dr. Duke's garden at The Glen, Lewisham, was particularly remarkable. There is no collection round London where these difficultly-managed Orchids are better grown and flowered than in Dr. Duke's garden, and on this occasion he sent about a dozen of his best plants, all in the best of health and bearing tall spikes crowded with blooms. The kinds were chiefly B. Lindleyana with the varieties Centeræ, Dukeana, and glenensis, all abundantly different from the type in point of colour. There was also the charming B. Barkeriola, with white flowers prettily spotted with magenta. Dr. Duke also showed the rare *Odontoglossum Kramerianum* and *Oncidium retusum*. Mr. W. Bull contributed a group of choice plants, chiefly consisting of Orchids, among them being admirably flowered specimens of *Dendrochilum Cobbeanum giganteum*, *Barkeria Barkeriola*, *Vanda Sanderiana*, *Oncidium concolor*, *Cypripedium Spicerianum*, *Trichosma suavis*, *Vanda cerulea*, *Sanderiana* (with three fine flower-spikes), *Odontoglossum Insleayi leopardinum*, *Cattleya aurea*, *Lælia autumnalis atrorubens*, *Oncidium tigrinum*, *Oncidium ornithorhynchum*, and *Mormodes pardinum unicolor*—altogether a goodly list for dull November. Besides these there were fine specimens of the new *Eucharis Mastersi*, *Pantratum fragrans macrophyllum*, and others.

**CYCLAMENS** were largely and beautifully shown by Messrs. Veitch and Mr. Page, Twickenham, and both were awarded silver-gilt medals. Messrs. Veitch also showed finely flowered specimens of *Bouvardias*, single and double, including besides commoner sorts two new doubles, named Thomas Meehan and Sang Lorrain, both having flowers of the richest carmine-crimson, and which will, no doubt, become as popular as the President Garfield variety. A superb plant

of *Gymnogramma schizophylla superba*, one of the most elegant of all Ferns, was shown by Mr. Wright, Rydal Mount, Streatham-hill, to whom a cultural commendation was accorded.

**NEW CHRYSANTHEMUMS** were shown plentifully. Messrs. Veitch had a collection, among which those named *Perle des Beautés* (maroon-crimson), *Phœbus* (yellow), *Rosy Morn* (pink), *Rose Céleste* (quilled pink), *Mons. Paul Fabre* (dark red), *L'Admirable* (brownish red), *Japonaise*, and *Mons. Freeman* were the best. Messrs. Cannell, of Swanley, had a collection of new sorts, which included *Le Triumphant*, *Lord Beaconsfield*, *W. Robinson*, *Mons. H. Jacotot*, *Madame Lacroix*, *Mons. Délaux*, *M. Brunet*—all first-rate flowers. Mr. Stevens, Putney, had blooms of two new Japanese varieties, *John Laing* and *Mdme. Laing*, both of which will assert themselves no doubt. Mr. Martin, of Henfield, had flowers of a yellow sport from *White Globe*, very pretty and distinct. Mr. Owen, Maidenhead Nurseries, had a capital stand of flowers, grown from plants struck in June. They seemed to be all new sorts; among them those named *Belle Etoile* and *Mons. Ivon* were particularly prominent.

**Fruit and vegetables.**—There were not many exhibits submitted to the committee. Mr. B. S. Williams sent examples of his new Grape, *Winter King*, which is a fine-looking black variety of good quality and an excellent keeper. Messrs. Harrison, of Leicester, showed a seedling Apple named *Lord Melbourne*, which promises to be a first-rate addition to the cooking sorts. They also sent capital samples of the Apple, *Annie Elizabeth*. Messrs. Rivers sent fruits of the *Parrot Pear* in the way of Gansel's *Bergamot*, but now past its season. Mr. Miller, of Rood Aston, sent a seedling Apple called *Rood Aston Seedling*, and several other seedlings were shown. Mr. A. Lancaster sent fruits from three Pear trees planted in 1842; the sorts were *Beurré Bosc*, *Brown Beurré*, and *Gansel's Bergamot*, and all extremely fine samples of the kinds. Mr. Gilbert, of Burghley, sent samples of *Batavian Cabbage Lettuce*, apparently a capital sort for present use.

## NATIONAL CHRYSANTHEMUM SOCIETY.

NOVEMBER 11 AND 12.

If the prosperity of a society may be judged by the extent of the patronage which it receives, then this society should be flourishing indeed. This, the second exhibition only held under its auspices was so far superior in all ways to the first, that there is good reason to believe that a long-felt want in this country has been supplied, viz., a central representative society of Chrysanthemum growers and exhibitors. The society is now thoroughly well organised. It is managed by a committee gathered from all parts of the country, so that there is now but little trace of the local element about it. That Chrysanthemum growers appreciate the advantages offered by a national society is evident from the fact that on this occasion exhibitors came from all parts of the country, often from remote districts. The value of the prizes offered is, of course, one of the chief inducements for country growers to exhibit, but apart from that there are many who consider, and rightly too, that there is more credit due to them if they can win prizes at a national competition than at a purely local one, and this feeling will doubtless become more and more prevalent till we shall be able to see in London a competition among the very best growers from Chrysanthemum-growing centres. Another important element in this society is the affiliation of local societies; at the present time there are about a score that have availed themselves of the privilege. Among other advantages offered to these affiliated societies, the central body grants medals to be competed for by the members of the minor societies, and otherwise there is intercommunication, so that Chrysanthemum growers, now such an important body, cannot fail to derive advantages by the establishment of a national society. This society also undertakes to adjudicate upon new varieties, and to carry out this work a strong committee of specialists has been formed, which holds meetings at intervals during the Chrysanthemum season.



The show was, without question, the largest and the finest that has been held at the Aquarium, or probably in London, as every one of the classes, numbering no fewer than forty, was represented. The cut flowers throughout were uncommonly good, and the pot plants, particularly the groups and the trained specimens, were finer than we ever remember seeing them.

The schedule, as last year, was most comprehensive, arranged so as to give equal facilities for exhibiting to the small as well as to the large growers. Ten classes were set apart for pot plants, twenty-one for open classes of cut blooms, four amateurs' classes, and five for growers in the metropolitan district—that is, within an area of three miles and a-half from Shoreditch Church. The prize-list, which we publish in our advertising columns, shows that the prize-winners hailed from widely separated districts, although the bulk of the prizes was taken by exhibitors from the suburbs of London. Incurred varieties were shown in an excellent way, but the principal class for forty-eight blooms was poorly represented, notwithstanding that the prizes were as high as £10, £7, and £4. There was but one exhibitor, but the judges did not consider his collection sufficiently meritorious to be awarded the first prize, although it was a capital exhibit. The class for three dozen blooms was better represented. The first prize-winner (Mr. C. Gibson, a well-known grower at Morden Park, Mitcham) had a fine collection, but not uniform in merit, for half of his blooms were twice the size of the rest. The first prize in this class consisted of the much-coveted Veitch Memorial Medal in addition to £5. There were four exhibitors of two dozen incurred blooms, and the veteran president of the society, Mr. Sanderson, worthily headed the list with a highly creditable collection, all the more remarkable on account of its being grown at Willesden, a district which must now be included in the London smoke area. The other classes for incurred blooms were of average merit, and in all the standard sorts which have been enumerated in these pages over and over again were shown. Among the newer kinds the beautiful sorts Lord Wolseley, Lord Alcester, Jeanne d'Arc, and Mdme. M. Tezier were prominent in the large collections. In some cases duplicates of each were shown, a proof of their value.

JAPANESE VARIETIES were never shown finer, and it is difficult to conceive how Mr. Lowry could have been surpassed in his collection of four dozen blooms. They were simply perfect, large, highly coloured, and a capital selection of sorts, some two dozen in number. There were four collections of twenty-four blooms and no fewer than fourteen of twelve blooms, the latter class being one which the majority of exhibitors are able to compete in. Canon Hodgson's garden at Hythe contributed the best collection, and his gardener, Mr. Shoemith, deserves credit, for all his exhibits were excellent. The best sort in the one-variety class was Elaine, which was shown by two others; Mdme. C. Audiguier was second and third. It is evident that the Japanese section is the most popular, for not only was it the most numerous, but there was no mistaking the class to which the majority of the visitors were attracted. There were many new sorts shown among them, but comments on these we must leave for the present.

REFLEXED FLOWERED VARIETIES, always a popular class, were fairly well shown, and none in the class were more admired than the new Cullingfordi, which is undoubtedly the richest coloured of all Chrysanthemums. The Christines, too, were beautifully shown—indeed, the first prize dozen was made up chiefly of the Pink, White, Peach, and Golden Christines; King of the Crimson was also among the most attractive. The classes for the sections Anemone-flowered sorts, both Pompon and Japanese, were not numerous represented, and it is evident that they are not very popular. Among the large-flowered Anemone blooms, the snow-white Lady Margaret and Fleur de Marie, the golden yellow Glück seemed to be the favourite sorts among the exhibitors. Pompons also were not nearly so well shown as usual, although they made a fine display, being the only class where three blooms are allowed to be shown together. There was a class for single varieties, but no exhibitor came forward.

There was also provision made in the schedule "for the best method of staging blooms without cups." This class brought out a few competitors, but none of their efforts were remarkable, all being evidently laboured arrangements, and none could get the idea out of their heads that boards could be dispensed with, although the schedule distinctly stated "with or without boards." Nobody had the courage to show a vase of blooms arranged tastefully with the plant's foliage. They all had the one idea of putting the flowers in holes of boards. The judges wisely withheld the prizes. The only creditable attempt at arranging Chrysanthemums effectively was carried out by Mr. Cannell, of Swanley, who had an extensive display of first-rate blooms, representing all the sections and the best sorts in each. The flowers were placed three or more together with Chrysanthemum foliage, and being raised above the boxes, as single Dahlias are now commonly shown, the effect was admirable, and the judges appropriately awarded the exhibitor a medal. The amateur classes were poorly represented as regards numbers, four being the highest number in a class, and there were but few exhibits in the metropolitan classes, and these, as may be seen by the prize list, were contributed by a few growers.

The pot plants, as we have before remarked, were excellent, and we have never seen finer groups arranged for effect than those exhibited by Mr. Stevens, of Putney, and Mr. Davis, of Camberwell, who were first and second respectively in the classes for incurred and Japanese varieties. The first prize trained plants of incurred sorts were a great credit to the exhibitor, Mr. Monk; indeed, all the groups of six trained plants were above the average merit. The trained Japanese plants were not so effective, though it would be difficult to surpass the single specimens shown by Mr. Monk, who had a grand plant of George Gordon, or Mr. Wills, who had a huge specimen of La Nymphe. An extra prize was deservedly awarded to Mr. Reeve, of Barnet, for a gigantic trained specimen of the early-flowering Sœur Melanie, which was no less than 6 feet 6 inches through. There were special prizes offered by Mr. Crute for groups of a dozen plants of incurred and Japanese varieties, grown and exhibited in his patent concave pots, which seem to be well adapted for Chrysanthemum culture.

NEW VARIETIES.—These were numerous shown, the majority being of the Japanese section, but the bad light on the show day rendered it impossible to judge of their merits in point of colour. The floral committee of the society held a meeting in the afternoon, when the following first-class certificates were awarded: To Messrs. Jas. Veitch & Sons for Japanese Chrysanthemum L'Adorable; to Mr. Stevens, Putney, for Japanese Maiden's Blush; to Mr. Davis, Camberwell, for Japanese L'Adorable and Jupiter; to Mr. W. Martin, for Yellow Globe (incurred), sport from White Globe; to Mr. Cannell, Swanley, for Japanese L'Ebouriffée; to Mr. Mardlin, Finsbury Park, for Hybrid Pompon Mrs. Mardlin, a sport from President; to Mr. Wright, Temple Gardens, for Japanese Chrysanthemum Mdme. J. Laing; to Messrs. Carter & Co., Holborn, for Bronze Queen of England (incurred); to Mr. J. Laing, Forest-hill, for Laing's Anemone; to Mr. Sullivan, Wimbledon, for Japanese Pietro Diaz. Silver medals were awarded to Mr. Davis and Mr. Wright for six new varieties of Chrysanthemums.

### Fruit.

The display of Grapes was of an unwonted character for this show, and remarkably fine quality was shown. In the class for three bunches of white kinds, Mr. Castle, West Lynn, had capital Muscat of Alexandria finely ripened and coloured, the same kind in good form taking the second and third prizes. In the corresponding class for black kinds, eight lots being staged, some huge Black Alicante, from Mr. Howe, Streatham Common, gave plenty of weight if not beauty, for these were really dense clusters rather than bunches, and weighed a total of 1½ lbs. Some superbly finished Gros Colman, from Mr. Castle, was well placed second, and although the bunches were not large, they were admirably finished. Mrs. Pince's Black Muscat was in good form in the third

prize lot. The big class for collections of not less than twelve bunches brought no fewer than eight entries, in round numbers 100 bunches—quite a big show, and the samples generally first-rate. Mr. Pratt showed for his twelve, four grand bunches of Muscat of Alexandria, four of Black Alicante, and four good-sized Lady Downes—all very fine, but showing moderate variety. On the other hand, Mr. Wallis, of Keele Hall, who was placed second, had all his bunches distinct and of capital merit. His kinds were, of blacks, Burchardt's Prince, Mrs. Pince's Black Muscat, Barbarossa, Black Alicante, Lady Downes, Gros Maroc, Gros Colman, and Alnwick Seedling; and of whites, good Muscat of Alexandria, White Tokay, Royal Vineyard, and Mrs. Pearson. The third prize lot included Alicante, Lady Downes, Mrs. Pince, and Muscat of Alexandria only. Pears were in abundance and good, eleven lots of six dishes being staged. Mr. Goldsmith had large and good samples of Beurré Clairgeau, Pitmaston Duchess, Doyenné du Comice, Duchesse d'Angoulême, Beurré Superfin, and Durandau. Others had good Flemish Beauty, Beurré Diel, Chaumontel, Glou Morceau, Hacon's Incomparable, and Triomphe de Jodoigne. Fifteen collections of six dessert Apples were staged, and rich colour and good quality were shown. Mr. Jacob, of Petworth, who took the first place, had some seven Sussex local kinds in Winter Traveller, Sussex Nancy, Lewis's Incomparable, and King, Cox's Orange, and Ribston Pippin, fine and well coloured. Mr. Millar, of Margate, and Mr. Ross, of Welford Park, had beautiful samples also, including the above three Pippins, Fearn's Pippin, Cornish Aromatic, and Scarlet Pearmain. In other lots Aromatic Russet, Cornish Gillsflower, and Winter Pearmain were well shown.

Then there were eleven lots of six kinds of kitchen Apples, many of great size and beauty. Mr. Ross was here first with fine, even handsome samples of Stirling Castle, Peasgood's Nonsuch, Mère de Ménage, Cox's Pomona, Waltham Abbey Seedling, and Lane's Prince Albert, a beautiful sample. Mr. Miller had grand samples, if less even, of Kentish Filbasket, Annie Elizabeth, Emperor Alexander, Peasgood's Nonsuch, &c. Hoary Morning, Wellington, Lord Derby, Striped Beaufin, and Alfriston were all shown in fine form.

### Vegetables.

Only four collections of twelve kinds of Potatoes were shown, Mr. Howard, of Canterbury, having grand samples; Mr. R. Dean, Ealing, came second with neater tubers, and Mr. Wiles, of Banbury, was third. The Dean, Vicar of Laleham, Reading Russet, Rosebud, Edgcote Purple, Cardinal, and Beauty of Hebron, in coloured kinds, and Chancellor, Prime Minister, Magnum Bonum, Woodstock Kidney, Schoolmaster, Snowflake, and Lily White were good amongst white kinds. The same exhibitors took prizes in the same order in the class for six kinds, five lots being shown. Here some of the kinds enumerated above came out very finely, the coloured sorts especially being in strong force. Special prizes were offered by the Messrs. Sutton & Sons, of Reading, for six kinds of vegetables, and ten lots, generally of superb merit, were staged. Mr. Miller, of Rood Ashton, came first with fine Rousham Park Hero Onions, Autumn Giant Cauliflower, Aigburth Brussels Sprouts, good Stamfordian Tomatoes, and Schoolmaster, a capital grower. Mr. Haines, of Coleshill, had superb Onions, Leeks, Cauliflowers, Carrots, and moderate Tomatoes and Potatoes. The third prize collection included six plants of selected Brussels Sprouts, as good and clean as ever have been staged.

MESSRS. WEBB AND SONS, Wordsley, offered prizes for six kinds of vegetables, but only six lots competed. The quality was good, and Mr. Haines was in fine form in the first-prize collection with kinds similar to those previously mentioned. Mr. May showed here also plants of his fine strain of Brussels Sprouts. Messrs. Sutton and Sons showed a big collection of Potatoes, including many of the best kinds in cultivation, and these were greatly admired. Messrs. C. Lee and Sons, of Hammer-smith, staged a large and very interesting collection of Apples and Pears from their Ealing Nursery. Mr.



Laxton, of Girtford, showed Apples and Potatoes, and Mr. Jas. Crute a huge pyramid of his patented pots, which show greater depth and apparent solidity of texture than is usually found in pots.

A full list of awards will be found in our advertisement columns.

### CHRYSANTHEMUMS AT KINGSTON.

ONE of the finest exhibitions of this popular autumn flower is generally to be found at Kingston, and that held there the other day was not behind its predecessors in extent or quality. The competition in the champion's class for forty-eight blooms, half Japanese and half incurved, always provokes great interest, as some of the best growers in the kingdom compete in it. At the recent show, Mr. Molyneux, gardener to Mr. Myers, Swanmore Park, Hants, proved to be the champion winner, and having taken the first silver cup two years since and won the new cup last year, he has nobly won it again this year, and now becomes for his employer the absolute possessor. His blooms were grand, especially the incurved kinds, in which section Mr. Molyneux was very strong. His chief antagonist was Mr. Gibson, gardener to Mr. L. Wormald, Morden Park, whose blooms were fine, but still wanting the size and finish found in the Hampshire flowers. Mr. Molyneux was also so strong, that he took the first prize with twenty-four grand incurved blooms in that class, also twenty-four Japanese; also with twelve reflexed flowers, including that superb new crimson kind, Cullingfordi; also six Japanese, one kind, in grand bloom, of that beautiful sort, Belle Pauline, rosy white edged with purple. With six grand blooms of Princess of Wales he was first in a similar class for incurved kinds, and also had the only twelve Anemones (Japanese), consisting of Fabias de Maderanaz, Sœur Dorothee Souillé, Marguerite de Villageuse, and Mdle. Cabrol. So far, these kinds, though fine, lacked variety in colour, being tinged with pink. It is not at all an exaggerated statement to say that Mr. Molyneux's exhibits distinctly added to the high quality of the exhibition. It is worthy of remark as showing the hold which Chrysanthemum culture has upon the young gardeners of the Kingston district that a class for those who have never before won a prize at any show brought seventeen competitors, and many of the exhibits were of a first-class order. On the whole, it is fair to say that, whilst the incurved flowers were exceptionally good, Japanese blooms were not up to the high average seen in some previous years, due, no doubt, to the drought of the summer, which materially affected the formation of wood and the plumping up of flower-buds. Trained plants are generally good at Kingston, but this year the best certainly were three capital medium-sized specimens of Japanese kinds, grown by Mr. Knight, gardener to Mr. R. Few, Esher. These were Bouquet Fait, Safrano, and La Nympe, all finely bloomed. Against these, trained incurved plants looked poor and lacked attractiveness under the dull light which so much prevailed. Table plants were as usual good, and the berried table plants charming. A grand lot of early Cyclamens was staged by Messrs. Page & Sons, Teddington, who have some 20,000 in stock this year. Chinese Primroses were very good also.

**Chrysanthemum sports.**—It is somewhat a reflection upon Chrysanthemum growers for exhibition that they should prefer to grow for the production of specimen plants, standards especially, Mrs. G. Rundle and other sports, Mrs. Dixon, and Mr. G. Glenny, in preference to other and more distinctive kinds. It is also hard upon visitors to Chrysanthemum shows that they should be so constantly treated to these sports, because they present only the most trifling diversity in colour of flowers, and none in other respects. I hope the time is not far distant when compilers of Chrysanthemum show schedules will refuse the exhibition of more than one of these Rundle sports in any collection of three plants, and more than two in any six plants. With regard to cut blooms, we have such a wealth of variety in the Japan section, and comparatively so few sports, that there is no danger of seeing too much sameness in stands of these. But with the incurved section the

case is different, as whilst the Rundles are happily too small for cut-flower stands, we get, in the Empress of India and its sports, or in Queen of England and its sports, just the same objectionable features. It is no unusual thing to see Empress of India, Golden Empress, and Lord Alcester in the back row of a stand of twelve or nine blooms, and that is rather too much of a big, but bad thing. Surely with the wealth of good kinds in cultivation not more than one of any family such as Empress of India or any other sportive kind should be permitted in a stand of twelve blooms, and but a pair of sports in a stand of twenty-four kinds. If that plan were adopted, we should see more of variety introduced than at present, for the sameness is often, to those whose duties are to report upon these shows, most unpleasant, and it is hardly less objectionable to visitors who have a right to look for variety when that is ostensibly, though not really, demanded.—A. D.

### PROPOSED INTERNATIONAL EXHIBITION.

ON Tuesday last a meeting of horticulturists was held at South Kensington in connection with the Royal Horticultural Society, the object being to consider the desirability of holding an international horticultural exhibition in London in 1887. The president of the society, Sir Trevor Lawrence, took the chair, and the meeting, which was large, included the members of the council of the society and a numerous gathering of the chief horticulturists in London and the provinces. The president first alluded to the object of the meeting and expressed a desire to ascertain the opinion of those present whether the council of the society could enter into further correspondence with the commissioners of the Exhibition of 1851 with the view to co-operate with them in any undertaking which they may have in view for the year 1887. The following resolutions were carried unanimously. The first, moved by Dr. Masters and seconded by Mr. Watts (Wiltshire), was as follows:—

That in view of the great and increasing importance of horticulture, and in order to preserve the high reputation in which British horticulture is held by other nations, it is desirable to hold at no distant date an international show and congress of horticulture in the widest sense of that term; and that the year 1887, being the jubilee year of Her Most Gracious Majesty the Queen, would be the most fitting time for such an undertaking.

The second resolution, proposed by Mr. Shirley Hibberd, and seconded by Mr. Bruce Findlay, was, "That should Her Majesty's Commissioners of 1851 be prepared to afford adequate facilities, such a show and congress would be most advantageously held on some part of the commissioners' grounds at South Kensington, provided that any use which the commissioners propose to make of the rest of the grounds during the year 1887 be found to be in harmony with the character of the projected show and congress."

The third resolution, moved by Mr. W. Paul and seconded by Mr. Smee, was as follows: "That this meeting requests the president and council of the Royal Horticultural Society to take measures to ascertain the views of the commissioners of 1851 on the matter, and assures the president and council that should the proposals of the commissioners be of such a nature as to afford reasonable hope that the show and congress may be carried out in a manner worthy of British horticulture, no effort shall be wanting on the part of those present to secure the success of the undertaking."

The fourth resolution, moved by Mr. Harrison, of Leicester, and seconded by Mr. Cheal, of Crawley, was, "That this meeting do now adjourn till such time as it shall be summoned by the president and council of the Royal Horticultural Society, in order that the results of the negotiations with the commissioners of 1851 may be laid before it."

### BOOKS.

**Lindenia Iconographie des Orchidees.**—This is another addition to the already very numerous illustrated works on the Orchid family, and, like one or two well-known books of the same kind, it is intended to supply amateurs and all who are interested in the cultivation of Orchids with full-sized representations of the most popular kinds. As the editors inform us that their work is intended chiefly for Continental readers, we cannot urge the same objection to it as would be reasonable were it intended for the English market, where already there are at least enough illustrated works devoted to the Orchid family. The numbers are issued monthly and contain four life-size illustrations of either well known or recently introduced species. The first number issued contains plates of *Aerides Reichenbachianum*, *Trichopilia suavis* var. *alba*, *Odontoglossum nevadense*, and *Dendrobium Falconeri*. The execution of the pictures is such as is seen in all works of this character, whilst the text comprises historical and cultural information. The plates are printed on stout paper, and the general character of the book is good. The *Lindenia* is published for the authors by M. Meyer Van Loo, Ghent.

### LATE NOTES.

**Cucumbers** (*J. O.*).—We cannot say what has gone wrong with your Cucumbers; there is neither fungus nor insect on them.

**Hyacinth support** (*J. S.*).—It will doubtless answer the purpose, but seems somewhat clumsy and unnecessarily complicated.

**Fungus in greenhouse** (*R. H. W.*).—The name of the fungus is *Agaricus melleus* (so called from its colour of honey). Although eaten in some places, it is generally considered non-edible. It is common, and generally grows on stumps and tree-roots.—W. G. S.

**Gold fish.**—In reply to 5475, allow me to say that I am in the habit of keeping gold fish in a pond on a lawn; also in a tank in a conservatory, and I find that they do well by feeding them once a week, sometimes with vermicelli, at others with dry bread not broken up, as it amuses them to pull it to pieces. It is best to furnish the pond with water weeds. I clean the pond out once a year.—J. H.

**Double white Violets** (*G. H. M.*).—The two names, *Comte de Brazza* and *White and Swanley* White, represent but one variety, which is that you send us. Messrs. Cannell, of Swanley, originally obtained the double white from *Comte de Brazza* himself, so that there can be no doubt about the two being the same. The importers gave the name *Swanley White* because it is less cumbersome than the other, *Comte de Brazza*'s *Double White Neapolitan*.

**Naming plants.**—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants.**—*B. D. A.*—Send them to some specialist. We cannot undertake to name *Chrysanthemums*.—*A. Jenkins*.—*Pleione humilis*.—*A. K.*—*Nerine crispata*; *Lapageria* would be considered inferior, as it is so pale in colour.—*J. H.*—Next week.—*J. S.*—*Oncidium crispum*.—*E. M. G.*—*Cupressus Lawsoniana*.—*T. Scott*.—Variety of *Oncidium ornithochrysum*.—*M. R.*—1, *Crocus nudiflorus*; 2, *C. cancellatus*; 3, species of *Impatiens* (not in flower); 4, cannot name the variety of *Caladium*.—*N. S. Smith*.—1, *Jasminum revolutum*; 2, *Jasminum officinale*; 3, *Solanum jasminoides*; 4, *Keria japonica* fl.-pl.; 5, *Primula obconica*.—*R. G. Brown*.—1, specimen insufficient; 2, *Nephrolepis Duffii*; 3, *Pteris tremula*; 4, *Gymnogramma chrysophylla*.—*J. Gordon*.—Appears to be *Eucyphia pinnatifolia*.—*E. D.*—Next week.—*J. Ewing*.—*Maxillaria picta*.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruits.**—*T. C. A.*—1, *Beurré Clairgeau*; 2, *Beurré d'Amanlis*; 4, *Beurré Diel*.—*R. B.*—*Beurré Clairgeau*.—*O. K. T.* (*Castle Upton*).—1, *Bedfordshire Foundling*; 2, *Hawthornden*; 3, *Striped Beaufin*.—*C. B.*—1, *Duchesse d'Angoulême*; 2, *Glou Morceau*; 5, *Fondante du Comice*.—*Kentley*.—*Beurré—Kennedy* (*Dunfries*).—1, *Hanwell Souring*; 2, *Waltham Abbey Seeding*; 3, *Lord Grosvenor*; 4, *Lemon Pippin*; 5, *Allen's Everlasting*; 7, *Stirling Castle*; 8, *Warner's King*; 9, *Yorkshire Beauty*; 11, *Hollandbury*.—*W. H.*—*Blenheim Orange*.—*E. W.* (*Middlesex*).—*Althorpe Crassane*.—*W. H. J.* (*Brough*).—*Wareham Russet*.—*G. R.*—The large one is *Small's Admirable*; small one not known.—*E. D. B.*—3, *Triomphe de Jodoigne*; 6, 4, *Beurré Diel*; 5, *Vicar of Winkfield*.—*T. C.*—1, *Cox's Pomona*; 2, *King of the Pippins*; 3, *Golden Noble*; 4, *Danielow's Seeding*; 5, *Alfrieston*; 6, *Emperor Alexander*.—*H. T. E.*—Large, *Catillac-long*, *Uvedale's St. Germain*.

Other names will be given next week. We have received numerous parcels of fruits to name containing only one example of each sort, and often in a bad condition. We must, therefore, decline to name fruits unless our rules as stated above are complied with.



## WOODS & FORESTS.

### TIMBER OF ORNAMENTAL TREES.

IT would appear, by the continued recurrence in the pages of *THE GARDEN* of articles on forestry, and the several uses to which home-grown timber may be applied, that these subjects have not lost their interest with your correspondents, and, as it is to be hoped also, with your readers. To anyone who is forming new plantations they may be of great use, and may be a guide to him in the choice of his trees. My own experience, though by no means great, extends over a great number of years, and it will afford me much pleasure to supplement what has already appeared in *THE GARDEN* by recording what has come under my own observation. If we except the Oak and the Ash, the Beech and the Spanish Chestnut, it will be found that for the best work wood of foreign growth is generally preferred. Elm, and even Ash, are imported from abroad for the purposes of the coach-builder, and I have never seen any Lime of English growth that can be compared with the foreign for the carver's work. Pipe staves, and even scaffold-poles of the best quality and of large dimensions, are imported. But of trees that are commonly to be found in our gardens and ornamental plantations there are several that the amateur turner and those conversant with the use of joiner's tools will be able to turn to account when their removal from the ground has been effected. Foremost among these is the Spanish Chestnut, valuable from its being available for use even at an early age (see *THE GARDEN*, April 4, p. 291).

Useful also even in its extreme youth is the Laburnum, a tree in every respect of great value. Not one of the ornamental trees that are commonly found in our gardens begins to form its bearing branches earlier, and just when most other flower-bearing trees are putting forth for the first time a sample of floral decoration, the graceful golden pendants of their contemporary will have charmed the owner's eye for many years preceding. The heartwood is hard and of a rich brown colour when oiled or polished, and if steeped in lime-water may be made almost black. Branches of eight or nine years' growth afford excellent material for the lathe, and the beauty of the grain is exhibited to the greatest advantage if the piece is turned in the direction of the concentric rings, which is, of course, the best way of making the most of the wood. The trunk itself, if large enough, and not spoilt by the admission of damp through the careless chopping off of branches, would afford material for cabinet-work as handsome as the best Walnut in the solid. I have never noticed in this wood any inclination to split, even when used, as I have recommended, with the pith in the centre. It is fit for use when kept for a few years only, and is more easily worked. Holly is another useful wood, and, like the Laburnum, can be used to advantage while still very young. There is no need to

describe a tree so well known, with its clusters of red berries enlivening the winter months; but it is somewhat capricious, and bears but scantily when growing in a soil that does not suit it, and it has to stand many years before it can produce any great amount of its scarlet fruit.

**EVERGREENS.**—Those who like the pyramidal form for an evergreen shrub will find the Holly very tractable. A tree of from 2½ inches to 3 inches in diameter 2 feet from the ground may be sawn off at that part; the stump will produce several strong shoots the following season, one of which should be allowed to grow up to form the new stem, and if the others are shortened from time to time they can be entirely removed in the course of a few years. Treated in this way, the Holly makes a very handsome tree, and the excision recommended may be taken advantage of to replenish the stores of the mechanical amateur's workshop. The wood is very hard and fine in the grain, and when planed has almost the appearance of polished ivory, but its whiteness can only be preserved by attending to the directions given in Holtzapfel's "Turning and Mechanical Manipulation," vol. i., p. 86, a somewhat tedious and troublesome, but very easy, operation, practised by the Tonbridge ware manufacturers for their best work. But the natural colour of the wood, which is a very pale straw colour, can be preserved sufficiently for ordinary purposes by attending to the directions which will be given for the treatment of the wood of the Beech and Sycamore. The Phillyreas are handsome shrubs, whether grown singly or in company with other Evergreens. The wood is hard and of the colour of Box, and often prettily veined. The common Box (*Buxus sempervirens*) does not usually attain to very large dimensions when grown in this country, but the wood, like that of the Holly, is useful even in the early stages of its growth. The peculiar texture and colour of this wood and the various purposes it is made to serve are well known, and need not be recorded here. But there is another wood that bears a strong resemblance to Box, and is sometimes used as a substitute for it—I refer to the common Elder, so often to be met with in our hedges. It is, however, neither so hard nor so heavy, nor is the colour so good except in the best samples, the log being frequently disfigured by inky stains, occasioned probably by the admission of moisture where a branch has been removed, or from some ill-usage which the tree has formerly undergone.

**OF POPLARS**, the Black Italian is, perhaps, the most profitable, partly from its rapid growth and its adaptability to almost any soil. When fully grown it is a handsome tree, but through all the stages of its youth it is formal and ugly, and is not likely to be found in an ornamental plantation, except in the capacity of a nurse. Though I have other varieties of the Poplar, my experience of the timber extends to two more varieties only, the Lombardy and the Ontario. The wood

of the latter is fine in the grain, pleasant to work, and is harder than that of the Lombardy. Some years ago I had a place for storing fruit filled with shelves made of this wood. The sides and bottoms of wagons are, I believe, sometimes lined with Lombardy Poplar, but for this purpose the Black Italian is always preferred if Poplar wood is used. The railway companies, I am told, use Poplar for the wooden portion of their breaks, and it ought to have a ready sale. A few years ago nearly all the Lombardy Poplars in this county (Rutland) and throughout the midland counties perished during the winter, and might be seen during the following summer divested of their leaves and disfiguring the landscape. It was, I believe, thought by some that it was the severe cold that killed them, but that was not the case with my trees; they were affected in the preceding autumn with a disease which deprived them of their leaves. This was followed by the appearance of very small leaves on the shoots in various parts of the tree. The seat of the disease seems to have been in the inner bark, and the trunks of the trees in April were in the same state as they would have been had they been cut down a twelve-month earlier. In that month I had my Poplars removed, and the bark peeled off as it would from a tree that had been lying on the ground for many months. The timber itself did not appear to have suffered, but was sound and fit for use, and some of it I have by me still. It does not appear that any other varieties of the Poplar suffered by this disease.

**BEECH AND SYCAMORE** are saleable as timber after five-and-thirty or forty years' growth; but, of course, it is better to allow them to stand for a longer period before removal. The highest prices, however, cannot be got for them unless they are either sold at once, or else halved and quartered, or cut into 4-inch planks, and carefully preserved under cover out of the reach of rain and sun. The best Sycamore wood is bought by the makers of pianofortes and other musical instruments, but the wholesale dealers will not even look at a tree that has been lying exposed on the open ground for a twelvemonth, as I know to my cost. When improvements are being carried out, the removal of so beautiful a tree as the Horse Chestnut is sometimes rendered necessary. When that is the case, the owner will probably find that the best use to make of it is to split up the trunk with wedges, and saw it into logs for the fire. The colour of the wood is as white as that of Holly, and, according to Holtzapfel, it sometimes takes the place of Holly when larger wood is required. It is also used by shoemakers and saddlers for boards on which to cut their leather.

**THE WILLOW**, like the Black Italian Poplar, is a tree of rapid growth, and readily adapts itself to almost any soil. I once saw in a wheelwright's yard a log of this wood, which was only 1 foot in diameter at the



thick end, with only twenty concentric rings round the pith, which proved it to have been but twenty years old when felled; and I have by me boards of one that was cut down eight years ago, that I planted myself in 1840, which measure 19 inches across. The ease with which this tree can be multiplied is well known. You have only to drive a Willow stake into the ground, and it will become a tree in course of time; and such is the vitality of the bark, that a piece 5 inches thick, that was placed near an old wall and leant against it, emitted roots, and the shoots that were produced at its upper extremity have supplied me with binders ever since. Willow boards an inch thick are useful for forming the bottoms and sides of wheelbarrows when renewal of those parts is needed.

CONIFEROUS TREES have been so fully discussed in THE GARDEN, that it might be thought little remained for me to say concerning them. Removed from the ground in their young state, they are most of them of little value. As poles they are straighter, but not so durable as those of Ash. Abounding in sapwood, they soon decay when used as rafters for hovels and sheds. I once saw a pantile roof erected over a saw-pit, Larch poles being used for rafters. In the course of a very few years the roof had to be taken down and rebuilt, rafters of Baltic deal taking the place of the Larch poles. It was thought worth while to incur the additional expense in the setting up of the new roof, and it has proved a wise measure. The Deodar holds a good place among our ornamental trees, and if sufficiently grown when removed, is worth putting over the saw-pit. One I was obliged to get rid of when it was little more than 10 inches in diameter at the base. The boards cut from it were of good quality, and have proved useful. The Balm of Gilead Fir, though it makes a very pretty miniature tree in its babyhood, deteriorates as it grows up, and as a timber tree is worthless. The Silver Fir, which resembles the Balm of Gilead Fir in its foliage, but does not grow so rapidly, makes useful timber if allowed to stand long enough. A Scotch Pine will grow faster, but the wood of the tree when young is coarse and pithy, and probably would not last long in any situation. But it is a noble tree when fully grown, and all the yellow (known in this neighbourhood as the red) deal that comes from the Baltic is that of the *Pinus sylvestris*, known in England as the Scotch Pine. It is said to grow good timber in the Scotch highlands, some of which is almost equal to that which is imported. At Arborfield Hall, near Reading, by the side of the river Loddon and high up on the bank, there stands a row of magnificent Scotch Pines, but whether the quality of their timber has ever been tested I have not heard. The character of the Larch, I believe, does not stand so high now as it once did, and its use for railway sleepers has long been abandoned. At one time it was in very high repute, and was used in the

building of a fine East India ship, the "Duchess of Athol," the entire hull down to the knee timbers, which were made out of the roots, being constructed of it. But I never heard that the experiment was repeated, and think it probable her career was short. The hard wood of good sound Larch is strong and tough, but, like cast-iron, it is apt to crack at the bending point. The Cedar of Lebanon also produces useful timber. There is not far from us a hovel roofed entirely with Cedar wood and thatch. It was erected more than thirty years ago, and the wood is quite sound at the present time. But the Cedar of Lebanon can be used also for ornamental work. The owner having by him a quantity of this wood, consisting of the timber of several trees mutilated and disfigured by a tempest, is intending to use this material to form the panels of one of his rooms.

ROBINIA PSEUDACACIA, or the Locust tree, now so well known that it needs no description here, is an excellent substitute for Oak for post and door frames, and would, I dare say, be of use to the joiner for many purposes. Its colour is good, and it does not carry much sap-wood, and lasts well whether exposed or under cover. It was once in great request by shipbuilders for trenails before iron had taken the place of wood as a constructive material.

ORCHARD TREES.—I have now to make a few remarks upon such of these as have come under my observation. The Walnut requires to stand for more than half a century to make its timber of any value. I have part of one by me that from the sowing of the seed to the time it was felled must have completed nearly fifty years, and yet there are but seven layers of dark wood in the centre of the tree; all the rest is white, and of the nature of sap-wood. The trunk of an Apple tree often has pithy veins in it, which render it useless to the joiner, and it does not last very long when set in the ground as a post. Good mallet heads, both round and square, can be made of it. Pear tree is well known to be an excellent wood, and was formerly, and, indeed, I believe still is, used by the carver. It varies a little in quality, some being of a better colour than others, and the wood of the wilding Pear is not usually of so good a quality as that of the cultivated sorts. It is as fine in the grain as Beech and not quite so hard, works kindly, and is in every respect a valuable addition to the amateur's stock. For the best work, full-grown trees, if sound, are of most value, but any log that can measure more than 6 inches or 7 inches in diameter is worth preserving. The White Thorn, though it can hardly be called a fruit tree, has much in common with the Pear, and may well be associated with it. It has been sometimes used as a stock for the Jargonelle and a few other Pears; but the colour of the wood of the Thorn is lighter, and the difference between the two at the junction is very perceptible.

The purpose for which the wood is chiefly used in the agricultural districts is to make flails for threshing. The wood of the Medlar, which is often grafted on the white Thorn, is of very much the same character, and in cases where the junction of the scion with the stock has been effected skilfully, and no dead wood has been left to occasion disfigurement, very pretty ornaments may be made in the lathe from a piece that contains the joined parts. Plum and Damson trees are of value, and deserve a better fate than to be cut up for fuel. From their trunks can be made posts as durable as those that are made of Oak—more so, indeed, than a great many that are made out of Oak topplings, and put into the ground in a position opposite to that in which they grew. Why the inverted position is chosen by the village carpenter is easily seen. His object is to give a handsome appearance to the part above the ground, and this is effected by four cuts of the saw—a process which takes off all or most of the sap-wood. The forked and irregular portion left untrimmed holds the post very securely for a time, but abounding, as it does, in sap-wood, which is of a perishable nature, it becomes loose in the course of a few years, and the small portion of sound wood that is left is not of sufficient strength to carry the upper part for any very great length of time. This will account for the failure of many an Oak post. A good sound Plum or Damson tree, trimmed for a post, and set up in the position in which it grew will outlast three or four Oak posts of that description. But a Plum tree deserves a better fate than to stand in a field with iron hooks remorselessly driven into its side. The trees to be disposed of are usually small, and boards of any great width without shakes in them are seldom to be met with. The heartwood varies in different specimens, both in its proportional extent and in its colour, which is usually of a dull red interspersed in some instances with dark brown marks. But the most beautiful sample I ever saw was taken from the stem of a standard Apricot tree, and I have at this moment before me a portion of a Green Gage that seems almost equal to it. The whitewood is as hard as the heartwood, and works well with it. I have not had much experience with the Cherry, but it is held in good estimation by many amateurs, and in colour is of a yellowish brown; but I have not found it so pleasant to work upon as the others I have mentioned.

There remains for me to record my experience of the effects produced on the wood of ornamental trees by wood-boring insects, which I hope to do in a future number of THE GARDEN. B. S.

Fencing wood for estates.—If the writer on this subject (p. 443) had condensed his remarks, and given a little more practical information on the subject, instead of so much learned discourse on matters which, if not exactly foreign, have little practical bearing on the matter, the paper would have been much more useful. It is extremely disappointing when one picks up a paper which professes to treat upon the subject indicated at the head of it to find



that most of the information is in the top line. Some simple every-day facts as to the result of experience in using different woods is worth pages of theory about carbon and water and other things which would be well enough in a scientific treatise, but are no good when one has to give instructions to an estate carpenter.—J. N. B.

### FRUITFUL FOREST TREES.

THE least observant gardener can hardly fail being struck with the constant fertility of our forest trees and the great abundance of the crops they produce. Like the fruit trees in gardens, they occasionally miss a crop, but that is usually due to weather causes, such as cold summers and autumns which prevent maturity in the wood, or frosts in spring that destroy the bloom. The Beech is one of the most constantly fruitful of trees as well as an abundant bearer when it is not touched by the hand of man. In our neighbourhood here, in a nursery, are some of the oldest and highest Beech hedges I believe in the country. They are about 20 feet high, compact from top to bottom, dense and twiggy, and are probably fifty years of age at least. They are pruned close in once a year with the shears, a kind of pruning that answers to pinching Pear trees as practised by restrictionists, and they never bear any fruit (mast); whereas untrained trees of the same age and younger bear constantly. The same remarks apply to the Oak, the Sycamore, the Ash, Hornbeam, Alder, and all forest trees that bring their fruit to maturity in this country, and also to trees like the Holly, Yew, Thorn, and Crab, &c. The even and uniform way in which all these subjects cover themselves with fruit, when they do bear, has no parallel in our pruned fruit trees, thus forcing one to the conclusion that the practice of pruning exerts absolutely no influence on the fertility of a tree, although it has been asserted that some fruits can be made to bear constantly in no other way than by pruning. It will always remain a profound mystery to me how pruning for fruit as practised in gardens ever came to be "invented," because it is not based on any rational principle, nor its necessity proved by any practice I ever heard of. Said a gentleman to me lately, who owns a nice garden and takes much personal interest therein, "In these matters we appear to be led entirely by rule of thumb, without considering the why and wherefore of anything about it. There I have been for half a lifetime hacking away at my fruit trees without even taking note of the fact till now that the most constantly fruitful Pear tree in my garden is a large tree I found there, and that has never been meddled with except to gather the abundant crops of excellent fruit which it bears almost every year, and when other trees in the garden fail."

The beautifully regular manner in which forest trees and bushes bear their fruit is one of the most striking features of Nature's process, if I may use the expression. I have before me now small sprays of the Holly, the Crab, and the Hawthorn tree. On all of them the branchlets are distributed in the most methodical way, the clusters of fruit the same, no fruiting spurs or fruit being missing on any part where they could grow. Thus the Holly spray has a terminal shoot and four side ones, and all are thickly studded with fruit on the whole of the last year's growth, each shoot terminating with the wood and foliage of the current year, and which in turn will bear the next crop, the fruiting portion of the tree being pushed out further and further every year, broadening and widening to the sun and air, and bearing more and more as it extends. The Hawthorn bears

like the Apple and Pear, the shoots producing spurs right and left, none being missing, one shoot, about 6 inches long, bearing fifty or more fruit. And not only is the utmost regularity exhibited in the mode of bearing, as well as a degree of fertility to which cultivated trees are strangers, but the uniformity in the size of the fruit is most remarkable also. On a cultivated and pruned Apple or Pear tree you always find fruits of all sizes and of various shapes, thus denoting something wrong in the functions of the branch or tree, but on the natural tree these abnormal differences are the exceptions. Very little difference exists in the size of the fruits, and in almost all cases the seeds are perfect. This is what I would call the perfection of cropping, and the great thing to be aimed at in all artificial culture. It is impossible to deny the facts furnished by the trees, and it would be futile for anyone to attempt to ignore the plain lesson which they teach, which is, that in a suitable soil and climate all kinds of wild trees and shrubs exhibit a degree and a constancy of fertility that cannot be matched in artificial culture, so far as relates to the treatment of the branches. J. S. W.

### THE LARCH DEMAND.

IT is, without doubt, desirable that every side of the questions in which we are interested should be heard; otherwise, in the face of what is continually dinned into our ears as to the coming scarcity of wood, the remarks which "Yorkshireman" makes under this heading should carry but little weight. If it was not a serious matter, it would be really amusing to see the way in which one tree after another is held up as being the very El Dorado for which the planter is so anxiously looking, and then in turn it is set upon as being of no value whatever; or if it does happen to find a market now, doubts are assiduously expressed whether it will maintain its place in the near future.

I have frequently enough stated that I do not hold a pessimist view as to the supply, neither do I as to the demand. With timber, as with everything else, the fluctuations of trade and of caprice have to be contended with. Still, so long as society holds together, timber will be wanted for one purpose or another. If one seriously entertained the views which "Yorkshireman" gives expression to, it would seem that Ash and Sycamore are the trees, and that Oak and Larch must be looked upon askance. I have recently spoken rather strongly in favour of the Ash, and tried to point out some reasons why it deserves attention, and I have nothing to say against the Sycamore when its relative value is understood. The latter, however, is essentially a fancy wood, and one which, though it now commands a sale, is more subject to caprice than many others. It is a wood, too, which is not employed for so many purposes, that the demand may be looked upon as being very considerable. The Oak and the Larch stand in quite a different position. It is hardly the place here to dwell upon the reasons why the present drop in the demand for the former is necessarily only of a temporary nature; but with regard to the Larch the case is different, as it is a tree of comparatively modern introduction. Enough, however, is known of it to prove that among the Conifers it has very exceptional timber qualities, and that for strength and endurance in this class of trees it has no equal. We have not, however, "Larch on the brain" to a sufficient extent to advocate the planting of it in all sorts of out-of-the-way places where it cannot be got at when it is grown; but we do maintain that, as it is a wood capable of application to

such a diversity of purposes, there is no room for the assumption that it will not be as much in demand fifty years hence as it is now.

When a thing is intrinsically valuable, if one particular use for which it is employed dies out, another springs up, and it must not be overlooked that consumers have to put up with what is to be had if growers have to exercise their judgment as to what will be likely to be most useful. Looking at the purposes, however, for which Larch is at the present time much used, is not "Yorkshireman" a little premature in his calculation that the coalfields will be exhausted by the time a crop of pit timber planted now is ready for consumption? It is very interesting to know that the coal-pits in this country will be worked out by about 1985, but as Larch is ordinarily grown, I take it that there is at any rate sufficient time for another crop between this date and that. Then, again, with reference to sleepers, "Yorkshireman" may probably recollect that when the electric light was a few years ago brought prominently to the front, a great panic took place in gas shares. We still have the electric light with us, and also the gas, and when the latter is no longer wanted for light, it may, perhaps, supply heat and power. At any rate, threatened institutions live long, and if we have no other reason why Larch should not be planted than the fact that a few sleepers have been made from steel, the argument against it is not a very strong one. D. J. YEO.

### TREE PLANTING IN IRELAND.

BELFAST may be said to be the Glasgow of Ireland as regards commerce and trade. Situated at the end of Belfast Lough, at the mouth of the river Lagan, and some twelve miles inland from the coast, the town is eminently situated for carrying on trade, both home and foreign, and is rapidly extending in size and commercial importance. The site of the town is rather flat, and a great many of the houses are built upon wooden piles, which principally consist of timber of home growth, when such can be had of suitable size and scantling. Vast quantities of timber are required, both of home and foreign growth, for building and other purposes, and as the interior of the country is well opened up by water and rail for carriage, the facilities thus afforded for transit ought to be a strong inducement to have waste lands turned to account by planting, which would not only prove an acquisition to the owners, but also, from the amenity and shelter which the trees afford, would prove highly beneficial for the interests of the country and the community at large.

Lough Neagh, the area of which is computed at 153 square miles, the greater part of which is navigable, communicates with Belfast by canal, so that it can be seen at a glance the great facilities afforded for the shipment of timber from the shores of this vast inland sea, notwithstanding which it is astonishing to see the vast stretches of peat bog and waste land capable of being drained and utilised for tree planting allowed to lie in its natural state, and only fit for snipe shooting. Coal Island is situated about a couple of miles from the shore of the lough, in Co. Tyrone, and is provided with an excellent canal, which give facilities for the shipment of coal and pottery, which is worked here in considerable quantities, and finds its way to Belfast and other seats of industry.

Large quantities of pitwood timber are required here for the mines, and although thousands of acres of waste land capable of produc-



ing this class of timber is to be found in the vicinity, yet the miner often finds considerable difficulty in the acquirement of stuff of a proper size for his purpose, even although he is willing to pay a high price for its attainment. Large quantities of lignite, or wood-coal, is also found in the locality—that is to say, along the shore of the lough, from Sandy Bay, Co. Antrim, to Washing Bay, Co. Tyrone, and as it has been found to be about 60 feet in depth at some places, the value of such minerals adds immensely to the wealth of the country, and ought to be a stimulus to owners of barren ground to increased action in tree planting, more especially as considerable quantities of the wood is wanted, and could be sold on the spot at fairly good prices.

Lough Neagh is also connected with Lough Erne by the Black Water and the Ulster Canal, the latter of which is 24 miles in length, and although the province of Ulster is of large extent (8556 square miles), yet a large area of this land is unfit for tillage, but capable of producing excellent timber; and vast stretches of mountainous districts in Co. Donegal in the west, and the Mourne chain of mountains in the south, might be profitably planted with different species of trees, according to the texture of the soil; but as the climate of Ireland has proved to be exceptionally favourable for the growth of the Larch, that tree should be introduced extensively, as I have found it pay better than any other tree in a like period of time.

J. B. WEBSTER.

#### POSITION AND USES OF THE OAK.

THE position of the English Oak in the market is at present certainly an anomalous one, as although it is conceded on every hand that year by year it is getting scarcer, the price seems to gradually recede instead of, as one would naturally expect, move upwards with the increasing scarcity. A great many writers look upon the substitution of iron and steel for shipbuilding as being the prominent cause of the fall in the price of this wood, but it is doubtful if such a supposition is entirely warrantable. We are quite prepared to admit that such a change, if unaccompanied by others, would have made a serious difference in the demand, but as the requirements for shipbuilding dwindled, other purposes for which it could be used were gradually springing up, which, if not sufficient to entirely counteract the falling off for naval work, went a great way towards it. We have never seen a comparison instituted between the quantities used for shipbuilding and what is required for railway-wagon building. If it was attempted, the estimate would probably be wide of the mark, but without going into figures too closely it cannot be denied that this entirely new demand since the days of wooden shipbuilding must go a long way towards supplying the place of the one which has to a great extent gone. It must not be supposed, however, that no Oak is now wanted in ship and boatbuilding, as although it is not used in so many places or for so many purposes in naval architecture, there are many things for which it is still employed. There is another class of craft, too, besides those built to float on the salt sea wave which are still constructed almost entirely of Oak, and that is the common canal barge, and small as they appear when compared to their giant sisters, a barge of this description consumes a lot of wood. The planks for the sides are generally cut about 2 inches in thickness, and the crooked pieces are used for knees. The class of Oak, however, first sought after when a fall has taken place is that

for cleaving, as for such work absolute straightness of grain is essential, and although the comparative absence of sapwood is a great consideration, it is one which has to be sacrificed to clearness of grain. In the timber market more cleft Oak is probably used up in the shape of spokes than in any other form, as although sawn spokes are substituted in some instances, they are necessarily less satisfactory, as they are worked more or less across the grain. These spokes vary from the heavy description used in wagons and trolleys for the conveyance of stone and iron, and indeed of timber itself, to the light and small spoke employed in the wheel of the gentleman's carriage, and, strange as it may seem, more care is taken to exclude the sapwood in the large than the small article. Gates and hurdles, too, are sometimes made of cleft Oak, but with regard to the former there appears to be really no reason why sawn rails should not be used, if care is taken in the selection of the wood. Gates made of cleft Oak may be stronger, but they certainly lack the neat appearance of a well-made sawn gate. Palings when cleft from Oak make capital fences, but as the very best wood has to be used they come somewhat expensive. The shorter lengths of straight-grained Oak which will not come in for spokes are generally turned to account for ladder bars or rounds. Next to the wood for cleaving, it is important to make careful selection for boards for cask-making, furniture, and coffin work, as any but thoroughly good timber, and that properly sawn, would be of very little value for these purposes. In this class of uses is included the material used for floorings, staircases, doors, and other similar things for which Oak is used in the best class of houses and mansions. The wood used for the framework of wagons and carts and other agricultural implements requires to be also of an equally good character, as the presence of knots or sapwood is never allowed in the best work.

We have before alluded to the consumption of Oak for railway wagons, but although this is very considerable and trees of good length and size are necessary and also perfectly sound, it is not so essential that the grain should be absolutely straight or the texture so fine as is the case with many of the other purposes which we have enumerated. In cutting up these railway scantlings the chief difficulty lies in getting enough of the truck sides or sole bars, which run to some 17 feet or 18 feet in length, and from 11 inches to 12 inches in width, by 5 inches or 6 inches in thickness. As these scantlings are cut up in sets, there is always a considerable proportion of shorter and smaller lengths which help to lessen the disadvantage of cutting the heavy dimensions. Oak is also used in smaller sizes on railways for treenails and keys, the former being a bolt and the latter a wedge. The arms on which the insulators on telegraph poles are carried are also made of Oak, and serve to cut up small sizes which would not come in for many other purposes. Beyond the class used for railway wagons lies that generally employed for posts of field gates and posts for rail fences. Sound wood is, of course, necessary for this also, but that of a somewhat rougher nature is made to do duty, as durability is the great essential. It may look as though for mere gate-posts and fence-posts of this kind no great quantity of Oak is consumed, but if the work in a country timber merchant's yard was noted, it would be seen that the number of such things annually sawn up would make a large total. A certain amount of Oak also finds its way into the farmyard other than that used in the buildings attached to the holding. This

was for a time displaced by iron, but farmers now find that iron is not fitted for every purpose, and many are returning to Oak for pig troughs, horse and cattle cribs, for which they had given iron a trial. In connection with Oak for farm uses we may say a word about churns, but only to mention that our English Oak, which at one time was generally employed in the manufacture, has in most cases been superseded by imported wood. This latter is admittedly less durable, but has the recommendations of being mostly a freer working wood and very clear in the grain. In some places we believe that Oak is used for naves and felloes of wheels as well as for spokes, but not, so far as we know, to any great extent. In addition to the numerous uses for the Oak of which we have spoken, it is often sawn up into planks of from 1½ inches to 6 inches in thickness, by means of parallel cuts, and stacked away as it comes from the saw with the edges left wavy and irregular. This is found to be preferable to squaring up to any particular sizes, as in the form of planks the seasoning can go on, and when a piece of Oak is wanted for any purpose, the plank can be selected which approaches nearest to the known requirements. We have here, although many uses have been outlined, little more than skimmed the surface of the subject; but we think it has been shown that, depressed though the Oak market undoubtedly is, it is not because there is a lack of purposes for which it can be employed. Rather than attribute the dulness to such a cause, we think we should be much nearer the truth if we said that the reason of the unsatisfactory condition of affairs lies more in the excessive importation from abroad, which is ruining almost every branch of home industry, than it does in any other.

D. J. YEO.

**Lathwood.**—When this is spoken of, the sections of foreign deal which come in quantities to this country to be split up into plasterers' laths is generally understood. There is, however, another class of lathwood which is grown at home, viz., the Oak. These laths, however, are not so frequently used as formerly, although the heart lath is still enquired for, and for splitting these the very best and straightest grained wood is employed. It was formerly the custom when rendering out this class of lath to use up a considerable portion of the sapwood of the tree for sap laths, which realised about a third of the price of those made of the heartwood. Deal laths have now superseded these, so that the industry of splitting up sap laths is now practically a thing of the past. This is largely due to the preference of the workman for the softer wood.—J. N. B.

**Timber trade vagaries.**—"Wiltshire Foresters" further contribution on this subject is very unsatisfactory. I wrote, in the first instance, about Oak timber in the rough and its value in Yorkshire. He replies with reference to the sale of sawn timber in contradiction of what I wrote, and now, when called upon to vouch for his statements, wants to know "why he should be called upon to explain anything about sending Oak in the rough from his county to Yorkshire." Certainly he is not called upon to tell us more than he thinks fit, but, from what he has told us, I have no hesitation in saying that the only vagaries apparently to be explained are his own statements. There is no such a thing at the present time as sending rough Oak timber in any quantities worth mentioning, if any at all, from Wilts to Yorkshire, and those who send it in sawn planks are doing so under special conditions; that there is some secret about, or your correspondent would not fear to reveal all he knows on the subject. There are immense quantities of Oak in South Yorkshire for sale if a bid could be got for it. I know of about 500 tons that has been felled and stacked on one estate for several years for want of buyers. This lot was advertised some time ago, and is, I believe, still unsold. I also know Yorkshire buyers who have gone to Berkshire to buy Oak in past years, but



that was when trade was much brisker everywhere. I read "Wiltshire Forester's" note to some of the best known buyers in England the other day, and to one who knows Berkshire well—a man I meet every week—and his comment upon it was "a parcel of nonsense." For a long time back when I have got an offer of timber, I have looked first if it is Oak, and if it was I did not look at it twice, because I know where I can get far more than I require on one estate when I choose to ask for it.—YORKSHIREMAN.

### TIMBER CARRIAGE BY WATER.

HERE in Wiltshire and some of the adjoining counties, from our inland situation and the unsuitability of such rivers as we have for the purpose, the removal of timber by water, in the sense of floating it, is never practised. We are, however, tolerably well off for canals and rivers which are navigable for barges connecting with them, so what we lack in this respect in one way has been supplied as far as possible in another. The use of barges on still, or comparatively still, waters may be looked upon as rather tame when compared with floating logs upon more or less rapidly-flowing rivers, yet it is a thing not devoid of a spice of danger, as the appliances in timber-growing districts are in most cases rather crude. When the timber is small and light it is easily shipped and unshipped, but when larger dimensions have to be dealt with, the labour is not so inconsiderable.

The principal lines of artificial communication in the district to which we have referred are the Kennet and Avon, and the Wilts and Berks canals. Both of these form waterways between the same rivers, viz., the Thames and the Bristol Avon, but necessarily take a different course, the former intersecting mid-Wilts from east to west, whilst the latter, starting from a junction with the Kennet and Avon near Trowbridge, takes a north-easterly direction through the northern division of the county. The primary object of these undertakings was undoubtedly to provide water transit between the great centres of London and Bristol, and in the days when railways were unthought of the enterprise, as will be seen by a glance at the map, was a most important one. It need hardly be stated, however, that the railways have long monopolised the traffic between the east and the west, and, unfortunately for canal proprietors, the investment is no longer a profitable one, as the traffic is now purely local.

This change in the conditions does not, however, affect the usefulness of these water ways for certain classes of goods, and timber will probably be one of the things which will be carried by the barges until they are entirely displaced by their more rapid and modern rivals—the railway trains. The greatest drawback to the more extensive patronage of canals is obviously the slowness with which they transport freights from place to place, and among the advantages, the relatively much greater weight which can be moved by the same force upon water than upon land. Timber, especially in the rough—and it is this description of which we are now writing—is not generally required in such haste that a few days or even weeks, more or less, will make a material difference; but it is a thing in the removal of which cheapness is the great essential. In this sense canals are the friends of the owners of timbered lands; an inland water carriage, although out of date, is not to be despised. Indeed, all having to do with the production of wood in this country will do well to give all the support they reasonably can to the existing means of water communication. In many cases canals touch places

to which railways do not reach, and, what is more, they have the important advantage of picking up traffic at almost any point along their course, whilst the railway can only take in at their stations. The existence of such an outlet as this sometimes makes a material difference in the value of the wood on an estate, as it is no uncommon thing for a railway to run through the entire length of a wood or plantation, and yet, when any fall of timber takes place, it has to be carted two or three miles before it can be despatched. When timber is taken in by barges at locks or by bridges on canals, it is seldom there are any conveniences in the way of cranes for loading, but the bargemen have generally resources and ingenuity enough to overcome this. It may seem queer advice, but in cases like this it will be found in practice that it is the best policy to load the smaller trees in the bottom of the barge, and finish up the load with the larger ones. The reasons for this are, that as there is a great difficulty, when the trees are rolled on to the barge, in dropping them steadily into it, if the small ones are used to fill the bottom the concussion will be less, and as it often happens that there is no crane available at the place to which the trees are to be sent, a much greater amount of strength would be necessary in unloading if the heavy timber had to be lifted from the bottom than would be the case if they had merely to be rolled from the top of the barge. For loading and unloading by the canal or riverside in this way, the common snatch block is a very handy appliance, as when it is fixed to some object and a rope or chain passed over the pulley, and the tree attached to one end and a horse to the other, a very considerable weight can be shifted with little manual exertion. Before the advent of railways, and to some extent in their earlier days, the canal was the great distributor of coal, and many hundreds of barge-loads of pitwood have been conveyed by its means from the plantations adjacent to their route for use in the collieries, from which the supply of coal was obtained. At this time Oak poles were frequently employed, and so far as the information one is able to gather is reliable, a large Oak wood we are acquainted with, growing within a few hundred yards of one of these canals, was primarily established with the object of growing wood for the use of these collieries, and from all appearance the object was realised, and sufficient young Oaks were obtained in due time to make a valuable return beyond the original purpose.

Whilst upon the question of canals, in may not be out of place to notice that in their construction no inconsiderable quantity of British timber was used, and although they have in the majority of cases fallen upon evil days, a specification is still occasionally issued which serves to use up many an Oak and Elm tree, and the barge builder, when his skill is called into play, still adheres to the old order of things, and deigns to employ our home-grown timber for his work. There are many things which, from the force of circumstances, are gradually passing away from us, and we fear that inland navigation is numbered amongst them. The time may be remote, but we look upon it as not the less sure, as, although in their day they served a purpose, and were well nigh indispensable, a new order of things has arisen, and although the artificial waterways retain many advantages, the balance is undoubtedly against them. We shall not part with them, however, without a sigh of regret; as to those having to do with timber at least, they have never been of more

value under certain circumstances than they are now. WILTSHIRE FORESTER.

### TREE PLANTING IN THE PAST.

I SUPPOSE no one questions that some of the old trees at the places I named—Blenheim, Hatfield, and scores of others that might be mentioned—are natural seedlings; but these are fractional in number compared with the bulk existent in these places that show in a way which does not admit of doubt that their planting is the work of human hands. Nature does not plant at equal distances in correct lines, straight or curved, such as seen in the trees that form an avenue or grouped in masses, where position and equality in size show their origin in a way that cannot be mistaken. It was of these that I wrote, and about which there was no difficulty in understanding what was meant. I cannot subscribe to the doctrine of "J.," who follows the unfair course of throwing cold water on the work of bygone planters, and who seems to think that all the planting wisdom the world has seen is confined to the time present. Most people will prefer to look at the matter from a fairer standpoint and give merit where merit is due. I venture to say that the work of the early planters, to whom generations who have come after them are so much indebted, bears sufficient evidence that they quite understood what they were about, alike for use or ornament.

In asking if I believe that the vast majority of Elms were ever planted by the hand of man, "J." gives an example of the mistakes people fall into by entering on subjects which their words show they are unacquainted with. "J." seems to be ignorant of the fact that there is only one species of Elm—the Wych (*Ulmus montana*)—that, except very rarely, matures seed in this country, a circumstance that proves the doubts of those to be well founded who discredit any of the other kinds being indigenous. Can "J." point to a single instance in which there is reliable evidence of any of the varieties of the so-called English Elm coming up naturally from seed? If they could be increased in this way, the growers for sale would so raise them as they do other native trees, and not be at the trouble of propagating them from cuttings or layers. In the face of this, which is known by anyone whose acquaintance with the commonest trees is more than minute, it is tolerably clear that the quantities of old Nature-planted Elms "J." speaks of are only existent in his imagination. T. B.

### SELLING INFERIOR ASH.

"YORKSHIREMAN'S" explanation on page 493 of how he sells Ash, no matter what it is like if it is not rotten, only serves to confirm what I said about it, and clearly enough shows that he fails to appreciate the difference between what may be "a bad-looking lot" and what is really bad timber. Some may have the idea that this is rather a nice distinction, but it is in reality an important one. In fact it does matter a great deal what it is like, and this "Yorkshireman" will discover sooner or later. Even if the centre of a tree of large size is full of shakes, is black-hearted, or is rotted away altogether, there is generally a considerable quantity of sound wood surrounding this useless portion, and it was for the sake of this sound timber that the "wood-jobber" spoken of made the purchase. The price paid, however, would seem to be small, and only calculated on the sound proportion of wood; in fact, more would be given if the inferior



part was absent, as it only costs money for carriage, and that to no purpose. Therefore, after all, "Yorkshireman" can only consider the black-hearted and shaken part of the trees as being given away. It is true that something depends on the district where one resides, but we could dispose of such trees in the same way here. Such material should not, however, go into the hands of the agricultural implement maker, as, although sound, the wood of such trees is not adapted to the work. Cabinet and furniture-making would be a more suitable purpose, and it is really surprising what fine wood is found in even a bad-looking lot like this. Although it disposes of the idea that there is a market for any Ash that is not actually rotten, I thank "Yorkshireman" for the particulars he has given, as it clears my mind of a doubt whether there was any such outlet.

J. N. B.

### ROTATION OF CROPS.

PRACTICAL experience tells us that when land becomes exhausted we must renew its fertility by supplying to it the matter in which it has become deficient, or allow it to lie for some time unoccupied, in order to restore its fertility by the natural process of time. Some trees and wild plants are, however, capable of flourishing and reproducing their species on rocks and gravelly soils composed of pure inorganic matter or nearly so, and as the greater part of such plants and trees consists of combustible or organic matter—the ash only amounting to about 3 per cent. of the dried substance—it follows that the principal source whence the combustible matter was derived which forms the wood was supplied by the gaseous compounds of the air. As a rule, trees derive a vast amount of food from this source, more especially the coniferous tribe of trees, as we find the Larch and Scotch Fir growing in the natural forest, and attaining a useful size of timber in the recesses and shelving rocks of the hills, where there is very little soil of any description, thus proving that they are less dependent on the fertility of the soil than the greater bulk of deciduous trees cultivated in this country. In places, however, where the forest had become dense, and where the trees had been cut down, fine examples may be seen of the preference given by Nature to the rotation of crops, as the surface of the ground is covered by the exuviae of the Fir, and until such time as it gets thoroughly decomposed and cleansed by the action of the atmosphere, I have never noticed any seedling plants spring up for a series of years of the same species. The common Birch, Goat Willow, Mountain Ash, and Aspen Poplar often take possession of such ground, and seem quite at home under such conditions and in such situations.

When the ground, however, has been allowed time to recuperate and cleanse itself, the Scotch Fir does not refuse to grow on the same spot from seed. Some thirty years ago I thinned a considerable quantity of young Firs produced by natural reproduction, and on ground where a crop of the same species had been previously cut, and the trees are not only in excellent health, but, as a general rule, have made better progress than others of the same species growing upon heather moor that had never carried a crop of timber. The soil here is of a thin, gravelly texture, and in some places mixed with a small portion of clay, and upwards of 1000 feet above sea level. This, however, is rather a slow mode of tree culture, as a considerable space of time is lost at the commence-

ment, but this may be obviated by a little extra labour and painstaking in the planting of young trees, and in cases where this may be desirable the ground should be broken up at the places where the trees are to be planted and left in a rough state, exposed to the influence of the weather during winter, by which means it will get pulverised and sweetened by the action of frost, and thus rendered pliable and fertile for the roots of the plants. I have repeatedly planted a second crop of trees in this way with perfect success; the only thing to be dreaded at the outset is the ravages of the beetle and weevil. This, of course, will be attended with extra expense, but the time gained in establishing a crop of trees on the same ground will do more than cover the expense.

In burning heather ground on the flanks of hills where the ground was covered with a heavy crop of the common Heath (*Erica vulgaris*), it is a curious fact that the succeeding crop that appears upon the surface consists of the fine-leaved Heath (*E. cinerea*) and the cross-leaved Heath (*E. tetralix*). Where the seeds of these came from is a mystery, and we shall not stop to enquire, but at any rate it gives a fine illustration of natural rotation of crops, and if we studied Nature's ways more closely, we might all learn much, independent of chemical science.

J. B. WEBSTER.

**Buying and selling timber.**—The remarks at page 498 are evidently a little joke at the expense of the timber merchant. It is well known that such things as "knock-outs" do occur, and they are not confined to buying and selling of timber, but it is a little too much to believe that the men in the trade are so lavish with their money as to part with it under the circumstances detailed. The object of the combination is not to keep the merchant from attending the sale, but to prevent him from making opposing bids as the sale proceeds. It is only occasionally, however, that a thing of this kind makes such a material difference to the vendor as is supposed, the more common result being that one or two of the buyers get the wood they particularly want, and those who go away without any have about enough to clear their expenses.—J. N. B.

**Valuing damage done to timber.**—This question is too general in its terms for one to be able to afford much assistance, as nothing is said of the nature of the damage, or in what way caused. Does "The Sufferer" mean that it was occasioned by the removal of other timber, or in what way did it occur? If it was caused by carting away trees, the difficulty of the valuers may not be so much the actual amount of damage inflicted as to fix the proportions of what may be termed necessary and unnecessary damage. Where wood has to be removed a certain amount of mischief is unavoidable, and with respect to this the vendor must be loser. Where, however, further destruction has been caused by carelessness, the buyer would be responsible. Perhaps some little further information as to what it is that has to be adjusted can be given.—D. J. Y.

**Sawing by water power.**—It is seldom in this country we come across a water saw-mill, and there is another class of mill driven by water power which seems to be slowly disappearing—we refer to the old water-power corn-mill. The reasons of the almost total disappearance of the water saw-mill and the diminishing numbers of water corn-mills are apparently traceable to much the same cause, and it is unlikely that any increase in these numbers will ever take place. In the face of this, however, it seems a pity that erections which have cost much money should fall entirely into disuse, and there seems to be no reason why some, at least, of the old corn-mills should not be turned to account for sawing timber. The great advantage of water power undeniably is that it costs nothing, but a drawback is the want of portability, and with the ordinary type of wheel the speed for sawing is too

slow. Nevertheless, where such wheels exist and the power is abundant, there seems to be no reason why the loss of power caused by the unavoidable use of gearing to increase the speed should be insuperable. Where the fall is sufficient, however, it seems to be to the turbine that would-be sawyers by water power have to look. With this class of wheel the speed is much greater, and less power will accomplish the work required of it. This work must necessarily be local, as few mills are conveniently situated with respect to rail or port, but it is in such places they are really necessary to cut up the timber, the value of which is affected by the same cause as led to the disuse of the original mill, viz., being out of the new lines of communication.

**Wood for packing-cases.**—This may be considered to include almost any kind of wood usually grown in this country, but the most suitable kinds, of course, vary according to the purposes for which they are required. Those most commonly used are naturally those which can be obtained cheapest; therefore, for some classes of cases, the Spruce is largely used. The cases or boxes used for packing tin plates, of which there are some six or seven millions made annually, are generally manufactured from Elm, as whilst it is a comparatively cheap wood, the toughness of its nature and its freedom from any qualities which would stain or damage the plates is of great importance. There are other kinds of packing-cases which are partly constructed from English Elm and partly from foreign Spruce, but for such purposes where it is to be had, it is not at all clear why home-grown Spruce should not answer the purpose equally well.

**Trees in gales.**—There have been some rather strong gales during the past month, but not nearly equalling in violence those which occurred a few years ago in the month of October. And, so far as we know, very little timber has been blown down this season. Indeed, one would not wish to see a repetition of the havoc, as damage was then committed which the lapse of half a century will not replace. Some interesting freaks sometimes occur, however, in connection with these gales, a not uncommon thing being for a tree, when some of the branches are removed, from the weight of the soil attached to its roots, to regain its position and grow on. A more extraordinary case than this, however, was one recorded in Scotland, where some trees which were blown down in one gale were reported to have been blown up in another. The thing seems incredible, but it may be within the knowledge of some of your readers whether the incident was so or not.—J. N. B.

**Thinning plantations.**—I am glad to read what "Yorkshireman" has to say on thinning plantations, as I have as wholesome an aversion to excessive thinning, and also to pruning under most circumstances, as he has. It is such a stock question that one does not like to be so often referring to it, but it is also an important one, and that must be the excuse. In the face of so much evidence that timber in plantations grows better thickly, and that trees, whether in plantations or fields, produce so much better timber when left to do its own pruning, it is hard to see how advocates of the saw and the knife can still believe that they are doing the right thing. It has been said that one may repeat an untrue statement until they believe it themselves, and possibly this is the case with the race of foresters who go in with such a vengeance for thinning and pruning. They have been educated into and so long practised a bad system, that they believe it to be the right one. If timber was an article fetching a high price per foot, a little useless expenditure would not be such a serious consideration, although even then the policy would be bad, as it would be damaging the property; but when prices are so low, and cheap production is the only way in which there is any chance to make it pay, it does seem unreasonable that such practices should be persisted in. Shift the matter as we may, it is the supply drawn from the natural forests abroad which is the great factor we have to reckon with, and the nearer we can follow the lines of natural production in respect of cheapness the greater will be the prospect of success.—D. J. Y.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## NATURAL HISTORY OF THE TRUMPET DAFFODIL.

SEVERAL notes in recent numbers of THE GARDEN have reminded me that the present season is not inopportune for again bringing into notice the subject of the natural history of the Trumpet Daffodil. I cordially agree with Mr. Burbidge that, in speaking of the labours of former workers in the Daffodil field, we ought to consider the difficulties they have had to encounter, and be grateful to them for what they have done, without being too severe upon the imperfections of their work. At the same time it seems fair to criticise the comparative merits of Salisbury, Haworth, and Herbert, and to judge whether we can accept the classification of any of them as suitable to form a groundwork for the far greater list of varieties which modern research has brought to our knowledge. And here I must own myself at issue with Mr. Peter Barr. He seems to think that all, or nearly all, the wild or natural varieties of Trumpet Daffodil may be classed under some one of the specific types enumerated and obscurely described by Haworth. We find twenty-five such types under the genus *Ajax* of Haworth, and five under *Oileus*—together twenty-nine. I have made a careful study of Haworth's characters of the twenty-nine species of these two genera, and I find some of the differences so slight and uncertain, that I feel convinced that if Haworth could be turned into Mr. Barr's nurseries at Tooting and into my garden, he would have more than doubled the number of species in the two genera I have indicated. And I must explain that I am speaking only of wild or natural varieties, and excluding all which are known to be of garden or hybrid origin.

Fields exist in England in which flowers may be gathered leading in a series of hardly perceptible gradations of difference from typical *N. pseudo-Narcissus* to *N. albicans* or *N. cernuus* of Haworth, and again from the same type to *N. spurius* and *N. Telamonius*, and in a third field we find the same type and *N. bicolor*, *N. rugilobus* and *N. nanus* mixed and blended together in every gradation. I am willing to be told that these are the results of different wild forms originally planted together in the same field, from which spontaneous hybrids have grown. All I say is that these numerous forms exist, and that the difference between carefully selected varieties is quite as great as between many of Haworth's species, at least as determined by Mr. Barr. Take, for instance, *rugilobus* and *lorifolius*, *propinquus* and *major*, and what hair-splitting it is to make out any difference between them. If breadth

or colour of leaf, relative length or breadth of perianth and crown, are to be taken as specific characters, we may find at least a dozen species in any field of wild Daffodils, and I know by experiment that all these characters will be maintained permanently in the increase of the same bulb. But the type of an ordinary English wild bed of *N. pseudo-Narcissus* is uniform compared with what we find in its nearest representative in the neighbourhood of the Pyrenees. Hundreds of square miles are there covered with various forms of Trumpet Daffodil, the commonest being similar in size to our English type, paler in colour, and far more variable in shape. I have some thousands of these mixed bulbs growing in my garden, Mr. Barr has many thousands at Tooting, and Mr. Ware and Messrs. Collins and Gabriel have large numbers in their grounds.

When we go to the interior of Spain and Portugal, the varieties of form multiply, and it is hardly too much to say that Daffodils sent from any two Continental stations separated by 300 or 400 miles are almost sure to present distinct features. It is so with the Maritime Alps and with Central Italy, and it will probably be found to be so with other countries further east from which we have not yet received Daffodils. Indeed, Trumpet Daffodils from Germany, Austria, Hungary, Transylvania, Dalmatia, in all of which countries they are said to grow wild, are greatly to be desired. Anyone who can obtain them will do a service to botanical science, but it should be clearly understood that they must be truly wild. After much correspondence about wild Daffodils growing near Barcelona I at last obtained some fine Dutch roots from there of double Orange Phoenix, sent as "far finer than anything that could be found wild." We Daffodil collectors have no reason to complain of the progress our collections are making. Every season brings to light many new forms of Daffodil collected in the Pyrenees or in Spain or Portugal. I have at present no fewer than twenty sets of imported bulbs of which I have never seen the flower, promising to be truly wild *N. nobilis*, *bicolor*, *nanus*, *major*, and so on; but the intermediate varieties of form are probably endless—far too numerous to find accommodation in the vacant pigeon-holes of Mr. Barr's dovecote.

But let me not be understood as speaking disparagingly of Mr. Peter Barr. His work amongst Daffodils is far too well known and appreciated for him to require any commendation from me, and I have always received from him the most ready help and the fullest information I could desire, even when his hands have been full of trade work. He has several times put me on a track which has led to most valuable results in my researches, and I willingly acknowledge my obligation to him. Still, however loyally Mr. Barr may cling to the ancient authorities, our knowledge of Daffodils is far outgrowing them, and some new arrangement (botanical) must

in a few years be made. For the present my advice to all is, collect—collect from all parts of the Daffodil world; but, above all, keep a careful and authentic record of the history of each variety, and utilise every opportunity of obtaining Daffodils from hitherto unexplored districts.

C. WOLLEY DOD,

*Edge Hall, Malpas.*

## FLOWER GARDEN.

### SEEDLING DAFFODILS.

THERE is perhaps not a great deal more to say upon this subject until something in the way of solid fact comes to light. But in reply to Mr. Ellacombe's note (p. 483), I should like to repeat in a clearer shape the question which I raised about the origin of the hybrid *Narcissi* now in commerce. And in answer to Mr. Brockbank I will say a last word. Without making any helpful contribution to the discussion—beyond a prospectus of his forthcoming literary works, which may or may not bear upon it—he accuses me of "assailing" Mr. Leeds. I have not done so. It has been constantly affirmed by Mr. Barr and others that Leeds left no history of his plants, and until there is forthcoming some distinct statement of his that they were all his own seedlings I hold that their origin is a perfectly legitimate subject of inquiry.

As to the excellence of Herbert's drawings, Mr. Brockbank is no doubt right, but his elaborate eulogy is quite uncalled for; they have not been depreciated by me. It was their reproduction in colour—a very different thing—which I criticised; but I suspect that Mr. Brockbank and I must be referring to two different plates. The one of which I spoke evil was shown to me by Mr. Barr last April; he was then having it copied, and was obliged to alter the figure which contained the extraordinary blunder described by me. If I am in error in supposing this to be the plate commented upon by Mr. Barr (p. 424), perhaps he will set me right. At all events, Mr. Brockbank has needlessly and unthrifly bestowed upon me a strength of language (p. 483) which might have been stored for a more adequate occasion.

It is strange that Mr. Ellacombe should assert (p. 483) that, so far as he knows, Herbert left no record of having raised *Narcissi* similar to the Longford Bridge hybrids.

(1) As a matter of fact, Herbert tells us that he flowered the following hybrids, *together with many others* :—

1. *N. minor* × *N. Tazetta*.
2. *N. minor* × *N. moschatos*.
3. *N. incomparabilis* × *N. p. stellaris*.
4. *N. pseudo-Narcissus* × *N. p. stellaris*.
5. *N. minor* × *N. p. stellaris*.
6. *N. pseudo-Narcissus* × *N. incomparabilis*.
7. *N. Sabini* × *N. poeticus*.

He also obtained seed (and probably raised plants) of—

8. *N. minor* × *N. Jonquilla*.
9. *N. minor* × *N. montanus*.
10. *N. minor* × hybrid No. 3 above.

Some of these, which he figured, Mr. Barr himself (p. 424) surmises to be equivalent to the modern (Leeds and Backhouse) types known as *Barri*, *Burbidgei*, and *Tridymus*. Of *incomparabilis*, Herbert says he raised several varieties distinguished, like the Leeds and Backhouse flowers, by the crown being more or less tinged with orange. No. 6 above is



carefully described and answers precisely to Leeds' very distinct hybrid Hudibras, a form of which Sir Watkin is a larger example. *N. montanus* being used as a parent, it is likely that the Leeds type was also found among Herbert's seedlings; indeed, the outcome of cross No. 9 above would probably be a small Leeds. All conjectures about the parentage of the Leeds and Backhouse Daffodils have assigned them to crosses such as Herbert actually effected. (See the small print headings to the different sections in the 1884 conference list of *Narcissus*.) It is, therefore, no exaggeration to say that Herbert anticipated very nearly, if not quite, all the types represented by the Leeds and Backhouse collections.

(2) Herbert's seedlings were either merged in other collections or have entirely perished—a fate which is scarcely likely to have befallen productions of an eminent man which had been publicly described and illustrated, and had a special value to those who were engaged upon similar work.

(3) It is in the neighbourhood of Manchester, where Herbert's interest in horticulture must have made itself felt, and in Yorkshire, where he raised his seedlings, that the two great collections of hybrid *Narcissi* have been formed. And it is at least curious that the one remarkable hybrid Daffodil which came (so far as can be proved) from neither the Leeds nor the Backhouse collection should now have its origin assigned to the neighbourhood of Manchester (see Mr. Burbidge's note on Sir Watkin, p. 458), and that Herbert should have raised its exact type in his semi-*Queltia* seedling (No. 6 above).

Two things have happened since the above was in type. First, the desired evidence has appeared; my friend Mr. Wolley Dod has been informed by one who knew the late Mr. Leeds very well that he "always said he had his original collection from Dean Herbert." Secondly, a page and a half of notes (pp. 507, 508) have been added to the discussion by Messrs. Barr and Burbidge. Therefore, like an old-fashioned preacher, I will add a word in conclusion to my last word. My contention all along has been that although the bulk of the Longford Bridge Daffodils were probably raised by Leeds himself, yet it is likely that Herbert's plants were incorporated in the collection. This suggestion has brought a somewhat plentiful and scarcely deserved shower of brickbats round my ears. Mr. Brockbank, who, it seems, had already allowed that Leeds and Backhouse were possibly *taught* by Herbert, accused me of assailing Leeds, and challenged me to produce any evidence that the dean "ever exchanged a word with Mr. Leeds or ever gave him a bulb," adding incredulously that he "does not believe I can give any evidence whatever (p. 400)." Logical readers will probably think that Mr. Brockbank's challenge has been satisfactorily met. It has been shown at some length how largely Herbert's hybrids anticipated the Longford Bridge varieties, and now we are told on good authority that Leeds "always said he had his original collection from Dean Herbert."

I cannot now ask for space to reply at length to all that Mr. Barr and Mr. Burbidge have written on pp. 507, 508. Generally, however, I will say that they misunderstand my view of Herbert. It may be that I was mistaken in what escaped me about Haworth's researches among living plants; nevertheless, both his book knowledge and his plant knowledge resulted in little more than catalogue-making. He unsuspectingly enumerated as species Daffodil after Daffodil, which the sagacious insight

and brilliant experiments of Herbert surmised and proved to be of hybrid origin, and even producible from one and the same capsule of seed. Which was the greater mind of these two? And as for tangible results and our present inheritance of Daffodils, it must fairly be conceded that Herbert was in the field before Leeds and Backhouse, and produced a wide series of hybrids corresponding so closely with the flowers which we are enjoying under their names, that, whatever became of his bulbs, it is impossible to deny that they achieved their work by "ploughing with his heifer." Are those who provided the coal and iron beforehand and those who afterwards built perfected engines to rank above or on a level with Watt and Stephenson? To put the genius above those who have supplied him with material and those who have made good use of his discoveries is not to "fling stones at their work."

G. H. ENGLEHEART.

*Appleshaw, Andover.*

### CHRISTMAS ROSES.

I THINK that the Christmas Rose is the very best subject which can be had in bloom in a cold house during the end of December and the beginning of January. Mind, I say a cold house. I have tried white *Chrysanthemums*, but the cold and damp combined—especially the latter—spoils them. *Chrysanthemums* cannot be had at Christmas without heat, in order to keep them comfortable as well as to develop and preserve their flowers. But anyone having a cold house, with some shelves near the glass, can have Christmas Roses in flower without a great deal of trouble and with certainty of success. As a matter of course, if a time of sharp-cutting frosts sets in, the period of blooming is somewhat delayed, but flower they assuredly will. And I often wonder that gardeners who have to provide a great deal of blossom at Christmas, and especially white flowers, do not grow the Christmas Rose for the purpose. To do this properly, one needs a kind of nursery ground, and sufficient plants to have one-half in pots and the other half resting in the nursery beds. I find that the plants do well under a wall having an east aspect and planted in a good yellow loam. In the autumn I heap up about the plants, which remain in the open ground all the winter, the leaves which fall from the fruit trees. These protect the buds as they slowly develop into large blossoms, and they decay in early spring and form a useful top-dressing of decayed leaf-soil. In a good yellow loam, assisted by leaves and manure, Christmas Roses root very freely, throwing out many roots until they become a dense mass, forming a large and compact ball.

The variety which I grow is that known as *Helleborus niger* var. *angustifolius*; it is one of the earliest and whitest. The roots that have to be grown in pots are lifted about the middle of October, and they are placed in pots just large enough to hold them, some rich loamy soil being rammed down tight round the sides. The pots are placed in the open air until the flower buds begin to show above the surface, when they are taken into the greenhouse, and stood on shelves as near the glass as possible. They come on into flower more rapidly than plants grown in the open air, and there is this great advantage about it, that the flowers are perfectly pure and of snowy whiteness. This is why I like the variety *angustifolius* so much.

A good sized, well-established plant in an 8-inch or 10-inch pot will throw up a large number of blossoms successively, which is of great advantage. The plants require but

little water, excepting the weather should be dry, open, and sunny for a time. The pots should be placed so that the drip from plants above them should not fall upon the blossoms. I have taken thirty and forty fine flowers from a plant in an 8-inch pot. As soon as convenient after the plants have done flowering they are turned out of the blooming pots, disturbing the balls as little as possible, and planted out under an east wall, treading the soil firmly about the clumps, and mulching with leaves and a little manure. All through the summer the plants are well cared for in the matter of water. They remain out the following winter, and are re-potted in the next autumn for blooming under glass.

I have written these few lines to show how white flowers can be had at Christmas in a cold house. The largest plants are occasionally divided into three or four, and allowed to remain for two years to grow into size, and then they come in very usefully for potting-up to flower under glass.

R. D.

### THE CORSICAN HELLEBORE.

(H. TRIFOLIATUS.)

IT was only in the present year, at the end of a long discussion upon the subject of "the lost Hellebore," that we succeeded in altering the name of this Hellebore from *H. lividus*, which had been wrongly assigned to it, to *H. trifolius* or *trifoliatum*. A summary of the conclusions arrived at in that discussion will be found in *THE GARDEN*, July 11, p. 28. The Corsican Hellebore is still only to be found in Pritzel's "Index" and Edwards' "Botanical Register," under the name *H. lividus*. Now, after all this, is it not a curious fact that we have only restored the plant to its old name, and that it is to be found figured and called *Helleborus niger trifoliatum* as far back as 1625! Edwards (Bot. Reg., xxiv., p. 54) has the plant beautifully figured as *Helleborus lividus* (Corsican Hellebore)—*H. argutifolius* of Viviani—and he says: "Prof. Viviani, supposing the *H. lividus* of 'Hortus Kewensis' to be a North American plant, distinguished this from it under the name of *H. argutifolius*;" but he adds, "M. Cambessides in his enumeration of the Balearic plants rightly considered this an error, and showed that the Corsican Hellebore is the same as *H. lividus*. I have in vain," he says, "endeavoured to discover what could have induced M. Viviani to suppose the contrary." Thus was the error begun and continued up to our time.

I have now before me a curious old Italian book, "Horti Farnesiani," a description of rare plants in the garden of Cardinal Farnesi at Rome, by Tobias Aldinus, published at Rome, 1625. It contains a number of full page engravings, and on page 92 is a beautiful plate of *Helleborus niger trifoliatum*, about half the natural size. It is the Corsican Hellebore in the period of its full leafage, a flower the full size being shown in the margin. It is beautifully drawn and engraved, and is most clearly the same plant we now have in our gardens as the Corsican Hellebore (late *H. lividus*).

The Latin description, freely rendered, is briefly as follows: "We have a new class of *Helleborus niger* which may be named *trifoliatum*. The plant, grown from seed, produces first of all four or five leaves, heart-shaped, somewhat like Ivy leaves, these leaves consisting of two leaves, in size, substance, and shape not unlike those of the Laurel; then other leaves are seen, made up of three Laurel-like leaves. Not always, however, do they keep to this order, for now and then there are single leaves and pairs. The edge of the leaves is so serrated, that it seems to be prickly. The stalk is round,



about a cubit high and the thickness of a finger. The flower is at the top of the stem on numerous stalks, with leaves around, as in *H. niger vulgaris*, consisting of five petals of pale green or whitish colour. In the middle of the flower there are four pistils with many stamens and their anthers. It begins to flower in November, and continues to bear flowers up to April."

Here, then, we have most undoubtedly the Corsican Hellebore under the name *H. trifolius* as far back as 1625, which establishes that as its proper and original name.

Brockhurst, Didsbury. W. BROCKBANK.

### BESCHORNERIAS.

IN reference to the hardness of *B. yuccoides* (p. 480), allow me to say that an attempt was made at Kew to establish a plant of it in a sheltered border out-of-doors. In the preceding summer a strong healthy specimen was selected from a number then in the succulent house, and was planted in a sunny border, with a high wall and fence on all sides except the south. In the warm weather the plant grew satisfactorily, but the first slight frost injured the foliage, and this was taken as a signal that unless the base of the plant was protected a sharp frost would destroy it. The leaves were, therefore, tied together, and a mound of dried Oak leaves was raised around the base of the plant. All in vain, however, as before the winter was over, the wet and comparatively mild frosts were sufficient to prove fatal to the experiment, and we concluded that at Kew this graceful Yucca-like plant could not be grown permanently out-of-doors. There are six species of *Beschorneria* in cultivation at Kew, viz., *B. Toneli*, *B. tubiflora*, *B. Decosteriana*, *B. bracteata*, *B. Cohniana*, and *B. yuccoides*. These are grown along with the Agaves, &c., in the cool end of the large house devoted to succulent plants, and require treatment similar to the Agaves. They are all handsome-foliaged plants, the leaves being from 1½ feet to 2 feet long, tapering at both ends, glaucous, the under-surface roughened like sand-paper; they are arranged in a rosette, and spring from a swollen base formed by the persistent bases of the old leaves. There is no distinct stem. From the centre of the leaves the flower-spike is developed, terminating the existence of the plant, which, however, pushes out several suckers soon after the flower-spike withers, and these may be removed to reproduce the species. In passing, it may be mentioned that the Agaves, which are popularly believed to die immediately after flowering, develop these basal suckers in like manner as occurs in the *Beschornerias*. The flower-scapes of the latter vary in height with the species, though generally they are about 4 feet long, the upper portion branched, and bearing large bracts and tubular drooping green or red and green flowers, and these are rendered effective by contrast with the colour of the scape and branches, which are generally bright red. In *B. yuccoides* the flowers are 2 inches long, Fuchsia-like, their colour being bright green tinged with yellow and streaked with red, whilst the colour of the thick stalk and branches is a rich coral-red. All the species are natives of Mexico, and appear to thrive only when treated as cool greenhouse plants, when their graceful foliage, and eventually the handsome panicle and stalk of flowers, are very ornamental. W.

**Irish nomenclature.**—*I. germanica* may still be found in its native habitat, the Black Forest, but, as Dr. Foster observes, the German Irises of the markets are simply crosses and intermixtures. The yellow Water Flag (*I. Pseudacorus*), *I. florentina*, *I. persica*, and *I. Pavonia*, and some few other species may be depended upon, but when we enter upon florists' varieties, we are at once at a loss.—S. A.

### FRITILLARIES.

LAST season Mr. Barron grew and flowered at Chiswick some species and varieties of Fritillaries that were very interesting because so seldom seen. I do not allude to *F. imperialis*—the Crown Imperial—but other forms so seldom seen, and yet so novel and distinct. It would be an instructive sight could Mr. Barron be prevailed upon to grow as large a collection of these as he could obtain; and though this entails some expense upon the society, the council, having regard to the success which attended the Inventions Exhibition at South Kensington, should be in a position to spend a little additional cash at Chiswick.

Our wholesale seedsmen who deal in Dutch bulbs import annually quantities of *Fritillaria Meleagris*, the common British species; but one looks in vain in their lists for other forms. Even our leading retail bulb dealers do not appear to get beyond *F. Meleagris* and its varieties. Well, they are very pretty indeed, and deserve a much more extended cultivation than they receive. They do well in a deep and rather light loam, especially if it is enriched by the addition of some leaf-mould. They make charming clumps in the hardy border; or, if grown in lines in the spring garden, they prove very effective indeed. It must not be supposed they are difficult to cultivate; they are quite hardy, and need only suitable soil to succeed; and if left undisturbed in the ground they multiply freely. November is a good month in which to plant them, placing them 5 inches or 6 inches in depth, and covering them with a little sand and leaf-mould mixed together. The offsets are produced round the old bulbs, and it is recommended that they should be detached every third year, taking up the balls for the purpose, dividing them, and replanting the largest in the border again. The offsets may be rather differently treated. It is best to plant them in a nursery bed of light rich earth; each variety by itself, if it can be done; and here they may remain until large enough to flower. I observe that Messrs. Krelage term the varieties of *F. Meleagris* Chequered Fritillaries, and they appear to have them in great variety, and divide them into two sections—viz., early sorts with broad leaves, and later sorts with narrow leaves. That they must be very numerous is shown by the fact that the early section is offered in fifty sorts, the later ones in but four only. Those grown by Mr. Barron were in the narrow border at the foot of the east wall, on the right of the broad Grass plat, and as they appeared to have done well, it may be assumed that the position suited them. They were *F. Meleagris* and its white variety, *F. nigra*, the black Fritillary (very fine indeed), *F. obliqua* (with twisted leaves and brownish purple flowers), and *F. pyrenaica*, the dark purple Spanish Fritillary—the two last named somewhat late flowering. Other useful species are *F. pudica*, which an American catalogue describes as producing yellow flowers, and *F. lanceolata*. The catalogue just referred to contains *F. parviflora*, the flowers mottled, yellow, brown, green, and red; *F. liliacea*, a fine white form; and *F. recurva*, orange-scarlet flowered, a great beauty.

Is there not something like a tendency in these days, among gardeners generally, to put aside things beautiful in themselves that require care to cultivate in favour of subjects not requiring so much attention and skill? Perhaps these may be regarded as high-pressure days, when the gardener's duties are heavy, varied, and keeping him constantly on the alert, and he has little time for "specialities" and the oversight needed to be given to them. This may

account for not a few things falling away into something akin to neglect. More's the pity! But their claims to recognition must be announced and insisted upon, notwithstanding.

R. D.

**Beschorneria yuccoides.**—Permit me to inform "C. R. S. D." that this plant has been growing in the open for many years at Clevedon, Lyme Regis. It is planted on the slope of a woody dell, at the bottom of which are ornamental ponds. It has flowered many times, and increases moderately fast. I do not think it a plant calculated for vase decoration, as suggested by "C. R. S. D." The leaves are heavy and fleshy, and the midrib not rigid enough to prevent their becoming crippled by wind or slight mishaps.—J. M., Charmouth, Dorset.

**"Lex" and carpet plants.**—I see "Lex" says (GARDEN, p. 515, November 14) that *any permanent carpet, i.e., close-growing covering, will ruin the hardiest bulbs I know*. I think it worth while asking why all the hardy bulbs of the northern world that in many cases grow out of turf or other close vegetation are not ruined by it? I need only name the Snake's-head, Crocus, and Meadow Saffron among British plants. I fear "Lex" has not opened his eyes clearly to the teachings of Nature in this matter. J. R.

**Senecio pulcher.**—This is one of our finest autumn-flowering herbaceous plants, but it requires special treatment. I mulch old plants of it well with leaf-mould before frost sets in. I do not remove the flower-stalks, but allow both them and the foliage to die back naturally. If removed or shortened, water is apt to get down to the crown, and cause at least some part of it to rot. When protected by leaf-mould an early start is made in spring, and by the time the young leaves make their appearance, all severe frosts are past. The leaf-mould covered in then acts as a manure. Old plants commence flowering in August and continue till October. I propagate numbers of young ones each autumn for succession. Their fleshy roots cut into pieces of about 2 inches long strike freely in pans of sandy soil, the tops of the cuttings being level with the surface, and when placed in a hot-bed or on a shelf in a warm greenhouse they soon start into growth. When they have grown an inch or so in length, they should be put singly in 3-inch pots, and with due attention to watering and hardening off, they may be planted in their permanent quarters by May 1. From plants thus treated we get fine blooms all through October and November. Young plants would also succeed well in pots if lifted in October.—ANDREW CAMPBELL, Ashford, Cong. Co. Galway.

**5419.—Spiraea palmata.**—This *Spiraea*, about which enquiry has been made (p. 502), if given a suitable spot in the open ground, will grow away freely. It will thrive in ordinary garden soil, especially if moderately rich, for it is rather a gross feeder. Like several of its allies, it should never be planted in a dry spot, but where the soil during the growing season is at all events pretty moist; indeed, I have seen it very luxuriant on the edge of a pond where the roots could stretch forth into the water. As the roots of some lifted to-day are already in active operation, *S. palmata* should be planted as soon as possible in the position it is to occupy, or, if intended for pots, no time should be lost in potting it. It cannot be forced into bloom like *S. japonica*, for whereas the latter can by hard forcing be brought into flower soon after Christmas, any attempt to induce *S. palmata* to bloom at that time would be a failure. Notwithstanding this it forms a beautiful pot plant, and by means of gentle forcing may be had in bloom by the middle of April, at which time it is very striking if employed for greenhouse decoration, the bright pink blossoms being very distinct in character from those of other plants, and the young foliage of a pleasing shade of light green. Plants of it potted now may be placed in a sheltered spot or cold frame till the roots are in active operation, when the first batch can have a little more heat applied to them than they hitherto have had, and as the flower-buds make their appearance they can be kept in a temperature above that of an ordinary greenhouse,



but at no time must what is known as hard forcing be indulged in, otherwise the blossoms will go blind. By bringing them on in succession a supply of flowers can be maintained till they bloom naturally in the open ground. They must never be allowed to become dry, especially when the pots get full of roots; then an additional stimulant in the shape of occasional dozes of manure water will be of advantage. After flowering they may be planted in a suitable spot outside, but must be allowed at least a season to recover themselves before forcing them again. With regard to the hardness of this *Spiræa*, it seems proof against our winters, but late spring frosts, if unusually sharp, often injure the flower-buds when the plant is in active growth. This, however, seldom happens if the position is at all a sheltered one, and even the loss of some of the blooms occasionally is more than repaid by the great beauty which this *Spiræa* possesses when in full flower.—T.

5423.—*Iris*es.—In reply to "M. P. F." (p. 502) allow me to say that I. Bloudowi is handsome, but fugacious; it is cultivated by M. Max Leichtlin, myself, and others. I. dichotoma.—Very fugacious, cultivated and lost several times; was lost at Kew a few years ago. I. Güldenstädti, I. spuria, and I. halophila.—These names have been variously applied to different forms of spuria, and plants answering to them are not uncommon in nursery gardens and elsewhere. I. lævigata.—This is the wild form of the *Iris*, a cultivated variety of which is the I. Kämpferi of our gardens, and may sometimes be met with in collections under some name or other. I. sibirica, very common. I. uniflora, I. ventricosa, I. songarica, and I. glaucescens.—These, as far as I know, are not in cultivation; the last seems a charming little thing, but probably very difficult to cultivate. I. pauciflora.—This name is unknown to me. I. setosa and I. brachycuspis.—These are the same; the plant is not uncommon in collections. I. flavissima.—The Asian form of I. arenaria; very charming, but very fugacious; cultivated by M. Max Leichtlin, myself, and others. I. Pallasi and I. fragrans.—The larger flowered form of I. ensata. I. biglumis and I. longispatha.—These are identical and differ but slightly, if at all, from I. Pallasi, which exists in botanic gardens and in my own. I. ruthenica, not uncommon. I. tenuifolia.—I have young plants of this, but they have not yet flowered; what I have so far received from nurseries under this name have turned out something else. I. humilis, not uncommon. I. caucasica, not uncommon. Would "M. P. F.," in return, say where Atkinson and Semenoff's list is to be obtained?—M. FOSTER.

#### QUESTIONS.

5425.—*Freesia refracta alba*.—Can any of your readers give me any instructions how to grow this *Freesia*? I have purchased bulbs of it both last year and this, and treated them the same as *Hyacinths*, but they have refused to grow, and are exactly in the same state as when potted.—H. G.

5426.—*Gardenias*.—I have four bushes of *Gardenia* planted in what was a Cucumber house, but which is now used as a hothouse. The leaves are turning yellow, and I fear the heat at the roots is too great. Could I protect them by means of any non-conductor put between the roots and the heating pipes? What amount of heat will they bear?—F. W.

5427.—*Marigolds changing colour*.—This summer I had a large bed of French *Marigolds* in my garden (with one or two exceptions) all yellow. The seeds were gathered by myself last season from a neighbour's plants, the flowers of which were a rich dark red. Can any reader of THE GARDEN kindly inform me the cause of this change in colour?—AMATEUR GARDENER.

5428.—*Tecoma radicans* and *T. grandiflora*.—Can any of your readers who have had experience in flowering these plants out-of-doors tell me how I fail? We have a few fine healthy specimens on south and east walls, and as long as I can remember they have never flowered once. They form great bunches of buds, but instead of opening, as they ought to do, they remain on the plants till long after the flowering season and drop unopened. We never prune the branches back, as is practised in some instances. We, however, give them an annual root-pruning, but apparently something else is wanted of which we know not.—D.

5429.—*Select Roses*.—This being the best season of the year for transplanting *Roses*, I imagine that many besides myself will be asking, "What varieties should we secure from amongst the hosts now for sale in nurseries?" May I, therefore, on behalf of each, as well as on my own behalf, solicit from correspondents lists of nine or twelve really good hardy yarden *Roses*, to be selected from one or several classes, embracing the cardinal colours and their more decided shades and all free-blooming sorts, in the way of, for instance, La France or Gloire de Dijon? Healthy perpetual blooming varieties of good and varied colour are what we want.—G. S.

## FERNS.

### FERNS FROM SEEDS.

WHENEVER practicable, it is always best to increase Ferns from seeds, or, more correctly speaking, from spores, and the interest attached to propagating them in this way is increased by the chance thus afforded of finding something new which cannot be obtained if the plants be propagated in any other way. Take, for instance, the lovely *Adiantum rhodophyllum*, which emanated from a batch of seedlings of *A. Victoriae*, itself a freak of Nature or a natural hybrid found amongst a quantity of *A. scutum*, or the equally graceful *A. Collisi*, a gigantic kind in the way of the popular *A. tenerum*, but with fronds finely divided like those of *A. gracillimum*, itself selected from among a lot of the common *A. cuneatum*; many forms of Maiden-hairs, such as *A. grandiceps*, *Luddemannianum*, *Bausei*, *Pacotti*, and a host of others, all more or less interesting, might also here be mentioned. Variations, however, are not limited to that genus, for we have in *Nephrolepis Bausei* a most beautiful Fern whose origin is said to have been amongst seedlings of *N. pluma*, from which it is totally different, and on which it may be considered a very decided improvement, being, in fact, a delicately plumose form of that Fern. In *Davallias*, again, we have at least two very good home-produced forms—namely, *D. elegans polydactyla* and *D. Mariesi cristata*. Forms of our own native Ferns, too, raised from seeds are so numerous as to almost defy description. Again, we have endless varieties of *Pteris*, crested forms of serrulata and cretica of dwarf habit, such as *Dixoni compacta*, &c., as well as gigantic varieties such as *cristata* major and *Ouvrardi*, the fronds of which often attain 4 feet in length. But the most striking of all the known forms of *Pteris* is undoubtedly one which I lately saw in a market grower's establishment. It is a finely-crested seedling of *Pteris tremula*, in which not only are its bold and massive fronds terminated by a large and regularly produced tassel, but even every pinna of which has its extremities ornamented by a conspicuous and very pretty crest consisting of smaller dimensions than the terminal one. Its habit is equal to that of the popular species; its vigour is all that can be desired; and if, as it may be safely anticipated, it reproduces itself in true character, it will be a striking illustration of what may be raised in the way of Ferns from spores, especially as *P. tremula* is apparently the least sportive species in the whole genus; until now it has not produced a single variation of any importance. A general rule in raising Ferns of any kind from seed is to keep the temperature as even as possible, and also the atmosphere moist. As regards the spores themselves, they should be gathered as soon as they are ripe.

BEGINNING WITH BRITISH and other hardy kinds, we find that, although they germinate more rapidly, and also take

less time in producing young plants when sown in heat, it is not at all necessary to have any artificially heated place in which to sow and grow them. If procurable, take a good turf of fibry loam, have it soaked in water for a sufficient time to get it well saturated, and after that let it drain thoroughly; it will then be fit for use. In the case of fibry loam not being procurable, take peat, silver sand, and potsherds, or soft brick broken small; mix all well together, then put it in a shallow pan or pot half filled with crocks; these latter should be covered with a layer of fibrous peat or *Sphagnum* and the whole should be well watered; when thoroughly drained, the seeds may be sown. The spores, being exceedingly minute, should not be covered with soil, but simply with glass—a bell-glass for loamy turves, and flat glass for pans. The pans or pots, when freshly sown, should be placed in a shady, but not dark corner; under the stage of a greenhouse, if available, is a good situation for them, and there they should remain until the young seedlings show their first fronds. On account of the minuteness of the spores, the material on which they have been sown should not be watered, but kept constantly moist by partial immersion—that is by allowing the lower part of it to stand in water till sufficient moisture has been absorbed, but it should not in any case remain altogether in water. The first sign of vegetation greatly resembles the common Liverwort, and care must be taken not to scrape it off, as it is from this singular growth that the Ferns will spring, which, according to the different species, they will do in from three to six months. They must then be pricked off in small tufts, so as to give them room to develop themselves, as they generally come up very thickly, and if allowed to crowd and overgrow each other in the seed-pan they are very liable to damp off. When pricked off they should for a few days be treated very much as before, and should be gradually inured to the air by tilting the glass on one side, and in a short time it may be removed altogether. When the seedlings begin to produce fronds and are sufficiently strong, they should be potted separately in small pots, and, on account of their tenderness, it will be necessary to keep them until perfectly established in a rather close atmosphere, well shaded and carefully watered.

GREENHOUSE FERNS FROM SPORES.—The directions for raising these are not materially different from those applicable to hardy kinds. The chief difference lies in the preparation of the compost used, as instead of the spores being sown on a tuft of loam, it is found to be best to make use of a mixture consisting of one part loam, one part peat or well decayed leaf-mould, and one part silver sand and soft brick broken small, the whole to be well mixed, and either baked or boiled before use in order to kill any germ of Moss or other unwelcome growths it may contain which might smother the young Ferns as they come up, and also to kill any slugs,



worms, or insect larvæ which may be present in the mixture. Although greenhouse Ferns may be sown at any time of the year, the best season is early in the spring—that is March or April, as seedlings raised then have, if properly treated, sufficient time to form crowns strong enough to stand the following winter; by sowing later, although the spores come up equally well, the young plants run the risk of being killed during the first winter. To avoid that the spores which are generally ripe in autumn or winter should be collected and kept in paper in a dry, but not warm place till spring. They should then be sown in either pots or pans prepared as for hardy Ferns, and subjected to the same treatment, with this difference, however, that instead of being put in a cool place after sowing, they should, on the contrary, be kept in a place in which the temperature can be maintained evenly at about 55°. When pricked off in a mixture similar to the one in which they were sown, the young seedlings should for three or four weeks be kept in a close shady place where the temperature ranges from 60° to 65° and gradually hardened off by tilting the glass with which they are covered more and more every day until it is taken off altogether.

**STOVE FERNS.**—For these the course just described may be adopted with advantage, the only material difference being the temperature, which, though similarly uniform, must of course be higher throughout than that for greenhouse Ferns. It should average about 70°. A close moist case will suit them, and as soon as fairly up, and even before the young fronds are developed, they should be exposed to light; for that reason they cannot, like the others, be kept under a stage. But, as to all other directions respecting soil, potting material, early pricking off, watering by immersion, gradual ventilation by tilted glass, the same rules as those observed in the case of other kinds should be strictly adhered to. Thus treated, young seedlings sown in March, for instance, will by winter have produced crowns of sufficient size to enable them to pass through the dull months in safety. Many more or less ingenious ways for sowing Ferns have at different times been advocated by persons more or less practical, some even going so far as to recommend their being sown on prepared flannel; but, provided the materials above enumerated be of sound quality and the instructions given carefully followed, no fear need be entertained as to the success of the operation. *Adiantums*, *Pterises*, *Gymnogrammas*, and *Lastreas* come up freely in the course of a few weeks.

**FILMY FERNS**, being exceedingly slow in producing their first fronds, require a compost which lasts a long time in a fresh state, and also a place in which they can remain undisturbed sometimes for years. I have known seedlings of *Hymenophyllum* to keep five years in the prothallium state, and a small batch of the Killarney Fern, *Trichomanes radicans*, is only even now a few inches high, though

sown in July, 1877. *Trichomanes* and *Hymenophyllums*, therefore, must not be included among Ferns which are best propagated by spores; on the contrary, they increase more rapidly by means of division. *Todeas*, however, which belong to the same class, can only be propagated by spores. The stock of these lovely plants was only kept up by frequent importations until a comparatively recent date, when seedlings were freely raised by some of our leading nurserymen; even in their cases, however, the seedlings required several years of careful and constant nursing. No more conclusive proof in support of this value of raising Ferns from spores could be found than the fact that market growers raise them in this way. Their mode of procedure is of the simplest description: the spores of the different species to be propagated when ripe are collected and sown broadcast on the surface of pots containing plants of slower growth, such as Palms, which, not requiring fresh potting, often give the spores a fair chance of germinating and of even producing young plants. The latter are pricked off either in boxes or pans, from which, when they have made from three to six fronds, they are taken and potted in 2½-inch pots; in these millions of Ferns are disposed of annually for the ornamentation of dinner tables or the decoration of dwelling rooms, for which purpose more Ferns are grown in this country than any other kind of plants. Market growers' kinds I admit belong to a different class from those which an amateur would require. The market grower's aim is not the formation of a collection, but the cultivation of showy sorts of rapid growth. He accordingly limits himself to a few species, notably to *Adiantums*, *Pterises*, *Nephrodiums*, *Cyrtomiums*, *Lomarias*, *Polypodiums*, *Lastreas*, &c., but these he grows to perfection and in an incredibly short time. These young Ferns, which yearly abound in our markets, are all raised exclusively from seed or spores. S.

**Floral fans.**—To Mrs. H. B. Smith, of Ealing Dean, we are indebted for the introduction into some of our shows of floral fans, which, as arranged by her skilful hands, are far more graceful and pleasing than the big bouquets now so much in vogue. A pretty handful of flowers is always pleasing, but a big modern bouquet is a horror. Mrs. Smith had one of these fan novelties at the Richmond Show last week, and whilst it was not possible to refrain from admiring the lightness and elegance of the dressing, it was equally impossible to refrain from entertaining a sense of pity for those who, under certain circumstances, are, in accordance with fashion, compelled to accept and carry about enormous bouquets, which must prove a detestable infliction. Now, one of these light and charming floral fans would have proved a very welcome, as well as a graceful, present to any lady in such a case. The framework is an ordinary folding fan covered with white lace; upon this on one side is arranged a series of fine points or sprays radiating from a base of leaves. At Ealing, Mrs. Smith made her base of rich coloured Bramble leaves, whilst at Richmond she employed leaves of *Berberis Aquifolium* with not less advantage, using also more colour in flowers, whilst in the former case the flowers were exclusively white. The obverse side of the fan was in each case dressed with sprays of Ivy, and the handle tied with a bow of red ribbon. I think that many ladies would greatly prefer a fan of this kind

when at balls or evening parties to a huge and unwieldy bouquet, which must often, because of its size and weight, prove a means of torture to those whom fashion condemns to carry it. It is not at all desirable that any lack of appreciation for flowers should be shown by the wealthier portion of the community, but eternal sameness in the floral decorations of the person may soon lead to that end; therefore the introduction of these floral fans may be welcomed both by ladies and bouquetists.—A. D.

## FRUIT GARDEN.

### THE RASPBERRY.

WHEN well grown and properly managed the Raspberry is one of our most useful small fruits, not only for the dessert, to which it supplies acceptable dishes daily for many weeks in succession, but also for tarts, jams, and ices, while its delicious aroma renders it a great favourite for flavouring vinegar and brandy, and it is held in high esteem by housewives, who, like the Vicar of Wakefield's better half, excel in home-made wines. A native of Britain and the temperate parts of Europe, there is not a single garden in this country in which it cannot be grown to perfection provided it is generously treated, and so popular is it with all classes, that it is questionable if ninety-nine out of every hundred consumers do not fully appreciate it in some of the many forms in which the fruit can be placed before them. Like the Strawberry, and perhaps unlike all other fruit-bearing trees and bushes which require root-lifting or root-pruning at some time or other, this biennial-stemmed, Rosaceous plant succeeds best when its roots are left alone, and for this reason the

SOIL should be well drained to free it from stagnant water, deeply trenched and heavily manured at the outset, as it is no uncommon occurrence for a properly prepared plantation to remain in bearing for a great number of years. Although it will grow in any rich soil that is not too heavy, it prefers a deep alluvial loam, not calculated to become sour and inert by the heavy top-dressings of manure placed over the surface-roots every autumn, combined with copious supplies of water in dry weather. Where a light, rich compost of this kind does not exist naturally, heavier soils which crack and lose their moisture in hot, dry weather may be corrected by the application of burnt earth, peat or leaf-mould, which can be thoroughly incorporated with the main staple during the process of trenching. Sand even may be used, but light, rich decaying vegetable and animal manures well worked into the lower stratum answer best, as they supply food and moisture to the deeply seated roots, while those near the surface can be fed by the annual top-dressing. If deeply drained, a rather low moist situation is generally selected, but this is immaterial, provided the ground is properly prepared, as the two sets of canes produce acceptable shade, and the mulching keeps the surface-roots moist and cool in hot, dry weather. Sometimes north borders are planted with Raspberries, and very fine fruit



they produce in such situations, but the quality is inferior in richness and aroma to that which is ripened under the full influence of light, free air, and sunshine.

**PROPAGATION.**—The Raspberry is frequently raised from seeds, occasionally from cuttings, but the usual mode of increasing stock is by means of offsets or suckers, which spring up abundantly over every part of the plantation. When seedlings are raised the seeds should be taken from fine, perfectly ripe fruit, and washed to free them from pulp. When dry they may be sown in pans or boxes filled with light rich loam and leaf-mould, placed in cold pits or frames, where they will remain dormant and safe from the elements during the winter. If kept moist the young seedlings will push through the soil in the spring and they will be fit for transplanting into nursery beds during the autumn.

**SUCKERS** may be taken up at any time during the season of rest, but the best time is early in October, which is also the best season for making new plantations. Some varieties sucker more freely than others, throwing up stout young canes a considerable distance from the old stools. These generally make the best plants, as they have the full benefit of light and air, and they can always be taken up with good roots without doing material injury to the surface-feeders, which, by the way, should never be disturbed by the barbarous practice of forking or digging from the time the beds are made until they are broken up and done away with. When shy kinds throw out offsets close to the stools, their removal should never be delayed after October, as they are often sparsely furnished with roots, which renders early planting absolutely necessary. Suckers or offsets of this kind ought to be detached from the parents with a sharp knife, care being observed in the preservation of the dormant bud, which will be found just beneath the surface, for if this is destroyed the young plant, if it grows, which is doubtful, will not produce a fruit-bearing cane during the following summer. By taking the offsets early and transplanting at once into light rich soil, which should be well mulched to keep out frost and drought, young roots are formed before the earth loses its summer warmth, and the dormant buds generally produce good canes fit for permanent planting the following autumn.

**PLANTING.**—Raspberries are generally planted in a series of rows from 5 feet to 6 feet apart and 3 feet or 4 feet between the stools; but much depends upon the nature of the ground and the mode of training. If to stakes, I would suggest placing three straight rustic stakes to each stool, triangular fashion, a foot or so apart, and tying two, or at most three, canes to each stake, for the double advantage of letting in sun and air and allowing the young canes of the current year to ascend through the centre. In bird-infested districts planting in flats generally finds favour, as the plantations can be

enclosed with aviary wire placed round the sides, and the top covered with large squares of herring netting during the time the fruit is in season. Raspberries are sometimes planted 4 feet apart and 5 feet between the rows for festooning; but, unless the situation is much sheltered, the young canes get blown about by the wind, and present an untidy appearance in a well-kept garden. A better and a more profitable plan is planting in single rows, 2 feet from cane to cane, and training the bearing canes regularly to two wires placed on each side of a V-shaped trellis some 4 feet in height, and running from north to south across an open quarter of the garden. Trenches for this kind of planting should be taken out from 2 feet to 3 feet in width and depth, into which decaying refuse, manure, road-scrappings, and the like can be wheeled and well incorporated with the best of the surface soil. When it has had time to settle, the young sets may be put in and mulched, and the trellis, formed of strained wires passing through iron or Oak standards, some 6 feet to 9 feet apart, can be erected during the winter or, for that matter, not until the following autumn.

**PRUNING AND TRAINING.**—The mode of training having been decided upon, planting must be regulated accordingly. For stake training one, two, or three young canes may be planted within a few inches of each other. For trellis training they succeed best when planted singly in a long straight line across the quarter. In either case they should be cut down in the spring, not before, as exposure of the pith causes the young canes to die back if pruned during the winter. Although stout, permanent stakes the first year are not absolutely necessary, I would, if obtainable, use lighter sticks for the young canes, much as the Asparagus grower uses them to prevent wind-waving and injury to the crowns during the summer. The object of cutting back the newly-planted canes is to secure strong breaks from the base, which should be allowed to grow freely during the first summer. In the autumn all the weakest must be cut out, when those left to bear fruit may be staked, tied, and top-dressed with rotten manure. Some cut off the tops in the autumn, but I prefer leaving the topping until the spring for the two-fold advantage of keeping the weather out of the pith and delaying the bursting of the fruit-producing laterals until somewhat later in the season. When well mulched, Raspberries do not soon feel the effect of drought, but it must be borne in mind that liberal supplies of water or pretty strong liquid are highly beneficial during long-continued hot, dry weather. When the plantations get into full bearing, all the old canes which have borne fruit should be cut out in September. Suckers, as has been suggested, should be removed, when the beds may be cleaned and mulched, but neither dug nor disturbed with spade or fork if the cultivator's aim is a plentiful supply of strong shoots capable of carrying heavy crops of fruit annually for a long series of years.

**DISEASES AND INSECTS.**—When well planted in suitable soil and properly managed, the Raspberry is rarely attacked by diseases, and not often by insects. Occasionally the crop is injured by a small grub, which attacks the flower-buds and the footstalks of the fruit, causing them to shrivel up as if scorched by fire. It is the caterpillar of *Tinea corticella*, which appears early in August, and feeds upon the leaves until winter, when it conceals itself in the buds and reappears in the spring. About the end of May the caterpillar enters into the pupa state, and in a fortnight is again seen as a moth, which deposits its eggs on the stems. The grub of another insect—*Byturus tomentosus*—is sometimes found inside the fruit, which it does not attack until it is nearly ripe.

**VARIETIES.**—Several varieties of Raspberries are grown, and some new ones have recently been introduced; but, the price excepted, I as yet fail to see in what respect they differ from the best of the old ones. Few people grow more than one or two sorts of red, a few canes of white, and perhaps one of the autumn-bearing varieties. The following will be found a good selection: Carter's Prolific, Cutbush's Prince of Wales, Red Antwerp, and Fastolf. Yellow or White Antwerp is the only pale variety worth growing. Amongst autumn bearers we have Rivers' Large-fruited Monthly, Belle de Fontenay, and Semper Fidelis. These kinds are induced to produce fruit on canes of the current year by cutting them down to the ground early in the spring. Perhaps they are best adapted for autumn bearing, but all the summer fruiters will do the same under similar treatment. W. COLEMAN.

*Eastnor Castle, Ledbury.*

### TOO MANY PEARS.

THE Pear Conference is doubtless calculated to be of some use in clearing up the mistakes in nomenclature that with Pears, as with Apples, have long existed. But the amount of good that this and similar gatherings of fruit and fruit growers is likely to effect, even in this direction, may be over-rated, as it is not amongst the varieties of Pears really worth growing that so much confusion of names exists, but in the far greater number of sorts that are useless, or worse than useless, as if they were out of existence altogether, the thousands of people now led to plant them would have kinds better worth the room which they occupy. "A. D." considers that a riddance of 50 per cent. of the varieties of Pears now existent would be an advantage; if he had added two more figures, he would have been nearer the mark. Of this there needs no further proof than the fact of an English nurseryman offering between 1300 and 1400 sorts. In making all reasonable allowance so as to include the hardest varieties for localities where the best kinds will not answer, I think most people will admit that if nine-tenths of them were non-existent it would be an advantage. And I maintain that any body of



Pear growers and those interested in the cultivation of fruit who meet together—call it a conference, or what you will—and who stop short of condemning the greater number of even the varieties that are fairly well known, leave the most important part of their work undone. Another matter equally of importance is to indicate the kinds, even if not A 1 in quality, that will answer in places where popular sorts will not succeed. It is necessary to keep in mind that soil and climate in quite one-half of the country are such that the greater proportion of the varieties most in favour will not bear so as to make them worth having. Nevertheless, people in many instances go on planting in a hap-hazard kind of way, with the result that when the time comes when the trees should bear they fail to do so, because both soil and climate are unsuited to them. Take, for instance, the old Swan's Egg, a variety that few now think of growing, although it is good in both flavour and texture, an abundant bearer, and not over particular as to soil or situation. On the other hand, Beurré Clairgeau, a handsome fruit little better than a Turnip to eat, is largely grown, and generally to be met with in every winning collection of Pears shown during the autumn months. Size and appearance have more to do with the preference given to many varieties of Pears, as well as other fruit, than these properties should have, particularly on the exhibition stage. In this it would seem that fruit exhibitions are getting into the track of the vegetable shows, where it not unusually happens that the best to eat are rejected in favour of others that are better to look at than to eat.

REGARDING SIZE, there are many who will doubtless recollect the time, not much over a score of years back, when the small, highly-flavoured Seckle was shut out from being shown in collections of Pears, the impression being that it carried too much weight, on which account a separate class was made for it. Now, its presence in a collection would be likely to count the wrong way in the estimation of many, the plea being that it is too small, and this notwithstanding its sweetness, aroma, and the melting character of the flesh, which altogether it combines to an extent present in few other Pears. To these properties must be added its free-bearing habit, and although the tree is one of the smallest in growth, it thrives well over a wide range of the country. It has one fault, and that is when ripe its season is soon over. The undermentioned Pears, which ripen in the months named, are a selection from a considerable number that I have grown in localities and soils that differed sufficiently to prove their ability to thrive and bear well, whilst the quality of their fruit is too well known amongst experienced fruit growers to require much comment.

EARLY VARIETIES that come in in July or the beginning of August do not seem so much in favour now as they used to be. Neither is this to be wondered at, as in the summer there are so many other kinds of fruit; in addition to

which the very early Pears are so quickly over, that it may be said they are no sooner ripe than they are decayed. Yet those who would like to have Pears as early as they can be got will not be far wrong in planting. Doyenné d'Été.—The fruit of this is small, but finely favoured, and it is the best of the very early sorts. Wall, espalier, pyramid, or standard. Citron des Carmes.—This Pear has a distinct and agreeable flavour, and bears well where the soil is fairly well suited for Pears. Wall, espalier, pyramid, or standard. Jargonelle.—Few Pears are better known than this, and there are not many that will grow and bear better over a greater extent of the kingdom, either on a wall, as a standard or a pyramid; in the latter form it generally requires to be freely root-pruned after the tree has got large enough to check its naturally strong growth. Beurré de l'Assomption.—The finest looking of the very early Pears. The tree is a good grower and free bearer, the fruit soft, juicy, and high flavoured. Wall, espalier, or pyramid. Williams' Bon Chrétien.—This variety, than which there are few Pears better known or more deserving of cultivation, comes in usually about the beginning of September, sooner or later, according to the season or the locality in which it is grown. With Londoners it is such a favourite, that they are made to believe it lasts in season much longer than it really does. Not a few varieties are sold under the name William weeks after that variety is over. There are a few people who object to its musky flavour, but to many more this is one of its greatest merits, whilst its honey-like sweetness is generally esteemed. The tree is a good grower, the fruit usually better from standards, pyramids, or espaliers than from a wall, even when grown further north than where many of the better class of Pears will succeed, and it generally carries a crop every season in which there are any Pears worth naming. Summer Franc Real is a free-bearing sort on lightish soil, and may be depended on for a crop. It is one of the most juicy Pears I have ever met with, but not so sweet as many. It succeeds the Jargonelle, and where a constant succession is wanted is very useful. Wall, standard, espalier, or pyramid. Beurré d'Amanlis is a large-sized variety, and amongst the best of those that come in early; it is very sweet, the flesh melting, and the tree bears heavily. Wall, espalier, or pyramid.

LATE AUTUMN SORTS.—From the middle of October to the end of November, where anything approaching a large collection is grown, there are such a number ripe that, except with those who grow for sale, there is usually a good deal of waste, for, though the majority of the sorts that come in during the time named will keep much longer after they are ripe than the summer and early autumn varieties, still the time that intervenes between their being ripe and decaying is limited. In the ripening of many kinds of Pears, it is often uncertain whether one should place them in October or November. The sort of weather, dry and sunny, or wet and cloudy, that has prevailed during the summer, has much to do with the time when they come in. Beurré Superfin, though not very large, deserves a place in the most select collection of Pears. The tree is a good grower, and does well in places where many of the best Pears will not succeed. It answers either as an espalier or a pyramid, or on a wall, and bears freely. The flesh is melting, usually quite free from grit, with a pleasant flavour, although not so sweet as that of some. Comté de Lamy may be classed as a medium-sized variety. It is a free grower, succeeding well in most soils where Pears do

fairly well; it is also a heavy bearer; its fruit is excellent in quality, melting, and very sweet. Wall, standard, espalier, or pyramid. Louise Bonne of Jersey.—Few varieties surpass this, taking all its qualities into account. The tree is a good grower, and it will succeed over a wider range of the kingdom than many that have a finer appearance than it has. It bears freely as a standard or pyramid, and with me the fruit has always been better from standards or a trellis than from a wall. It is a certain cropper; the fruit is melting and fine in flavour, and on good Pear soil one of the sweetest of all Pears. Marie Louise.—No Pear is a greater favourite with cultivators than this, and deservedly so; it is a good grower, hardy in constitution, and not so particular as to soil or locality as the generality of good Pears. It is one of the few amongst the best varieties that will answer when grown as a standard in the north of England. It combines size, excellence in texture and flavour, with freedom in bearing. Wall, standard, espalier, or pyramid. Doyenné du Comice, a very large and exceptionally fine Pear. Where soil and situation favour it the fruit grows nearly as large as that of the Catillac, and not unlike that excellent cooking variety in shape. The flesh is juicy, melting, and sweet. Wall, espalier, or pyramid. Seckle.—I have already said enough about this excellent little Pear, which deserves to be much more generally grown than it is at present. It sometimes does not come in before November, although oftener in the preceding month. Wall, espalier, or pyramid. Beurré Diel.—The quality of the fruit of this Pear is more affected by the character of the soil in which it is grown than many kinds; in some places it is good in every way, in others it is gritty, but it possesses so many good properties, including its free-bearing disposition, that it should not be overlooked. The flesh is buttery, very juicy and sweet. Wall, espalier, or pyramid. Beurré Bosc, another hardy free-growing variety that will thrive and bear in almost any part of the kingdom not quite unsuited for Pear culture. The fruit is large in size, buttery, melting, and perfumed. Wall, espalier, standard, or pyramid. Soldat Laboureur.—I have not had so long an acquaintance with this grand Pear as the others just named, but I have seen enough of it to feel convinced that it is one of the finest varieties ever raised. It may be classed amongst large kinds. It has a flavour distinct from that of any Pear with which I am acquainted; the flesh is melting and sweet. How it will succeed in the less favourable parts of the kingdom will no doubt be ascertained when it becomes better known. Wall, espalier, or pyramid.

WINTER PEARS.—Amongst kinds that ripen in December, Glou Morceau stands in the first rank. The fruit is above medium size; the flesh melting, very rich, sweet and highly flavoured, and it bears well in most localities. Wall, espalier, or pyramid. Knight's Monarch.—The fruit of this is medium-sized and excellent in quality. The only fault I have found with it is that the fruit sometimes drops a good deal before it is ripe. It is a heavy cropper. Wall, espalier, or pyramid. Beurré Bachelier.—This is a good useful Pear. The tree is a good grower and a free bearer. The fruit is full sized, buttery, and fine in texture and flavour. Wall, espalier, or pyramid. Winter Nelis, another sterling sort, not over-particular as to locality or soil; it thrives well and is a sure cropper. The fruit is smallish in size, melting, and extremely rich in flavour. It deserves to be much more generally grown than it now is. Wall, espalier, or pyramid. Prince of Wales (Huyshe), a full-sized Pear that comes in about the end of



the year. The tree is a free grower, and the fruit of excellent quality. Wall, espalier, or pyramid. Beurré Duval, a medium-sized variety that does not seem to be much known, fruit agreeably perfumed, melting, and very sweet. The tree is hardy and a free bearer. Wall, espalier, or pyramid. Beurré d'Aremberg (Van Mons).—This is a free, but not over vigorous grower, and a free bearer. The fruit is of medium size and very good in quality. It usually ripens in December, but sometimes later. Wall, espalier, or pyramid. Beurré Sterckmans, a fine December Pear in every way, both in appearance and quality, whilst the tree is a good grower and bears freely. The colour of the flesh is much like that of Beurré Rance, being of a greenish white, melting, very rich, and sweet. Wall, espalier, or pyramid. Marie Benoist, a comparatively new variety, not much known, but one of the best late sorts. The fruit is medium in size, the flesh melting, and very sweet. The tree is a heavy bearer. Wall, espalier, or pyramid. Passe Crassane, another of the best late Pears, not much known. The tree is a good grower and free bearer. The fruit medium-sized, the flesh not so melting as that of some, but sweet and perfumed. Wall, espalier, or pyramid. Easter Beurré.—This variety, which ripens in February, is too well known to require describing. It thrives well in most soils and bears freely. The fruit is large and of good quality, but in some localities where it bears well the fruit does not ripen; this mostly occurs in the northern counties, for which reason its cultivation is better confined to the southern parts of the country. Wall, espalier, or pyramid. Josephine de Malines.—One of the best of all the late Pears. The tree is not a large or vigorous grower, but it bears abundantly. The fruit is small, but unequalled in quality by any February-ripening variety that I have grown. Wall, espalier, or pyramid. Beurré Rance.—Another well-known variety that grows and bears well in most parts of the kingdom. The fruit is medium sized, sometimes large and of a peculiar shade of greenish white colour; it is soft, melting, rich, and juicy. In the time of its ripening it is more influenced by the character of the summer than any Pear I have grown. Sometimes it comes in early in January, and sometimes not until March. Wall, espalier, standard, or pyramid. Ne Plus Meuris.—A very distinct and useful Pear, that comes in in March, and sometimes later. The tree does not usually attain a large size, but it thrives well throughout the greater part of England and bears freely. The fruit is generally produced in clusters of from three to four or five together; it is mostly quite free from grit, very sweet, and has a peculiar yet pleasant flavour, quite different from that of other kinds. After a very hot summer, this variety has sometimes not been ripe with me until April, keeping on in good condition until past the end of the month. Wall, espalier, or pyramid.

**STEWING PEARS.**—One of the best and freest bearing of these is Verulam. Its fruit is large, and when cooked assumes a beautiful claret colour. It is the best for use from the time it is gathered until November. Wall, espalier, standard, or pyramid. Catillac.—This is the most generally useful of all the cooking varieties, as it keeps well. The tree is a free grower and an excellent bearer. The fruit is very large and solid. Wall, espalier, standard, or pyramid. The above two varieties are sufficient for culinary use.

**EXHIBITION PEARS.**—Those who require Pears for exhibition—such as are likely to find favour with judges in accordance with the way in which the awards are now often made—will

reject a good many of the varieties included in the foregoing selection; but those whose object is to have sorts that are best for eating, and that will give a continuous supply over as long a season as Pears are to be had, will not be far wrong in planting the kinds just named, which are good growers, free bearers, and unequalled in the quality of their fruit.

**PEARS FOR NORTHERN COUNTIES.**—Of the above-named sorts the undermentioned will answer in localities where many varieties fail to bear in a way that makes them worth growing, viz.: Citron des Carmes, wall or espalier; Jargonelle, wall, pyramid, or standard; Williams' Bon Chrétien, wall, standard, or pyramid; Summer Franc Real, wall; Beurré d'Amanlis, espalier or wall; Louise Bonne of Jersey, wall, pyramid, or standard; Marie Louise, wall, pyramid, or standard; Beurré Diel, wall or espalier; Beurré Bosc, wall or espalier; Knight's Monarch, espalier or wall; Winter Nelis, wall; Josephine de Malines, wall; Beurré Rance, wall or espalier; Ne Plus Meuris, wall. The following are also well adapted to localities where the more favourite sorts give too little return to make them worth planting, viz.: Hessel or Hazel, an old September variety, very useful in places where the best kinds bear shyly. It is much grown for market in many districts on account of the immense crop which it generally yields. The fruit is small or medium in size, and the flesh not very soft, but it is very juicy and sweet. Pyramid or standard. Amongst October and November sorts I would recommend Aston Town, an old variety surpassed by few for its excellent qualities. The fruit is small, melting, rich, and very sweet. The tree grows to a large size if required, but does well as a pyramid with the roots pruned. Beurré de Capiaumont.—Fruit medium in size, flesh soft and sweet, with an agreeable flavour. The tree grows well as a standard. It is one of the freest bearers I have ever grown, and it does well where many varieties fail. Bishop's Thumb.—An old-fashioned Pear that succeeds in places where many kinds will not thrive; it is a strong robust grower, and bears heavily. The fruit is large in some places; in others it does not attain more than medium size. The flesh is soft, juicy, and sweet, with a distinct flavour. Wall or pyramid. Althorpe Crassane.—A well known sort that bears heavily. The fruit is medium-sized and the flesh soft and juicy, with a distinct and agreeable flavour, but not so rich as that of the best kinds. Wall or pyramid. Swan's Egg.—A good variety that bears heavily; the fruit is of good quality and medium in size. Pyramid or wall. Amongst November or December Pears, Autumn Bergamot is a prominent variety which was much more cultivated when fewer kinds were known than at present. It has given place to more fashionable sorts, which are no doubt preferable where they succeed. However, discarding this and others not particular as regards soil and climate for tender varieties has resulted in there being many places where trees are more plentiful than fruit. This variety is a strong free-grower and an immense bearer, most suitable for cultivating as a standard. The fruit is of medium size, the flesh melting, juicy, and sweet.

**MOST OF THE VARIETIES** included in the selection for the more northern districts will answer in places where conditions are such as to make it worth while attempting Pear culture, and I suppose few will question that it is better in cases of this kind to plant second-rate sorts that will bear than the finest varieties that will not. There is no fruit so much influenced by soil as the Pear. The driest parts of the

country naturally are the most sunny; but the best flavoured Pears are not produced where there is the least rainfall. I have never met with Pears so fine in flavour and so sweet grown in the south as in the north within some miles of the sea-board. Nothing can be finer than the quality of the Pears grown about Liverpool, as those who have had an opportunity of judging can vouch. Taking them as a whole, foreign grown Pears, though larger than ours, are not equal to them in flavour, although some of the larger kinds are better than with us—Duchesse d'Angoulême and Chaumontel, for instance. The former is often gritty in this country, whilst the latter is not unfrequently too coarse to be of use. I have tried most of the varieties of Pears that I have grown on the Quince stock in various soils, but I would not now plant any kind that was on it. I never knew a good variety that did not produce fruit of better quality on the Pear stock than on the Quince; and I never met with a second-rate variety that was not more inferior on the Quince than on the Pear. What is gained by the trees bearing earlier on the Quince is much more than lost in after years by the greater weight produced by the trees on the Pear stock.

T. BAINES.

#### MEALY BUG ON VINES.

THE houses in which "J. H.'s" Vines are growing being old (p. 502), the bug has no doubt gained a sure footing in the walls and woodwork, and possibly in the borders. This being the case, his first efforts must be directed to the cleansing, stopping, and painting of the structures, otherwise, no matter how carefully he may clean and dress the rods, one pair of insects left in any part of the house will be quite sufficient to start a new colony in the spring. Assuming that all the Grapes have been cut, he should prune the Vines, strip off all old, loose bark, and carefully scrub the canes with strong soap-water, sling them in the most convenient position to dry, and remove every particle of loose mulching and top-dressing from the borders. Stop every hole and crevice in the walls with cement, and wash them with newly slaked lime. Treat the woodwork in a similar way, using putty mixed with turpentine, and give it two coats of turps-paint. Remove all plants and burn them with the refuse if infested, and the first step in the right direction will be complete. Stronger measures, however, for cleansing the Vines than merely washing them with soap-water will have to be adopted, as the enemy will have secreted itself in the buds, the gnarled spurs and cracks in the stems, from which it is practically impossible to dislodge it with brushes. The Vines may be stopped with pure Gishurst and painted with the same, 8 ozs. to a gallon of water, thickened with stiff loam to the consistency of cream, or, better still, the gas-tar mixture may be applied as follows: To one gallon of finely sifted earth placed in an iron pot over a slow fire add half pint of gas-tar; mix thoroughly into a paste, and add boiling water to reduce the whole to a thick paint. Allow the mixture to cool, and apply it with half-worn paint-brushes when the Vines are perfectly dry. Much injury having been caused by the injudicious use of tar, a chemist's nicety should be observed in the preparation of the paint, as it is always good policy to err on the safe side, but the mixture, if composed as recommended above, may be used with perfect safety, and, as I have proved to my own satisfaction, to the total destruction of the bug. If the bug has pervaded the border, I would suggest syringing about the base of the stems of the Vines, and, in fact, the whole surface of the borders, with a



solution of sulphide of potassium—half an ounce to the gallon—immediately after the other operations are performed, and as a preliminary to the application of a new top-dressing. So far, the laborious and expensive part of the process of annihilation may have been properly and efficiently performed, but the owner of bug-infested Vines in old houses must not yet relax his vigilance. He may rest during the dormant months, not later, for as surely as spring comes round, every bug that has escaped the fumes of the tar will again put in an appearance, and it is for the advent of these solitary insects that the would-be successful operator must be prepared. Not one must have time to become a parent, or the work of the winter will have been expended in vain. Gin, whiskey, paraffin-oil, or any kind of spirit applied with a camel's-hair brush will destroy mealy bug instantaneously. The first two, for obvious reasons, I do not recommend; the oil in an undiluted state is dangerous to the young wood and foliage, but methylated spirits is quite safe, and for this reason it should be used for giving the final touch to one of the most troublesome enemies with which cultivators have to contend.—W. COLEMAN, *Eastnor Castle, Ledbury.*

—“J. H.” cannot do better than dress his Vines with “the coal-tar mixture,” the merits of which have been several times discussed in *THE GARDEN*. It has one great virtue which many insecticides have not—namely, that of killing the eggs as well as the “bugs.” From the evidence of many practical Vine growers, it is quite harmless to the Vines; it should be applied as soon as the Vines are pruned. This mixture is made of gas-tar (two quarts), well mixed with dry clay well powdered (one pailful); to this add enough water to make it into a thick paint. Keep it well stirred. The rods should be thoroughly painted with this mixture, and care should be taken to work it into all the inequalities of the bark and round the base of the spurs, as it is in such places that the insects or their eggs are likely to be found, but the buds should be avoided. The woodwork of the house should be well scrubbed with paraffin-oil, and the walls and brickwork washed with a pint of paraffin-oil mixed in a bucket of hot limewash, thoroughly working it into every crack and crevice where the mealy bug can possibly hide. By these means, if “J. H.” has the success that others have had, his vinery next season should be free from these pests.—G. S. S.

—If the wood and glasswork are scrubbed with soft soap and water, strongly impregnated with paraffin, and well forced into the crevices by the syringe, it will probably do much towards eradicating mealy bug. The Vines may be scrubbed with a weak solution, but care must be taken not to injure the buds from which growth is expected next spring. When the Vines are in a growing state, should the pest appear, a very small quantity of paraffin may be used in the water for syringing; probably a tablespoonful to a gallon of water may be used.—H. H.

**Rats and Kentish Filberts.**—On reading Mr. Elmhirst's remarks on this subject (p. 486), it struck me that a piece of No. 22-gauge  $\frac{3}{8}$ -inch mesh galvanised wire netting about 2 feet square, having a slot on one side to the centre where there should be a round hole cut to fit the stem of the Filbert tree, would be a safe and durable preventive against rats or other vermin ascending the stem. The corners might be supported by stout pieces of wire (not wood) fixed in the ground and made to clip the corners of the netting, or it might be suspended by fine wire from the principal branches. The cost for

each tree would probably be about 9d. The root suckers which often spring up around the stem must, of course, be removed if this plan is adopted. The reason a small mesh is recommended is that it would also keep down field mice.—H. H.

#### PEARS AND PEAR PRUNING.

It is stated in *THE GARDEN* (p. 474) that “two-thirds of the named sorts of Pears should be expunged.” Messrs. Bunyard, of Maidstone, say: “The number of kinds quoted in their catalogue may appear to many to be unnecessary, but planters must bear in mind that the greater the variety the more certain can they be of having a crop annually. The frosts of spring, the heat of the preceding summer, and the mildness of winter have great influence over fruit crops. In our own plantation of more than 300 kinds, we rarely fail to get a crop; where one tree fails another kind succeeds. A little fruit in a scarce year is more acceptable than much in a plentiful season.” Others, again, think that a “clean sweep should be made of some 50 per cent. of the kinds of Pears now in cultivation.”

Personally, I have no objection to such wholesale destruction, but in separating the “tares from the wheat” the utmost care ought to be exercised. To reduce the number to a few “first-rate sorts, suitable for different localities, soils, and modes of culture,” is indeed desirable; but I think we shall have to be contented with a list less perfect, though not of necessity less complete. The favoured few should include those varieties, not necessarily of the highest quality, which, owing either to uncommon hardness, or to the inherent property of blossoming comparatively late, usually escape the evil effects of late spring or early summer frosts, and set and ripen fair crops of fruit in seasons when vastly superior varieties crop scantily, or are (for the season) practically barren. What we do particularly need, for local purposes, now more than ever, in view of prospective compulsion to farm small allotments, the gift of municipalities at the expense of the ratepayers, are the names of varieties of Pears, comparatively few in number, that bear fairly well, and thereby supply a great want in seasons of Pear-scarcity, and from time to time, if possible, add to and thereby improve the list. These are indeed desiderata, and the leading exhibitors at the Pear Conference can probably best supply them to interested cultivators. Messrs. Bunyard, for instance, with their extensive Pear plantations, in which are represented numerous varieties, must be in a position to tender good practical advice in connection with a list of kinds suitable, at least, for their own locality and environment. But such knowledge, for local purposes, wants collating. This might be done by Mr. Barron. Mr. Wildsmith asserts that constant fruitfulness on the part of Pear trees can be attained in no other way than by pruning. “J. S. W.” on the other hand, holds that “thousands of Pear trees” all over Britain, “that have never been pruned for ten, twenty, and thirty years never fail to bear the most abundant crops, except from three causes, and they are causes which pruning cannot help, viz., cold, wet seasons that hinder the buds from ripening, frosty springs that kill the bloom after it expands, and occasional over-cropping which tends to reduce the crop the ensuing year.” My own idea of pruning fruit trees has always been not only to correct Nature in shaping them to suit the circumstances of cultivation, but also to insure, if possible, constant fruitfulness and, at the same time, prevent over-cropping. I have

seldom, if ever, seen a well-pruned tree over-cropped. As to the unpruned trees which I have seen, I need say nothing. It is surely going too far to say that judicious pruning, foreshortening, and thinning out of lateral growths is no “help” in “cold, wet seasons” as regards ripening buds. By practising this system of pruning, light penetrates more freely into and about the trees, and for the same reason the numbers of buds remaining to be ripened are proportionately reduced.

With reference to the wonderful Pear tree mentioned by “J. S. W.,” which bears in an “abundant manner year after year, the fertility depending on causes not connected with pruning, to which all other trees are more or less susceptible,” one naturally wishes he had given the name of the variety, and also, if possible, the causes which annually lead up to such fertility.

GEO. SYME.

**Coe's late red Plum.**—Owing to the lateness of this Plum in ripening in the autumn, and the length of time during which it will hang in good condition upon the trees after being ripe, it ought to have a place in every collection of Plums either on walls or espaliers. It may also be grown as a pyramid or standard. The colour of the fruit is bright purple, and when ripe it is juicy and sweet, and may either be used for dessert or for cooking. We have here a large fan-trained tree of this variety upon a wall facing the west. It is very old, and most of the branches have been cut back once or twice close to the main stem, and young wood has been laid in to cover the wall, which has kept the tree in good fruiting condition. It has borne a heavy crop during these last two seasons, and last autumn a portion of the crop remained upon the tree till the middle of November; the fruit was then quite plump and fresh, and did not show the least signs of shrivelling or dropping off the branches; it hangs in clusters of three or four together. This year the same tree is again bearing a very heavy crop of fine large bright fruit. This variety is from ten to twelve days later in coming into bloom than the general run of Plum trees, and this I doubt not is a great means of its blossoms being saved from spring frosts.—WM. CHRISTISON, *Homewood, Chislehurst.*

**Holed Peach leaves.**—In a lean-to orchard house here (Rushton Hall) 78 yards in length with an east aspect, Peach and Nectarine trees are trained on the back wall. In the early part of the summer I noticed that many of the leaves were badly “holed,” as “G. S. S.” described them in *THE GARDEN* (p. 366). I determined, if possible, to find the culprits, and soon discovered numbers of small flies busy puncturing the leaves; I therefore at once set about the work of destruction. The house was well fumigated at night, and again in the morning; the next day the trees and wall were thoroughly syringed with a mixture consisting of one pound of soft soap, half a gallon of tobacco juice, and thirty gallons of soft water. Three days afterwards the house was again well fumigated both night and morning. Subsequently the trees had occasional syringings with soot water, made by filling a bag with fresh soot and sinking it in a tub of soft water by means of a weight. Under this treatment the house was soon cleared of flies, some of which I send, and also some of the holed leaves.—J. C. K.

\* \* \* The Peach leaves sent by “J. C. K.” are holed in a similar manner to those I have received from other correspondents. I cannot, however, think that he has discovered the cause of the holes and notches, for Peach leaves, when attacked by aphides, like those forwarded by “J. C. K.,” curl up or twist; at least, that is my experience. Now, most of the holed leaves that I have examined are quite flat and of their normal form. The action of aphides often seems to cause an unusual flow of sap to the attacked part; whereas the injuries to the leaves under consideration appear to be due to the drying up of the tissues in certain parts, whilst the rest of the leaf appears quite healthy. I submitted some of the leaves and aphides sent by “J. C. K.” to Mr. Buckton, our best authority on these insects,



at the same time telling him I imagined that the injuries to the leaves were caused by the heat of the sun concentrated by drops of water. In reply, he wrote to me as follows: "A drop of water makes a good lens of short focus, but the heat it concentrates from the sun, I should think, from its small size cannot be very great; upon a leaf it can never attain to 212°, as the lens would boil away; still, the light on such a concentrated spot might kill that portion of leaf on which it falls and give it the appearance of scorching. The holes made in the Peach leaves are not, I apprehend, the effect of aphid attack." I cannot agree with Mr. Buckton that the concentrated rays of the sun through a drop of water would never cause a heat of 212°, or the drop would boil away. A burning-glass can be made of ice, and by bringing the sun's rays with a glass to a focus in the centre of a piece of ice, the centre can be melted while the exterior remains solid. Would "J. C. K." kindly make some more observations the first time he has an opportunity? I should suggest that a leaf attacked by aphides should be marked, that they should be allowed to remain at work at least two days, and then be carefully removed, and a watch kept on the leaf to see if it turns brown at the attacked parts, and if those parts eventually fall away, leaving holes similar to those in the leaves he sent for examination. From the way some of his leaves are holed, I must admit my faith in my theory is somewhat shaken, as in some cases there are a number of small holes very close together.—G. S. S.

**Pruning the Pear.**—I am truly sorry for having saddled Mr. Wildsmith with the responsibility of the illustrations to which I alluded in THE GARDEN (p. 449), and I withdraw any reference made to him in regard to them. He will not be surprised to learn, however, that I am not the only one who has put the figures in question down as examples of Heckfield training, a circumstance not surprising considering that the figures are placed in the middle of his paper to illustrate the subject on which he writes, and are not explained or referred to elsewhere, so far as I can discover. I know that the Heckfield pyramids are models in their way, and I was much puzzled to understand what extraordinary hallucination had conceived a tree to be a pyramid that had not the most remote resemblance to that shape. I must add, however, that I fail yet to see how the word "only" could be supposed to mean "terminal shoots," seeing that Mr. Wildsmith is explicit enough in specifying his practice in regard to lateral growths, and that in his note last week he says, "the terminal shoots are only stopped sometimes."—J. S. W.

## NOTES OF THE WEEK.

**Royal Horticultural Society.**—We learn that Captain E. S. Bax has been appointed assistant secretary to this society in place of Mr. Henry R. Newport.

**Diospyros Kaki.**—A short time ago there were some questions in THE GARDEN about this new fruit. It may, therefore, interest some to know that I have lately picked good specimens of ripe fruit from a tree against a south wall. I think it quite worth growing for its fine foliage and showy fruit, but though the fruit would look handsome on the table, I do not think it a great addition to our edible fruits. The flavour is mawkish and insipid. I suppose it to be perfectly hardy, for the frosts at the end of September, which did so much mischief in the garden, had no effect on the leaves or fruit of the *Diospyros*.—HENRY N. ELLACOMBE, *Bitton Vicarage, Bristol*.

**Covent Garden Gazette.**—This is the title of a new journal which has appeared, and which seems likely to be useful to a certain number of people hitherto entirely unrepresented in the press. The editors say that the following is their plan:—

With each issue we shall give a complete and accurate record of prices realised for fruit, vegetables, and flowers during the past week, and a specially prepared article to assist the grower in judging what to send, and what to keep back, and probable prices during the forthcoming week. Our French readers will find in their own language the weekly market reports mentioned above. We have appointed special correspondents in the

Channel Islands, France, &c., whose weekly letters will deal exhaustively with market news from those places. The other features of interest to the grower were set forth at length in our Preliminary Circular, and need no further mention. Additional special items will be added shortly, including a series of portraits and biographies of well-known growers, salesmen, &c. We certainly think that there are many things that such a journal might do very well.

**New Chrysanthemums.**—Although a number of certificates of merit were given last week by the National Chrysanthemum Society to new flowers, yet it cannot be said that anything specially striking or notably novel has presented itself. Certainly, with regard to actually new kinds shown by the trade, we seldom see the true merit of any of them until they get into the hands of first-class growers; hence it is not always possible to judge of the actual merits of any novelty until it has been fully tested. It is interesting to observe that in novelties the beautiful Japanese forms predominate, and it is not less instructive to find that these are the most popular with the general public. On the other hand, the few incurved kinds certificated are sports of which already we have enough. A third Queen of England is no gain, especially as we have such an abundance of bronze-tinted flowers amongst incurved forms already. Those who have marked the effect produced on a stand by such a striking dark flower as *Refulgence* will admit that it is to deep colour we need most additions, and novelties of good form that have rose, red, deep chestnut, or crimson hues would indeed be acceptable. Even in the Japanese section we have ample room for more rich colours, and that grand, fiery chestnut-hued kind *Cullingfordi*, which seems to be a distinct Japanese reflexed, is a decided acquisition. The blooms are not large, but they are solid, and most effective in a front row. Another charming Japanese not yet largely grown is *roseum superbum*, soft, delicately tinted, and a very neat, handsome flower. If a class for Japanese reflexed is ever provided—and it is time such a class was instituted at all leading shows—these two latter kinds would take high place in it. If future Japanese sorts are less big and a little more refined in form and texture, our exhibitions will decidedly be gainers.—A. D.

**Varieties of Pampas Grass.**—Mr. Gumbleton sends from his garden at Belgrove, Queenstown, a most interesting series of varieties of the Pampas Grass, mostly all seedlings raised in French gardens during recent years. Originally Mr. Gumbleton had six new varieties in his garden. These were named *Gloire du Museum*, *Louise Carrière*, *Elise Carrière*, *Chapeau Chinois*, *elegans*, and *Enfant cheri*. Of these, three were killed in the severe winter of 1879 and 1880, the survivors being *elegans*, *Chapeau Chinois*, and *Elise Carrière*. Of these *elegans* flowered annually and proves to be one of the finest. The other two sorts have grown into immense plants, but have never flowered. The lost varieties were replaced by three others named *Marabout*, *Soyeux*, and *Roi des Roses*, and it is these, together with *elegans* and its golden-leaved form, of which Mr. Gumbleton sends plumes. The *Roi des Roses* has a decidedly ruddy tinge on the plumes, but *elegans* is large, and has particularly open branching white plumes much whiter than another variety, resembling a fox's brush, for which Mr. Gumbleton has no name. The finest of all, Mr. Gumbleton considers, is the golden-leaved *elegans* (*foliis aureo-variegatis*), the plumes being large and very white, and reach as much as 10 feet in height. It is, moreover, the hardiest of all. The dwarfest Pampas Grass at Belgrove is one called *Lamblii*, which has silver variegated leaves and white plumes. Besides the varieties of *G. argenteum*, Mr. Gumbleton sends plumes of a distinct species, *G. jubatum*, which was discovered and introduced into Europe by M. Benedict Roezl, whose death we recently recorded. He found it at Chimborazo; therefore it is not so hardy as the more southern *G. argenteum*, the common Pampas Grass. The plumes of *jubatum* are very large, and the branches recurve on each side in a graceful way. Their colour is a dark fawn, and the plumes are particularly elegant. The plumes are tall, but slender; therefore not so able to withstand the wind. Though tolerably hardy at Queenstown, it is doubtful if it is so around London.

## NOTES ON RECENT NUMBERS.

**Gesneras** (p. 480).—A glance at the catalogue of M. Van Houtte or any other of the Continental growers of this class of plants is, I am sorry to say, quite sufficient to show one how comparatively few of these one ever sees or hears of. *Nagelia*, *Plectropoma*, *Rosanowia*, *Eucodonia* are names quite beyond the ken of even super-average gardeners; and yet, perhaps, for this we should be glad after all, for it means that there is a fund of beauty and usefulness at our disposal "unhackneyed," and one might almost say unrealised, which under a more extended "redistribution" would be sure to come forward as formidable rivals among the better-known popular candidates for "a place in the house." As room plants, the *Gesneras* are most valuable: first, because they last so well; secondly, because they make such good little specimens for small vases, and are so easily grown to pair or match each other. The delicacy of the flowers is often set off by great beauty of foliage, and one large pale yellow variety of *Nagelia*, which I am very fond of, instead of the bright green leaves one would have expected surprises one with dark green ones thickly covered with red hairs, and this soft primrose tint on the rich velvet is most charming. I mention this special one as I have never seen it elsewhere but at the one friend's who originally gave it me, and as having been pronounced by good judges one of the best of its class. The hybrid *exoniensis* is, perhaps, the best known, except the old and somewhat gaudy *zebrina*, but the hybridisation and growing of the other sorts seem to have been entirely delegated to the Continental nurserymen in whose hands they are allowed to remain. They will stand a richer and more liberal treatment than they are usually allowed, though, of course, if they are kept, as is sometimes done, for months together shrivelling up in a paper bag, and are at last by mere chance or a happy thought routed out, planted in strong soil, watered freely, and placed in a stove, they are not likely to surprise anyone by becoming either useful or beautiful plants.

**Anemone japonica** (p. 484) does not usually figure as a "garden pest," and to call it the worst of all is saying too much for a great deal of the rubbish which many nurserymen are willing enough to recommend. That the typical form is apt to straggle about more than one would wish in choice borders cannot be denied, especially if the ground is much dug; the white and pink varieties, though growing taller, form much more compact bunches. This plant might naturally recommend itself to many as suitable for a wild garden, and my object in noticing it is to point out to those who would utilise it thus that in such cases it is very necessary to protect it somewhat carefully from all vestige of rabbits, who are exceedingly fond of it, and will browse it off close to the ground without much mercy. It may be trusted sometimes to the natural protection of coarse Grass and strong-growing neighbours, but, as a rule, if the rabbits once find it out, they will not leave it in peace till they have killed it.

**Schizostylis coccinea** (p. 505) has one great merit which only requires to be tested to be appreciated. Like *Narcissi*, *Lilies*, and *Gladioli*, the blooms open quite as well when cut and put in water as when still attached to terra firma, only more so in the case of this late autumn-flowering plant, inasmuch as the wet and cold do not allow it to mature its beauty every season in the open border unprotected. If cut and brought into the warmth of a room these dull damp November days, one has something to be thankful for in the glorious mass of flower which soon expands itself if the frosts have not nipped it in the bud. As a pot plant I always considered it on the whole as disappointing, being very liable to be drawn and weak in colour. Since it increases so rapidly, it is not usual to see a recommendation to raise it from seed, and one must hope that those who have practised this method of cultivation have been on the look out for any improvement or break in the typical form likely to be worth preserving as distinct. Can the seedlings be made to bloom earlier than the old plants (like *Anemones*), so as to ensure for them a little encouragement in the way of a decent sky and a bit of sunshine to develop their beauty?

*Sussex.*

C. R. S. D.



## MANDEVILLA SUAVEOLENS.

I HAVE often wondered when I have been passing through the Undercliff why such a glorious climber as this is only conspicuous by its absence. For, in truth, it is never to be seen there, and one might almost be led to suppose that a law had been passed that Passion-flowers and Myrtles are to have the whole place to themselves. The like may be said, so far as my observation goes, of a wide range along the southern coast. Here and there some exceptions are to be found, as is notably the case at Battle, in Sussex; but, as a rule, the greatest sameness is seen where the most captivating variety might very easily prevail. I cannot account for this tame uniformity, and I think it is very much to be deplored. *Mandevilla suaveolens* might wreath the Undercliff from end to end with only a minimum of trouble and expense.

Its delicious fragrance might perfume the air, and its very pure starry white blossoms might delight every beholder, or its curious seed vessels, which are about 18 inches in length, might awaken his curiosity at once. It is a native of Chili, and owing to its sweetness has sometimes been called the Chili Jessamine. It was brought to this country, I believe, by Capt. Mandeville, H.B.M. Minister at Buenos Ayres, and for all future time he has become immortalised by this association with a shrub of the rarest fragrance and beauty. I find *Mandevilla suaveolens* most easy to manage in the open border in the Isle of Wight. It has been growing on the south side of my house for seven or eight years and I have been so pleased with its performance every summer, that I have trained four other specimens against the walls of St. John's Church, which are doing equally well. I cannot think of anything more befitting a church than this beautiful climber; it is a sort of emblem of purity without stain or blemish. To have a good chance of success, the following points, I believe, should be attended to. Be sure that the plants have been a little hardened off which are put in the open ground. It does not answer to take a weakling from an overheated greenhouse, and to expose it suddenly to our bitter east winds. Select if possible a warm and sheltered situation; choose April as the month for commencing operations.

*Mandevilla* can then resist any white frosts which nibble at it, and it has time for preparation against more furious onslaughts, and, if you can do it, make a truce with the weather that the first winter after planting be mild. When it has become

fully established and is doing well in the open ground, *Mandevilla* should be pruned in the spring, and by this I only mean that any feeble sprays should be cut out; the branches must not be shortened at the ends, or all chance of blossom will be lost. Soil does not seem to be of great consequence with it; it takes to a mixture of loam and peat very well with a little charcoal in it, and I do not think it would in the least complain if it had to put up altogether with loam. I wish I could persuade every householder in the Isle of Wight and other suitable places just to give a corner and a very little atten-



*Mandevilla suaveolens* on an open-air wall at St. John's, Ryde, I.W.

tion to this delightful exotic. I am sure they would be repaid for their trouble.

H. EWBANK.

**Anemone japonica.**—When nearly every flower has disappeared, and nothing remains but a few discoloured leaves, there is still this lovely Windflower. Few plants are so useful as this *Anemone*, especially late in the year, but still it is by some depreciated. The white variety, too, is very popular, and so are some of the coloured kinds, but the true old *Anemone japonica* is scarcely ever met with. Its flowers consist of more petals than those of any of its hybrid forms, and they are of a darker colour. The only flowers we really have at our disposal just now

are [Michaelmas Daisies, Pyrethrums, and a few other perennial composites. Christmas Roses seem rather early this year, but what have we now equal to this lovely Windflower? Even in pots it is very handsome, and a welcome plant either in the greenhouse or the conservatory during the winter months, when flowers are scarce. I, therefore, think it should be upheld instead of run down, as some have done in THE GARDEN lately.—W. GRIESINGER.

## AURICULAS, HOLLYHOCKS, AND CARNATIONS.

**AURICULAS.**—In order to define the proper winter treatment of Auriculas, it is sufficient to class them as alpine and show varieties. The alpine are hardy enough to withstand the winter planted out-of-doors, and they will flower freely under out-of-door treatment. All that these hardy varieties require is to be planted in a position in the rock garden, where they are not scorched with the summer sun nor injured by stagnant water in winter. Plants cultivated in the open air are injured by two causes; in rich damp soil large worms throw their casts into the hearts of the plants and choke them, and the leather-coated and other grubs and caterpillars eat the leaves; slugs, too, are troublesome. They can be kept off by strewing a little soot round the base of the plants. It is also desirable to examine the latter with a lamp in damp weather, as most depredators of the class mentioned feed at night, when they may be caught. Plants grown in pots require but little water, and the removal of decayed leaves is a matter that ought not to be neglected. The show varieties ought to be in frames in an airy position; they should be carefully looked over once in two weeks, to pick off decayed leaves and remove green fly with a small camel's-hair brush. Remove the lights from the frames whenever the weather is dry; if cold, it does not matter. When wet, raise the lights well above the plants to admit a free circulation of air. Never allow damp to condense on the leaves at this season from lack of sufficient ventilation.

**CARNATIONS AND PICOTEES** are always in their pots before the end of October—at least the main collection of them, and in order to get

them well established, place the lights over them for a week or ten days after they are potted; during that time they do not get much air, and the close atmosphere always brings a host of aphides, which work into the centre of the plants, and do considerable damage if not destroyed by fumigation. When the plants are fairly established, admit air freely, removing the lights constantly in fine weather. During wet weather the lights should be tilted on the side opposite to that from which the wind blows. By giving plenty of ventilation even in wet weather, removing the lights altogether when it is dry, and keeping the soil in the pots moist, neither too wet nor too dry, "spot" will



not appear on the leaves, nor gout at the base of the stems. Seedlings out-of-doors should be well established before cold weather sets in. I like to be able to plant out seedlings early in June; our largest were planted out at that time, others not until October, and some from choice crosses were not planted out at all, but have now been potted in small pots to be treated the same as the named varieties. Those in the open ground must be looked over frequently in order to destroy slugs, and as regards the leather-coated grub, a war of extermination must be waged.

**DAHLIAS.**—We have not yet dug up our Dahlias, because they have not been quite destroyed by frost, and the ground in our district is excessively wet. I would fain hope it will be drier in a week or two, in order that the tubers may be taken up and stored comparatively dry. In either case, when taken up, the stems should be cut over 6 inches or so above the ground. In many cases, the hollow stems are full of water; it is, therefore, best to set them up for a few hours, with the crowns downward, in order to allow the water to run out and to dry the stems; we will place ours in this position in a late vinery for a few days. The whole of the tubers can thus be dried thoroughly, and they may be stored afterwards in a dry place, from which the frost is excluded, but they suffer if too warm and dry.

**HOLLYHOCKS** are sufficiently hardy in the unbloomed seedling state to stand the winter. Propagated plants are not quite so hardy, but they also pass through ordinary winters unscathed. Choice varieties ought to be dug up and potted in light soil, or they may be planted close together in cold frames. It is better to pot them, because they can be readily taken into a heated house to push on the cuttings, which may be taken off earlier in the year than they would be if grown in a cold frame. The fungus (*Puccinia malvacearum*) is most insidious in its attacks. The most curious thing about it is the fact that the plants are apparently quite free from it for a whole twelvemonth or more, and then all at once it comes like a cloud, and not a plant escapes it. There is no doubt that it lurks in the neighbouring hedgerows on the wild Mallows, and in certain stages of development; doubtless, when the spores are ripe it flies through the air like dust, and attacks our Hollyhocks. Seedlings permanently planted out should be kept clear of weeds either by hoeing the ground or forking over lightly.

**PINKS** will be firmly fixed in their beds, having been planted in September. I am always careful to have them planted out so that they may be well established before cold weather sets in. When late planted out they are easily thrown out of the ground by frosts and alternate downpours of rain. The labels are also thrown out by the same causes; let them be replaced as often as it may be deemed necessary. To make more certain of keeping up a stock, a pair of each variety should be potted in 3-inch pots, and they may be wintered in cold frames. It may be necessary to place a surface-dressing of fine soil on the beds.

**PANSY SEEDLINGS** ought to be well established in beds or borders, so also ought the named varieties; but a plant or pair of each variety of the latter should be planted in pots the same as Pinks, and be wintered with them in cold frames.

**TULIPS** must also be planted out as soon as possible in light, but rich soil. The roots begin to push out from the base of the bulbs very

early in November, and after that they ought not to be long out of the ground.

J. DOUGLAS.

### PRIMROSES OR POLYANTHUSES.

JUDGING from what has been written lately in *THE GARDEN*, people seem to have got rather mixed up as to the difference between a Primrose and a Polyanthus. "Primula" is astonished at the idea of the flowers figured (p. 374) not being recognised as true Primroses because she (I presume) "has seen them growing and knows how they came!" "J. C. C.," on the other hand, says: "If these flowers are Primroses, I should like to know what are Polyanthus?" while "A. D." is confident that all "know to a certainty what a Primrose is, and also what a Polyanthus is." Now, when doctors disagree, who shall decide the knotty point? Can no one let in a ray of light? Let us see! Here, in this land of Primroses, my experience confirms the truth of "A. D.'s" remark that everyone has a pretty correct idea as to what a Polyanthus and what a Primrose is. How it may be in less favoured places, I know not, but here nearly every cottager cultivates a few clumps of old-fashioned Polyanthums, as they call them, and would never think of confounding them with Primroses. But, while this is the case, and though our hedges are filled in spring with their pale yellow flowers, very few seem to be aware that the English Primrose, *Primula veris* or *Primula acaulis*, really produces its flowers on a stalk in Polyanthus fashion, the only difference being that in the Primrose the foot-stalk (peduncle) is short and hidden in the fleshy crown of the plant, as a rule, while in the Polyanthus it is thrown up above the foliage. Frequently late in the season the common Primrose may be found with an elongated stalk, proving the truth of this assertion, and plainly showing that *Primula acaulis* and *Primula elatior* are merely varieties of the same section of the Primrose family. Their characteristics may be thus defined:—

**PRIMULA ACAULIS** produces an umbel of flowers, springing from a very short peduncle, the pedicels (stalks of the individual flowers) being long compared with the peduncle, and the flowers generally much larger and brighter in colour.

**PRIMULA ELATIOR.**—The Polyanthus produces an umbel of flowers, springing from a long peduncle, usually well elevated above the foliage. The pedicels are short compared with the peduncle, and the umbel compact and evenly shaped. The individual flowers are usually smaller than those of the Primrose, and tend towards dark, sober, rich shades, such as those seen in the old gold-laced Polyanthus, the typical flower.

So far all is plain sailing, but there is another section of the Primrose family now becoming common in our gardens, and perhaps the most showy and attractive of all. This section has been obtained by crossing the Primrose with the Oxlip, and Polyanthus, and the result is a race known by the name of hybrid Primroses. These frequently produce their early flowers in Primrose fashion, but later in the season the peduncle elongates, and the flowers are thrown up above the foliage, as in the Polyanthus. The hybrid Primrose may, however, be detected by the length of the pedicels, which generally exceed that of the peduncle. The head, consequently, is not close and compact, but loose and spreading, while the flowers are larger and brighter than those of the true Polyanthus. The specimens figured (p. 374) appear to me to be of

this latter type, and may fairly come under the head of hybrid Primroses. These forms and colours are very familiar to me, but thrum-eyed flowers are much to be preferred to the pin-eyed specimens as shown.

Among the thousands of seedling and named varieties grown here, there is at times no very distinct boundary line. Primroses, Polyanthuses, and hybrids cross and recross themselves so readily, that the same packet of seed may produce all the different variations, though saved from one section only. Purchasers of seed, therefore, must not be surprised or disappointed if these variations occur at times in spite of all the care used to prevent them. Many Primroses are already in bloom here. During last season, which was mild, we had an unbroken succession of bloom from November until May; but if the weather prophets are right, we shall have a severe winter, and then good-bye to Primroses until the spring has fairly set in.

R. W. BEACHEY.

### GARDEN DESTROYERS.

#### WOODLICE, SLATERS OR SOW-BUGS. (ONISCIDÆ.)

THOUGH no one can fail to know the common wood-lice, but few can repress an incredulous smile when told that they are not insects at all, but belong to the same class as lobsters, crabs, shrimps. However strange it may appear, such is the case, and a careful examination will show that they differ in many essential points from insects, and have much more in common with shrimps and lobsters, and belong, like them, to the class Crustacea. To the cultivator of plants, however, the chief matters of interest connected with these creatures are the facts that they injure many of his plants and are very difficult to exterminate, owing to their nocturnal habits and their fondness of hiding themselves during the day under rubbish, in cracks in walls or woodwork, and in the Moss in which Orchids are often planted. Their skins are so thick, that no ordinary insecticide has any effect on them, so that various devices have to be tried for their extirpation, and everything should be done to avoid providing them with comfortable hiding-places. Wood-lice share the same feelings as most insects, and I am afraid those of some of the higher animals, in having a great dislike to cleanliness and water. Nothing suits them better than a badly-kept hothouse or an untidy garden; they seem to enjoy hiding under rubbish which has lain unmoved for a day or two. They are very destructive in hothouses, particularly among Orchids. They hide in the Moss around the plants and feed on the young, fleshy roots, of which they are especially fond. In Melon frames, Mushroom beds, and even orchard houses (for they do not disdain a ripe Peach), they are very troublesome; in fact, it is difficult to say what they will not eat in the way of vegetable produce. Out-of-doors they often attack low-growing plants, under which they can shelter, and usually select the collar of the plant for their depredations. Last year a very good crop of Strawberries in a garden at Canterbury all



most entirely failed from the attacks of these pests, who gnawed the fruit and opened many of the seeds. Now, as regards the best means of destroying these creatures, a good deal depends on the plants they attack and the places in which they hide themselves. When hot-beds and frames are infested with them, they frequently hide themselves between the earth and the walls or woodwork. Under these circumstances a very effective way of destroying them is to pour boiling water into their haunts. When they attack fruit on a wall, the wall should be repainted so as not to afford them any hiding-places. When they take up their positions among the Moss in pots containing Orchids, if it be impossible to re-pot the plants, cover the soft parts of the roots, which they might injure, with cotton wool, and lay traps for them among the Moss. The best traps are pieces of Apples or Potatoes slightly scooped out, and laid so that the wood-lice can creep underneath, or small pots laid on their sides and partly filled with Moss, and with a piece of Apple or Potato, or cheese sprinkled with white sugar, at the bottom, or partly filled with half-dry horse droppings; the dirtier the pots are the better. These traps should be placed anywhere near where it is thought the creatures are hiding, and should be examined every morning. They may be poisoned by boiling a Parsnip, cut up into little lumps, till it is rather soft, in water in which some arsenic has been put (but this will poison other animals as well, so should be used with the greatest care). The pieces should be laid near the haunts of the wood-lice. Toads will eat great numbers of these pests.

THE WOOD-LICE, as before mentioned, belong to the class Crustacea, and to the order Isopoda (that is, with equal feet). In this respect they differ very much from their relations, the lobsters and crabs, whose legs (particularly the front pair, which form the well-known claws of those animals) are not equal; but in all essential points of structure, which I need not here enumerate, it is obvious that they are rightly classed with them instead of with insects. From the latter they differ in many particulars; they have seven pairs of legs when full grown, whereas adult insects never have more than three; they have two pairs of antennæ, whilst insects have only one. The second pair of antennæ, though very prominent in most crustaceans, are very minute organs, consisting of three or four very small joints in the terrestrial species. Wood-lice at no period of their existence are winged; their breathing apparatus is very different, and they do not undergo metamorphoses in the same way that insects do. The females lay eggs, which are carried about by the mother, and even after they are hatched the young for a certain time occupy what is called the thoracic pouch. This pouch is formed by plates developed at the base of the front pairs of legs. The young very much resemble their parents in form, but are quite

white and have only six pairs of legs. Wood-lice gradually increase in size and live for several years, so that they have the opportunity of doing a considerable amount of mischief during their lifetime. There are some seventeen different kinds of wood-lice belonging to six genera. They all bear a close resemblance to one another, but differ in slight particulars. Some species have the power of rolling themselves up into a ball when disturbed; others have not. This habit is not confined to members of one genus, for in more than one some species can roll themselves up; others cannot. *Armadillo vulgaris* (figs. 2 and 3) when rolled up forms a perfect sphere. One very small species, which measures one-eighth of an inch in length (*Platyarthrus Hoffmannseggii*), is quite white and blind; it is found not unfrequently in ants' nests. According to Sir John Lubbock, the ants take not the slightest notice of them, though it is certain they

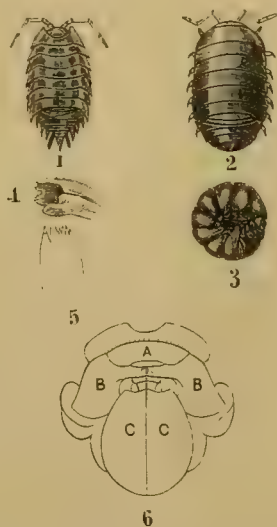


Fig. 1, *Porcellio pictus* (slightly magnified); 2, *Armadillo vulgaris* (natural size); 3, ditto, curled up; 4, point of mandibles of *A. vulgaris* (magnified); 5, maxilla of ditto (magnified); 6, mouth of *A. vulgaris* (magnified).

sanction their presence, or they would at once kill them. Sir John suggests that these wood-lice may act as scavengers. The mouth of a wood-louse (fig. 6) is a rather complicated apparatus, and well formed for gnawing vegetable substances. In the figure it is shown as seen from in front. The upper lip (fig. 6, A) is slightly thickened at the centre of the front edge. Beneath this are the mandibles (B), or jaws; these are very strong organs, toothed and hollowed out at their points, which are nearly black. Below them is the under-lip (C), which has a longitudinal division down the middle. Hidden by this lip are a pair of delicate jaws or maxillæ (fig. 5), which are finely toothed at their ends, and no doubt assist in further subdividing the food already broken up by the mandibles. The head is furnished with a small pair of compound eyes and two pairs of antennæ; one pair is, however, not seen unless the head be very closely examined; the larger pair consist of seven or eight joints, accord-

ing to the genus. The body is composed of thirteen joints, the first seven of which bear legs, which limbs consist of six joints; the last is terminated by a single claw. Beneath the segments of the body which do not bear legs is placed the breathing apparatus, which is protected by a double row of overlapping plates. At one time wood-lice were supposed to be possessed of considerable medicinal virtue. "Wine of millipedes," which was considered a medicine of great value in certain complaints of the liver and kidneys, was compounded of crushed wood-lice infused in wine.

OUR COMMONEST SPECIES belong to the genera *Oniscus*, *Porcellio*, and *Armadillo*. I have figured *Porcellio pictus* and *Armadillo vulgaris*. The first-named genus contains seven species; that which I have figured, *P. pictus* (fig. 1), measures, when full grown, about one-third of an inch in length, and is of a brownish grey colour, with several darker spots of the same colour on each segment of the body, giving it a decidedly variegated or mottled appearance. This woodlouse is rather a flat species, and only partially curls itself up when disturbed. The genus *Armadillo* contains only one species—*A. vulgaris* (figs. 2 and 3)—which is about two-thirds of an inch long when full grown, and is of a brownish lead colour; it is smooth and very convex, and has the habit when disturbed of rolling itself up into a complete ball (fig. 3); it is very common in most places under rubbish, &c. G. S. S.

#### SULPHIDE OF POTASSIUM.

IN the report of the proceedings of the Society of American Florists (p. 486) there is an apparent misprint of "sulphate of potash" for sulphide of potassium; the former, which is not within my knowledge used as a remedy for plant diseases, is a compound of oxide of potassium and sulphuric acid, the latter, of potassium and sulphur, and is the very soluble form of sulphur to which some months ago I directed the attention of horticulturists as being a very cheap and convenient medium for effectually bringing sulphur immediately in contact with the low animal and vegetable organisms, which in so many forms seriously injure the growth of plants. Sulphur has been recommended by generations of gardeners as the best remedy for mildew and red spider, but all who have tried it in the form of powder must admit that its application is unsightly in proportion to its completeness, while its success is not in the same ratio. I believe, from my experience, confirmed by the reports of some of the best gardeners in the country, that a solution of sulphide of potassium, of half an ounce to the gallon of water, is fatal to some of the most mischievous pests which trouble plant growers, and never injures a plant in appearance or otherwise. I am inclined to think, however, that the compound varies in its activity, as it certainly does in its appearance, some samples showing a much darker fraction than others. When the use of it becomes, as I believe it will, general, more care will be taken to secure the regular production of that form which yields the best results; as it is, while I have met with but one case where immersion did not arrest the growth of fungus (even then a second



immersion was successful), I have met with several in which the effect on red spider was not completely satisfactory, although one application of another sample had completely cleansed some badly infested plants. However, whether the preparation be in its most active form or not, in any form it is far more efficient than any other application of which I have learned the use in fifty years of practice.

*Packwood, Knowle.* EDMUND TONKS.

## ROSE GARDEN.

### ROSES FROM CUTTINGS.

WE have just had another proof of the easy way in which own-root Roses may be obtained. In October last year, having an odd glass light to spare, I determined to use it for protecting some Rose cuttings. With a few old boards we put together a temporary frame, on which the light was put; then, having selected a warm corner for the frame, the old soil on which it was placed was taken out 6 inches deep. We then run some ordinary garden soil through a coarse sieve, and mixed with it one-third road sand. This mixture took the place of the soil removed. The next business was to get the cuttings—not a difficult matter, for we had only to go over the Rose-beds, and to take off the tops of the longest shoots in order to get all we wanted. We were careful to get them long enough, so as to be able to reject the tops of such as were too soft, it being necessary to have the wood moderately firm. After the soft tops had been taken off, the cuttings, which were cut at a joint at the base, varied in length from 6 inches to 10 inches. Some of them had as many as three or four leaves left upon them, and others a less number. The soil in the frame was then trodden firmly and the cuttings inserted, firming the soil afterwards, around them with a wooden rammer. Every cutting stood a clear distance of 4 inches from its neighbour, and when the frame was filled the soil was gently watered and the light put on. This constituted about all the labour devoted to them, for the winter being mild they were in a manner forgotten; had there been severe frost, we should most likely have covered the light with an old mat or long litter, but being all of the Hybrid Perpetual class they did not require coddling. They, therefore, had no attention bestowed on them until the spring, when all the dead leaves were picked out and the soil made firm where worms had loosened it; at the same time a good soaking of water was given the soil and the light was put on again for another period of time—rather a long one, for at the end of May the light was still on, and those which had rooted were pressing against the glass, a circumstance which necessitated its being removed at once. They had another soaking of water and were then left to themselves all the summer, except when cutting flowers we sometimes found time to visit them for the sake of the buds which they furnished to help fill our basket. Many of them, I should say, commenced to produce flowers in July and continued to do so until taken up a few days ago, when we found more than fifty plants in a space 4 feet square. They were all abundantly rooted, and some of them were 3 feet high. Seeing how trifling the labour was to secure this number of plants, it must be admitted that the result was highly satisfactory.

OWN-ROOT ROSES from spring-inserted cuttings made from the prunings of plants in the month of March are, I believe, less frequently met with than those put in in the autumn. How-

ever, I can show anyone a few plants raised in this way. Only 10 per cent. of the number put in rooted; but in this case, as in the last, the labour of putting in a few hundred cuttings made from spring prunings, instead of throwing them away, is not great. We simply collected the prunings, made them into cuttings, and then dibbled them in a border facing the north. They were sheltered by a high wall, and the soil was only of an ordinary character; all that we did to them during the summer was to pull out any weeds that appeared amongst them, and the result, as I have said, is that 10 per cent. (rather under the mark) has grown into plants. Roses pegged down should be on their own roots, and, as has been shown, it only requires an ordinary amount of skill and a little patience to secure plants of that kind, which, if planted in a good soil and afterwards well cared for, will last a lifetime. We have beds of Roses on their own roots with the growth pegged down that have been planted nearly twenty years, and every season they flower in the most satisfactory manner, and make growths 6 feet and 8 feet long, while Roses on foster roots, be they Brier or Manetti, are short-lived, and in other respects not always satisfactory. Those who wish to establish Rose beds of a permanent character must rely on plants on their own roots, and must thoroughly prepare the soil. A depth of 2 feet of good loam for the roots is indispensable in order to secure vigorous growth. In forming the beds the earth should be thrown out 2 feet deep, and then the bottom should be stirred up. If the staple is a good holding loam, it may be returned to the bed with the addition of some well-rotted farmyard manure mixed with it, taking care that there is a thick layer of the manure quite 1 foot from the surface. In all doubtful cases about the quality of the old soil it will be better to take the whole of it away and substitute good loam and manure. Knowing how admirably Roses thrive in many soils of an ordinary character, I do not wish to advocate prohibitive measures, because, with the assistance of some well-rotted manure, they can be had in very satisfactory condition, and instead of limiting the number of Roses to specially prepared beds, I would rather see the best that could be done for them with the resources at command. It is a fortunate circumstance that beds of pegged-down Roses are nearly everywhere admissible. In a large number of places quiet nooks might be found that would furnish space enough for a number of beds either in a design or distributed about the garden; what more pleasing feature could one have than a moderately sized bed filled wholly with one variety; admirers of Roses will be pretty well able to picture to themselves what charming beds such sorts as A. K. Williams, Charles Lefebvre, Annie Wood, Jules Margottin, Centifolia rosea, Duke of Teck, Edouard Morren, Empress of India, Magna Charta, and Mdle. Catherine Soupert would make, and many others equally as fine could be named that do well on their own roots.

IN PLANTING it is best to fill out the sides and corners of the beds first, putting the plants 1 foot from the Grass and from 30 inches to 3 feet apart; the remaining portion may then be filled up at the last named distance apart. Plant firmly with the crown about 2 inches under the surface. If plants can be had taken up from the open ground, they may be planted at any time in open weather from November to the middle of February. They should be allowed to grow in their own way the first year, but during the following winter the shoots may be pegged down.

J. C. C.

**Rose W. F. Bennett.**—Allow me to say, in reply to Mr. Cowan (p. 395), that I should have expected Rose growers generally would have known all about this Rose before it was transferred to this side of the Atlantic. It is no doubt a good cold-weather Rose, and when well grown it is tolerably double; it is also one of the sweetest of Roses. No one wishes or expects this class of Roses to be full blown, their flowers being so much better in the bud state. Bon Silene, the best of small winter Roses, is worth nothing except in the bud form, and in that condition I can see hundreds of flowers of W. F. Bennett from Mr. Evans and other growers in New York every day. I should call this Rose a red Niphotos; although it may not take the place of General Jacqueminot, it will fill a gap between outside flowers and forced perpetuals. Another excellent red Rose is American Beauty, a fine variety, very sweet and double and a strong free grower, which flowers all the winter. This is said to be a seedling raised in Washington; I know it is good. Yet another fine winter Rose is the white Catherine Mermet, to be sent out next year under the name of The Bride. This was a sport from Catherine Mermet, and is identical with the original, except being of the purest white; it will certainly take the place of Cornelia Cook. La France is one of the best Roses grown; it will flower all the year inside with Tea Roses, but in this climate it will not grow outside. I am cutting (October 25) this sort in quantity, fine large high-coloured flowers on stems from 1 foot to 2 feet long, and the next crop will be in about Christmas. A charming flower this would be for shooting parties in England; also W. F. Bennett and American Beauty, with stems 2 feet long. Baroness Rothschild and that class, although fine under glass, are useless out-of-doors in this climate; they neither grow nor flower satisfactorily.—JAS. TAPLIN, *Maywood, New Jersey.*

## GARDEN FLORA.

### PLATE 519.

#### ACACIAS.\*

IF we judge the Acacias by their size and appearance when cultivated in the green-houses of this country, we must conclude that they are mostly unsatisfactory flowering plants, only a few of them blooming freely, the majority growing into scraggy specimens, which produce little or no flower. But to become acquainted with the richness in floral beauty and the handsome form into which Acacias may be made to grow, we must go either to large conservatories, such as the temperate house at Kew, where Acacias are one of the principal features, particularly in the spring, when they are covered with their golden blossoms, or turn to the books in which the Acacias, as seen in their native country, Australia, are described and commented upon. From these, we learn that there are nearly 300 species of Acacia in Australia alone, all of them growing to a considerable size, none under the dimensions of a good shrub, whilst many are large trees, the timber from which is of great value commercially, and whose seeds, or bark, or gum are a source of great profit to the Australians. A considerable number of them are used in making fences, much in the same way as we employ Thorn and Privet, amongst these being our well-known greenhouse favourite *A. armata*; the bark of various kinds is imported into England for tannin purposes; the gum

\* Drawn in the Royal Gardens, Kew, May 8.





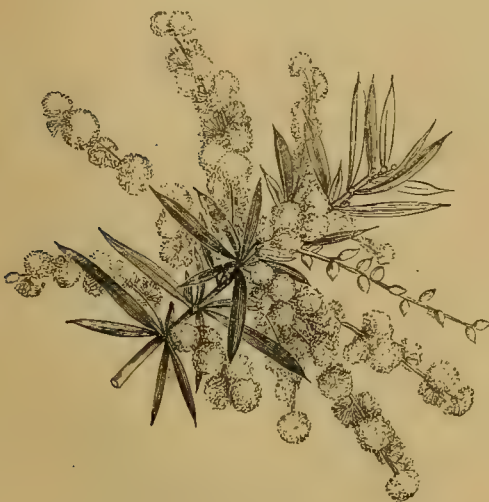
ACACIA LEPROSA (LEMON) A. LINEATA (ORANGE)







of others is similar to, and used for the same purposes as, gum arabic, whilst from several is obtained the Myall wood, out of which the well-known tobacco-pipes of that name are made. In the oil contained in the flowers of *Acacias* we have a most valuable perfume,



Flower-branch of *Acacia verticillata*.

and the seeds and pods are used for feeding cattle in Australia. It will be gathered from this that the genus *Acacia* is of the utmost value to the colonists in Australia, and that the species grown as pot plants in our gardens give only a faint idea of the true character of the *Acacias* at home. As garden plants, we have to deal with only very few of the number of *Acacias* known, fewer now even than was the case twenty or thirty years ago, all that remain to us as popular garden kinds being not more than a dozen, which are preserved because of their flowering freely in a small state. The two species represented in the plate are not amongst the most popular, although they possess both grace and beauty equal to the best of garden *Acacias*, and they have the desirable habit of flowering freely when in a small state. The plants at Kew from which this drawing was made were about 2 feet high, with a dozen or so spreading wand-like branches, upon every one of which were the beautiful ball-like flowers, quite as copious as here represented. Such a character coupled with the annexed plate should be the means of winning greater favour for these two *Acacias*. All the garden species, except, perhaps, *A. Drummondii*, are very easily grown, requiring a rich soil, plenty of water, and a little heat in early summer, with exposure to sunlight and the open air in the autumn. They may be cut into any shape, severe pruning being in no way harmful if the pruned plants are kept close and syringed freely, so as to induce them to break into new growth. The following is a selection of the best known kinds, every one of them deserving of a place in collections of greenhouse flowering plants:—

*A. ARMATA*.—Whether grown into a large bush or limited to a 4½-inch pot, this species flowers freely every year, and is a handsome plant. The leaves are dark green, ovate, spine-

tipped, and arranged thickly along the stout branches, upon which are produced early in spring numerous little globe-shaped, bright yellow flowers. It may be forced early into flower by placing it in a stove temperature. The flowers last about a fortnight on the plant, and several days when cut and placed in water. In Australia it is known as the Kangaroo Thorn.

*A. DEALBATA*, the Silver Wattle, is cultivated for its ornamental foliage, which is gracefully bi-pinnate and Fern-like, large and silvery, and is used with good effect in sub-tropical bedding. It is represented by tall, tree-like specimens both at Kew and the Crystal Palace, where it flowers freely every spring, and is then exceedingly ornamental. In Australia it is said to grow in swamps, and attain a height of 150 feet.

*A. DRUMMONDI*.—This, when well managed, forms a graceful little shrub, with long, curving branches, clothed with small, dark green pinnate foliage, and bearing in spring numerous cylindrical spikes of pale lemon flowers, springing from the leaf-axils all along the branches, which on well-grown plants are 2 feet or more long. Nothing can exceed the grace and beauty of this plant when in flower, but unfortunately it does not always grow well, probably owing to something deleterious in the water it sometimes gets.

*A. GRANDIS*.—A pretty little climbing or trailing species, with small, elegantly cut foli-



Flower-branch of *Acacia Riceana*.

age and globular heads of yellow flowers, which appear in spring. Planted out and trained against a pillar or along the side of a house, this kind assumes an ornamental character even when not in flower. It is also known as *A. pulchella*.

*A. LINEATA* (see plate).—The habit of this is described above. When full grown it forms a bush several feet in height, with numerous spreading branches, which seldom fail to flower freely about April. It is figured in the *Botanical Magazine* (t. 3346), but the specimen there represented gives but a poor idea of the plant as seen now-a-days.

*A. LEPROSA* (see plate).—Although very free-flowering when in a small state, this grows into a tall shrub when liberally treated, and when in flower presents a cloud of beautiful pale yellow fluffy flower-heads, which are borne upon long, gracefully curved branches, with leaves of grassy form adding to the grace of the whole.

*A. LONGIFOLIA* is distinguished by its long narrow leaves, often 4 inches or more long, which are scattered thinly along the curved branches, upon which, in the leaf axils, the bright yellow flower-heads are developed early in spring. When small, this species does not flower freely, but planted out and grown on into a large bush it becomes very floriferous.

*A. PLATYPTERA*.—The curiously flattened winged branches of this are familiar in gardens. It forms a shrub 5 feet or more high, but may be kept small by severe pruning without affecting its free-flowering character. The flowers are produced in little clustering globular heads along the young shoots, and are dark yellow.

*A. RICEANA*.—A handsome, dark green, tall, slender-growing shrub or tree, with long linear Pine-like foliage and gracefully drooping branches. For clothing tall pillars or training along a rafter in a warm greenhouse it is a most desirable plant, as it grows rapidly, always looks healthy, and produces in May its sulphur-yellow flowers in spikes an inch or more long upon drooping string-like branchlets.

*A. VERTICILLATA* is one of the best species. Its flowers are a clear yellow, produced in the way shown in the annexed engraving. Huge bushes of it in the temperate house at Kew are the admiration of everyone during early summer.

B.

#### MUSHROOM CULTURE.

An underground cellar makes a capital Mushroom house, and usually the warmth arising from the beds keeps the atmosphere warm enough, a temperature of 55° being quite sufficient. The atmosphere of the cellar, too, being so equable and genial just suits Mushrooms. In such places Mushroom culture may be carried on winter and summer without interruption. Though Mushrooms in winter may be successfully grown in any kind of building, yet they do not succeed well in an unceiled shed, especially with a slate roof, even when the building can be artificially heated. With nothing but a covering of slates, the changes of internal temperature are so rapid, that it is next to impossible to keep the atmosphere in right condition as to moisture and temperature. I once had a building of this kind for a Mushroom house, and as it was not convenient to have it ceiled just then, I nailed some laths under the rafters and filled the space between them and the slates with straw, wedging it in tightly, and this acted as well or perhaps better than a ceiling would have done. A good Mushroom house may be cheaply made with Larch poles and Reeds, and such a house would require no artificial heat. In large gardens, the usual plan is to place the Mushroom house with the other offices at the back of a range of forcing houses. Usually a row of 4-inch pipes is run round it; sometimes a flue may be available from a neighbouring boiler. The flue, if used in this way, should be provided with a set of dampers, so that when heat was not required in the Mushroom house it might be turned up the straight shaft. The building should be arranged in such a manner as to make the most of the space. The best way is to place the beds one above the other, like shelves, in a fruit



room, with space enough between to make the beds firm.

THE MANURE to form the beds should be collected from stables where the horses have hard food, such as Corn and hay. Where they have roots and soft food the manure is not very suitable for Mushrooms. As the manure is collected, especially at this season, place it in an open shed, not in sufficient bulk to heat violently, as, although a gentle fermentation to drive off some of the moisture will do good, violent heat is not what is wanted. When manure is plentiful the longest need not be employed, but I have often used the littery portion to form the bottom of the beds with good results. As soon as the manure has been dried and sweetened sufficiently by mixing and turning, the beds should be made up. And at seasons when manure in good condition is easily obtained, as in autumn, for instance, it is a good plan to make up several beds at the same time. They may all be spawned when the temperature falls to 90° or so with a downward tendency, and a successional character may be given to them by delaying the soiling of some of them, if need be, two or three months, as, although the spawn will run amongst the manure, the beds will not produce Mushrooms till the soil is placed on them and made firm. In making the beds the usual plan is to place a layer of manure on the bottom, make it firm, and then add another layer, make that firm, and so on till the bed is of the requisite thickness, which should be from 12 inches to 15 inches. If the back of the bed rests against a wall it may be 15 inches deep at the back, falling to 12 inches at the front. The great thing is to make it as firm as possible, either by beating or treading. It is of the first importance that

THE SPAWN should be good, and from the day that it is made till required for use it should be kept in a place that is perfectly dry. If at all damp, it will begin to work, and will very soon become exhausted and useless. This is why gardeners like new spawn best. The spawn should be broken up into lumps about as large as a hen's egg, and inserted just in the manure 9 inches apart. The bed should have another good treading or beating, and when the spawn has begun to run, if Mushrooms are required in as short a time as possible, the soil should be put on from 1½ inches to 2 inches thick, beating it down firmly with the back of the spade, sprinkling with water at the finish, and making all smooth with the back of the spade. As regards

COVERINGS, when the atmosphere of the house feels genial, which if it contains a number of beds at work it probably will do, there will be no need of coverings, but if the surface of the bed rapidly dries, and if the house or building be small, a thin covering of hay will help it much by keeping the moisture and temperature of the bed equable. The way of making Mushroom beds described above is the usual way, but very

often when Mushrooms are required quickly, the beds are made up with manure fresh from the stable. A proportion of loam should be added to the manure, the proportion varying a little according to the freshness of the manure from one in four to one in five, *i.e.*, one barrowful of soil added to every four or five barrowfuls of manure. The whole should be intermixed and made up at once into a good firm bed, and when the right temperature is reached, the bed should be spawned. If the right proportions are used and the mixing properly done, there need be no fear of the result, as the soil will absorb all the gases and any little extra moisture which the manure contains, and prevent undue heating.

WATERING.—The first object should be to secure a genial atmosphere, and to this end, if any artificial heat be employed, if there is no evaporating pans on the pipes, the paths and walls should be syringed daily. If this is done, the beds will not require any water beyond a light sprinkle with the syringe till the bed comes into bearing. After the first crop has been gathered, when they come up in less numbers a good soaking of water should be given at a temperature of 85° or 90°. Sometimes the beds will dry in patches, and these places may require water when other parts of the bed do not. A little artificial manure should be dissolved in the water. I have used Amies's by tying a peck up in a bag, and dropping it into a barrel of water, and diluting with warm water to the requisite strength. In gathering the crops, the least disturbance and damage will be done to advancing buttons by giving the Mushroom a quick twist, which brings it out of the bed without injury to the others. The holes, if any are made, may be filled up with fresh soil.

INSECTS.—Woodlice are often troublesome, especially in dry, warm buildings, where there may be dry inaccessible places among the pipes underground to which they can retire. They may be trapped by placing a little loose hay in an empty flower-pot laid on its side on the bed or wherever the insects secrete themselves. A number of pots may be used when the insects are numerous. Toads are very useful in a Mushroom house, as they feed on insects. But perhaps the best plan of all is to pour boiling water down by the side of the bed and in any cracks or crevices where the insects hide when not feeding. Slugs and snails will eat Mushrooms, but it should not be a difficult matter to keep them in check.

OPEN-AIR BEDS.—Just a word or two about these. Although they have been written about often enough, and though the Mushroom grows naturally in the fields, open-air beds are not common. They certainly involve some trouble to keep them at just the right temperature, as if cold the spawn will perish. Open-air beds are made on the same principle as those indoors, only they contain more material, so that the internal warmth may be more lasting and more

easily revived with coverings when it declines. The success of open-air beds depends entirely upon coverings. Heavy rains must be kept off either by wooden shutters or mats or straw, and the covering next the bed when it becomes wet should be removed and dry litter or hay substituted. In summer open-air beds should be in a cool site, either sunk in the ground or on the north side of a building.

MUSHROOMS IN BOXES.—The boxes should be from 16 inches to 18 inches deep, with lids made to shut down close. When spawned and soiled they may stand in any warm place, under the stage or in any dark corner. I have seen good crops grown in this way. I have used old wine cases for the purpose.

E. HOBDAY.

## ORCHIDS.

### EVERGREEN DENDROBIUMS.

*D. CHRYSOTOXUM*, about which inquiry has been made, is a familiar example of the evergreen species, of which other Indian members are *D. Farmeri*, *D. densiflorum*, *D. thyrsiflorum*, &c. They all require similar treatment, and flower in the same manner. In some collections they grow freely enough, but do not flower well. In others, they do not grow well. Such plants may, of course, flower fairly well for a year or two, but this cannot be maintained without vigorous annual growths. Of equal importance is the winter season for rest. At present the plants should be placed in a moderately dry house, in which the night temperature should average about 50°. They require the very smallest amount of attention. It will not do, however, to keep them absolutely without water while at rest, as that would cause the pseudo-bulbs to shrivel up rather too much; we give a little once in two or three weeks, sufficient to prevent them from showing signs of distress, but allowing the bulbs to shrink a little. *D. chrysotoxum* is one of the earliest to flower, and should be started as soon as the flower-spikes begin to develop themselves from the nodes of the pseudo-bulbs. Give it a warmer temperature and more moisture in the atmosphere than it has been having, and sufficient water to keep the compost constantly moist, but not at any time overcharged with moisture. In a temperature of 60° at night the flower-spikes will develop with great rapidity. In a high temperature the flowers last in beauty for two weeks only, but in a cooler house, with a rather dry atmosphere, they will continue good for nearly a month. The flower-spikes are produced not from the preceding year's growth, but usually from the growths of the two previous years. When flowering is over, the growing season begins, and that is the best time to repot them. The whole of the kinds just named should be grown in pots; and the best material in which to pot them is turfy peat, to which has been added a considerable proportion of clean Sphagnum, chopped up, some clean potsherds and broken charcoal. Fill the pots half full of clean drainage; place over the drainage a layer of Sphagnum, and pot firmly. Those that shake about in the pots are not likely to succeed. When potted place the plants in the warmest house, with sufficient atmospheric moisture to encourage rapid and clean growth. The deciduous species represented by *D. Wardianum*, *D. crassinode*, and others require the same season of



rest, and they require even less water and a lower temperature during that period. They like a high temperature and plenty of moisture when growing. J. DOUGLAS.

**Dendrobium bigibbum.**—Mr. Armsley sends from The Knoll, Shipley, two forms of this beautiful Australian Dendrobe; one is much more highly coloured than the ordinary form—in fact, the best we have seen. From six to twelve flowers are produced on a spike.

**Dendrobium superbiens.**—"J. B." states (p. 463) that the blooms of this Dendrobe smell of Rhubarb, a scent which in any stage of development I fail to detect in them. I am sure that this Dendrobe cannot be too highly spoken of when its floriferousness and long-lasting properties are taken into account.—F. SMITH, *Stapleton-terrace, Crouch-hill.*

**Cattleya labiata Pescatorei.**—This distinct and beautiful Cattleya is now flowering in Mr. R. H. Measures' garden at The Woodlands, Streatham. The plant, a unique specimen, is a good example of high culture. It has ten strong bulbs, some producing two leaves. The growth is more erect than that of the old true labiata; the flowers, too, are entirely different; the sepals and petals are light rose and round in shape; the lip, which is rich crimson margined with rose, is shorter and broader than that of the old labiata. The plant has double sheaths, with two spikes; one with four flowers, the other three.—V.

**Pleione lagenaria.**—Allow me to call attention to this beautiful autumn-flowering Orchid. Mr. Kimball has it in pans 7 inches across, with twenty-five flowers, completely covering the surface of the pans. The treatment given here to Pleiones is as follows: After flowering when they start growing they are repotted, placing about twelve good bulbs in a 7-inch pot or pan in ordinary Orchid soil with a little leaf-mould added, and placed in the Cattleya house in a light position. They are given plenty of water right on until the bulbs are fully developed, then they are removed to an intermediate house and kept partly dry until the flower-buds well show themselves. They are then placed in a warmer compartment which induces the flowers to come much larger than they otherwise would do and also to appear altogether. When fully expanded they can be used in the conservatory or cool Orchid house, where they make a beautiful show arranged along with other things, and will last good almost until Christmas if one is careful to keep water from spotting the flowers.—GEO. SAVAGE, *Rochester, N. Y.*

**Dendrobium chrysanthum.**—Mr. Goldring, of Albany, N.Y., says, *apropos* of *D. chrysanthum*: "I believe in England this species always blooms upon the ripened leafless bulbs, like *D. Wardianum*. In this country it always blooms upon the present season's bulbs as soon as growth is finished." I suspect your correspondent is wrong; at least, he is in one instance. Last spring, at Stevens', I bought a bundle of what purported to be *D. Wardianum*. One piece, however, proved to be *chrysanthum*, which is now blooming from this season's growth, all the leaves being still on, as described by Mr. Goldring. This, no doubt, much enhances the effect of the plant, as the rich orange of the blossoms contrasts well with the dark green of the foliage. It is, I know, contended by some that this is merely evidence of an unhealthy condition of the plant, due to unskilful treatment; but I cannot take that view, as I have another plant of the same species which blooms every autumn from leafless bulbs, and both plants have been treated alike. Moreover, the old plant has drooping bulbs while those of the new one are erect. These facts, I think, point to the existence of two varieties.—B. D. KNOX, *Caversham, Reading.*

**Cymbidiums and Zygopetalums.**—*Cymbidium Mastersi*, an Indian species with long narrow leaves, is now in flower in some collections. The flowers, which are not large, are produced in pendulous clusters on upright stems. They are pure white with a yellow centre, and are sweetly scented. *C. eburneum* is the most popular species in this genus.

It grows very freely and produces large pure white flowers, with a yellow blotch in the centre of the lip. This species was very scarce at one time, but has now become much more common, and ought to be found in all collections of Orchids. It grows much more freely in an intermediate house temperature than in a warmer house. A mistake sometimes made in the culture of *Cymbidiums* is to treat them much in the same way as *Cattleyas* and other epiphytall Orchids; whereas they do better if treated like ordinary hot-house plants. I saw some growing with the greatest vigour quite recently, and upon inquiring as to the character of the potting soil, I was told that the same soil was used for *Cymbidiums* as for *Chrysanthemums*. The *Zygopetalums*, of which *Z. Mackayi* is an excellent representative, should also be grown in an intermediate house. They should be potted in good fibrous peat that does not rapidly decay, and during the growing season should be freely supplied with water, but should get much less when at rest. At no time, however, must they be allowed to get quite dry at the roots; the latter are of a thick fleshy character, and are very easily injured if the plants become over-dry. Some species of Orchids do not require much water before or during the flowering period; others require a considerable amount. This is a matter that can best be determined, not by the growths which the plants are making, but by the dormant or active state of the roots. When the roots are pushing freely they must have water, and will absorb it rapidly; when not in an active state, even if the young pseudo-bulbs are in process of formation, water must be applied with caution.—J. DOUGLAS, *Great Gearies, Ilford.*

#### YELLOW PICOTEES.

WRITING about yellow Picotees in the first volume of the "Florist," nearly forty years ago, the late Dr. Horner, of Hull, says, "The yellow Picotee is of rarest loveliness. Indeed, in every particular its pre-eminence over the white Picotee is, I conceive, incontestable, for, while the common one presents but one colour, that of white, the yellow affords scope for infinite diversity of shade, from a light primrose to that of an orange-yellow. Let the imagination of the florist depict the countless distinctions and differences which are comprised between the two extremes, and let him reflect also on the undefinable and unlimited contrasts that would be presented in the combination of the variety of the lacing or edging which this flower possesses in its red, its pink, chocolate, crimson, and purple of every hue." Even then it will be seen yellow Picotees were much thought of. Indeed, at that time, and during a few subsequent years, considerable improvements were effected in them. *Publicola* was figured in the "Floricultural Cabinet," and Hogg, in his treatise on "The Carnation and Picotee," published in 1839, enumerates no fewer than thirty-five varieties, nearly all of German origin. In their way, these were very pretty, if we may judge from a coloured drawing of one of them published at that date. The edges of the petals are fringed or notched, heavily edged with red and maroon on a rich orange-yellow ground colour. Indeed, if a history of yellow Picotees could be written, it would be found that many very fine varieties have disappeared from cultivation during the last thirty or forty years, merely because they have not been cultivated and propagated by seedlings in the same way as the white ground varieties have been. I have cultivated them very carefully during the last twenty years, and I find that they require rather careful culture, as they have a tendency to decline in vigour very rapidly if cultivated entirely out of doors. Perhaps it is this delicacy of constitution which has prevented this beautiful class of Picotees from attaining the same degree of excellence as the white ground varieties. Numbers of yellow

ground seedlings were exhibited last year of varying degrees of excellence as regards quality, but one of them—Agnes Chambers—is considerably in advance of any at present in cultivation. As much cannot be said of some of the other new ones, but they have the advantage of possessing a vigorous constitution. Many agree that yellow Picotees are superior to the white, and would not begrudge a little extra care to grow them well. In growing them, the following details must be observed: First, as regards

PROPAGATION. This is done freely by means of cuttings taken off at almost any time; they form roots best under close bell-glasses in summer and autumn in a shady place out-of-doors, and in winter and spring on a gentle bottom-heat in frames or forcing houses. They may be layered at the same time as the ordinary forms of Carnations and Picotees in July and August. The layers should be carefully taken off and potted in small pots in October, and should be wintered in cold frames near the glass. We keep the frames shut up rather close until the plants have rooted, when air is admitted freely all through the winter months. The lights should be taken off whenever the weather is dry. About the end of February is the best time to plant them in pots in which they are to flower. It is best to pot one plant in a 7-inch pot, or a small one in a 6-inch pot. The potting soil ought to be good yellow loam free from wireworm; if the loam contains any of this, the worst enemy of the Carnation and Picotee, it ought to be so carefully picked over, that not even the smallest specimen of the worm is overlooked. One small one in a pot containing a Carnation or Picotee will certainly kill the plant before it is observed. Mix with the loam a fourth part of decayed stable manure and as much leaf-mould or sandy peat. The pots ought to be clean and well drained, and in potting press the compost in rather firmly, replacing them in the frames. It is easy to over-water them during the month or six weeks following, but afterwards, when the roots have reached the sides of the pots, they will take water more freely. About the first week in May they may be arranged out-of-doors on a level, hard bottom of ashes. As soon as the calyx opens sufficiently to show the colour of the flowers, they may be taken into a light, airy greenhouse, in which the flowers will develop perfectly.

SEEDLINGS.—I find it rather difficult to obtain seedlings from these yellow-ground varieties. The flowers are so perfectly double, that there is very little pollen. The only way by which we can obtain seeds is to go over the flowers daily with a small brush and search for pollen, applying it where it is of most use. I keep the seeds in the pods until spring, when they are sown in small pots or pans placed on a hotbed. They vegetate in about ten days. The first or second week in April is the best time to sow the seeds; the object of sowing in a frame is to get them to vegetate freely. The summer and autumn treatment consists of out-of-doors culture. The plants may be planted out about the end of May or early in June in a bed of rich soil. J. DOUGLAS.

*Great Gearies, Ilford.*

**Marigolds.**—I never saw these so beautiful as they have been in my garden this season in the open; for the last three weeks I have had vases of orange and yellow Marigolds on my mantelpiece. The double ones are specially lovely in form and marking. I wish I could get double white or even single white as good as the orange. Single whites, grown from seed, are wretchedly poor, as are also the single orange and yellow. Will they improve?—A. J. P.



## ASCLEPIASES AND THEIR SEEDS.

THE way in which the wind distributes the downy seeds of the Dandelion, Thistle, and Groundsel is well known to every one brought up amid meadows and green lanes. Many other plants, too, such as the Gazanias, the Gnaphaliums, and Helip-terums, produce seeds furnished with silky hairs, by which they are blown about by the wind. In the Anemones, which might almost be taken as northern representatives of the Cotton of the Tropics (*Hibiscus*), the wool attached to their seeds is very long, and forms a valuable article of commerce. The Clematises also have feathered appendages attached to their seeds, and the Willow herbs (*Epilobiums*) belong to the same class—a fact impressed on every cultivator by the thousands of seedlings that spring up everywhere if the seed-pods are allowed to remain too long on the parent plant. Out of five genera belonging to Asclepiads confined to the United States, only one, *Acerates*, is without these silky seed appendages; the allied Order, *Apocynaceæ*, is also similar, and notably the Indian Hemp (*Apocynum cannabinum*) and the spreading Dogbane (*A. androsæmifolium*), both familiar to us from seeing them cultivated in gardens; the latter is grown not so much for the beauty of its flowers as for the effect of its open follicles during the early autumn months. *Periploca græca*, belonging to the Milkweed family, and grown as a wall or pillar climber, is just now opening its singular fruit and showing the silky tufted seeds inside almost ready to be shed. The genus *Gonolobus*, and also *Ensenia*, have much the same kind of seeds as the *Periploca*. But the most striking is the genus *Asclepias* itself, many of the species of which are common in gardens, notably *A. tuberosa*, the Butterfly-weed or *Pleurisy-root* of the United States. This may be easily grown amongst other American plants. It has short corymbose heads of showy scarlet and orange flowers produced during summer.

The whorled Milkweed is also interesting, as are also *A. incarnata*, *quadrifolia*, *rubra*, *purpurascens*, *phytolaccoides*, *amplexicaulis*, *Cornuti*, and *speciosa*, &c.—altogether numbering about forty-four species, a dozen or more of which are in cultivation. K.

## TREES AND SHRUBS.

## RARE OUTDOOR SHRUBS.

CREGGANDARROCH, the garden of Mr. Alex. Drew, on Loch Long, has been for some years a field of experiment in the outdoor unprotected culture of many doubtfully hardy shrubs and trees, and although it falls to the lot of comparatively few to work under such favourable conditions of climate, the results attained are of general interest. The house and garden are on the eastern slope of Blairmore Hill, which rises behind them to a height of several hundred feet. The house stands

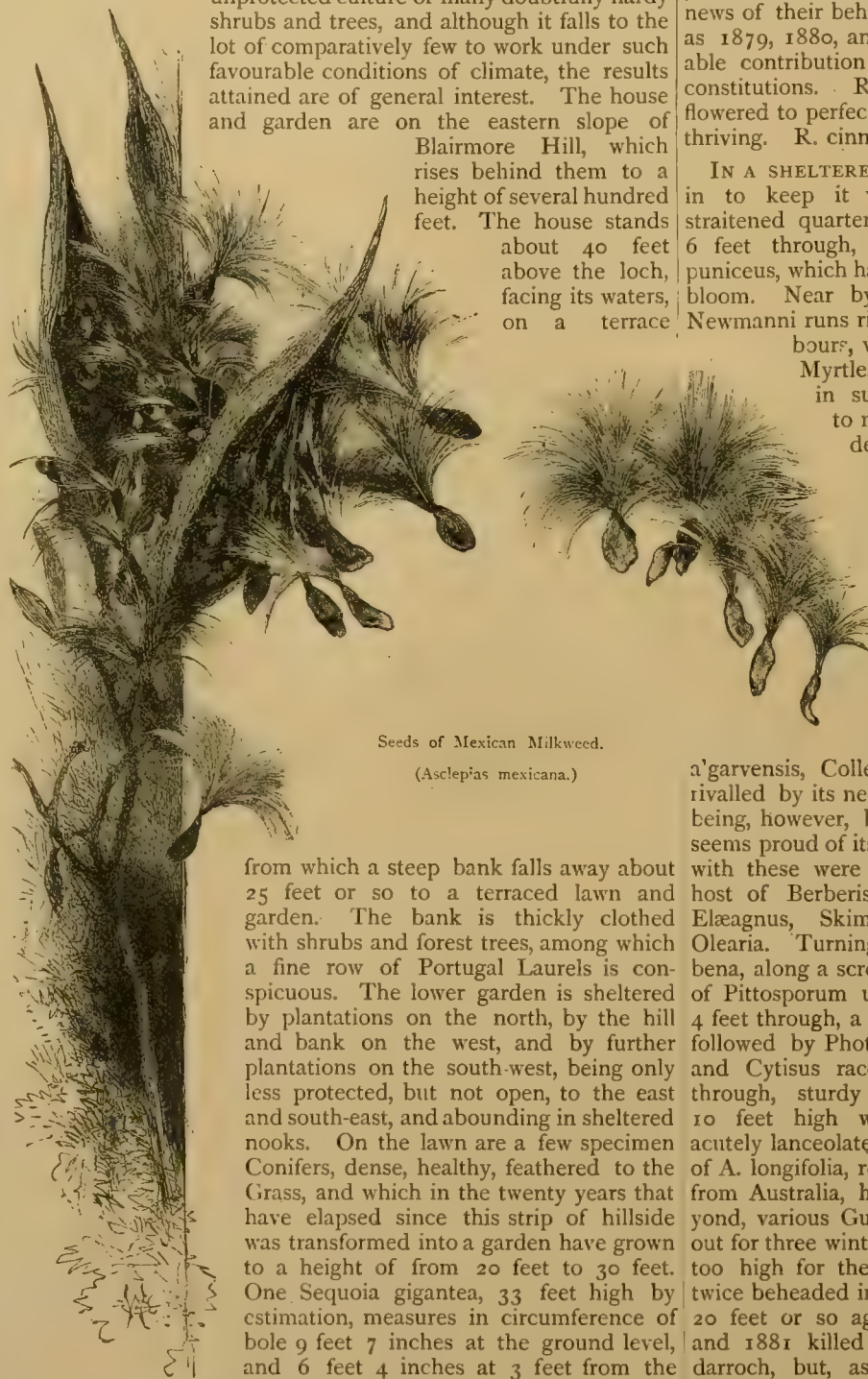
about 40 feet above the loch, facing its waters, on a terrace

Rhododendrons. In a bed here are *R. argenteum*, *Fortunei*, *Jamesoni*, all set with bud, and *Thompsoni*, very well set. Making good growth are *Falconeri*, *Dalhousianum*, *arboreum*, *Nuttalli*, and others. *Edgeworthi* does not do well. None of these have as yet been proved by a severe winter, and news of their behaviour under such seasons as 1879, 1880, and 1881 would be a valuable contribution to our knowledge of their constitutions. *R. Duchess of Buccleuch* flowered to perfection last spring and looks thriving. *R. cinnamomeum* is luxuriant.

IN A SHELTERED CORNER, mercilessly cut in to keep it within the bounds of its straitened quarters, yet still 6 feet high by 6 feet through, is a bush of *Clianthus puniceus*, which has this year been a blaze of bloom. Near by *Passiflora cærulea* var. *Newmanni* runs riot, and smotheres its neighbours, which are Sweet Bay and Myrtle. Hereabouts, also, and in such health and vigour as to make a north Cheshire gardener full of envy and vain

desire for more propitious skies at home, are *Piptanthus nepalensis*, various *Ceanothuses* in grand health, *Griselinia macrophylla*, the Loquat (*Eriobotrya japonica*), *Euonymus microphyllus*, variegated Sweet Bay, *Coprosma lucida*, *Eurya latifolia*, *Daphne collina*, *Ligustrum lucidum*, *Cistus*

*a'garvensis*, *Colletia*, horridly spinous, and rivalled by its neighbour *Gleditschia*, which, being, however, bare of foliage until July, seems proud of its naked thorns. Associated with these were also *Eugenia Ugni* and a host of *Berberis*, *Osmanthus*, *Euonymus*, *Elæagnus*, *Skimmia*, *Aralia*, *Azara*, and *Olearia*. Turning by a Lemon-scented *Verbena*, along a screened walk, appears a bush of *Pittosporum undulatum*, 8 feet high by 4 feet through, a pyramid of healthy growth, followed by *Photinia serrulata*, equally tall, and *Cytisus racemosus*, 6 feet by 5 feet through, sturdy and strong. An *Acacia* 10 feet high with glaucous, coriaceous, acutely lanceolate leaves, after the manner of *A. longifolia*, represented as a new species from Australia, has not yet bloomed. Beyond, various Gum trees, which have stood out for three winters unhurt, rear their heads too high for their quarters; one, indeed, twice beheaded in its brief existence is up to 20 feet or so again. The winters of 1880 and 1881 killed all *Eucalypti* at Creggan-darroch, but, as the victims were newly planted young trees which had not donned their adult foliage, it is hoped that their more established successors may survive similar attacks. Passing now through a covered way beneath a road which intersects the grounds, we meet with *Lespedeza bicolor*, *Maximowiczia sinensis*, and *Prunus triloba*, also *Actinidia Kolomikta*, clothing the wall above the tunnel with its heavy glossy leaf-



Seeds of Mexican Milkweed.

(*Asclepias mexicana*.)

from which a steep bank falls away about 25 feet or so to a terraced lawn and garden. The bank is thickly clothed with shrubs and forest trees, among which a fine row of Portugal Laurels is conspicuous. The lower garden is sheltered by plantations on the north, by the hill and bank on the west, and by further plantations on the south-west, being only less protected, but not open, to the east and south-east, and abounding in sheltered nooks. On the lawn are a few specimen Conifers, dense, healthy, feathered to the Grass, and which in the twenty years that have elapsed since this strip of hillside was transformed into a garden have grown to a height of from 20 feet to 30 feet. One *Sequoia gigantea*, 33 feet high by estimation, measures in circumference of bole 9 feet 7 inches at the ground level, and 6 feet 4 inches at 3 feet from the ground. *Araucarias*, *Cypresses*, &c., are doing proportionately well. In various places about the lawn clumps of hybrid Rhododendrons of the best older varieties, some 10 feet or more in height, show, by their strong growths, great leathery leaves, and big thick buds, what a wealth of beauty must crown them in their season of blossom. More interesting, however, are the Himalayan



age. The exceptional luxuriance of a Gloire de Dijon Rose on the outside wall of the conservatory was remarkable, the deep red of the new shoots contrasting well with the green of the older foliage and adding a charm to the flowers.

ABOUT THE LOWER GARDEN is a good collection of Conifers, consisting of about one hundred species and varieties, for the most part young, but doing well, especially *Retinosporas* and *Cryptomerias*. *Araucaria excelsa* lives, but makes no satisfactory progress. Many other plants besides the above also arrest attention. Amongst these may be mentioned the shrubby *Veronicas* of all shades of colour, from light lavender to blood-red (one measured 7 feet high and as much through); *Buddleia globosa*, growing like a Willow; *Acacia armata*, quite at home; a

known as *myrtifolius*. All the *Osmanthus*es are useful shrubs, where they are needed for decorative purposes in pots, as they strike easily from cuttings, and make rapid progress in their early stages when favourably situated, besides which they are quite hardy, even during severe winters. From the dense mass of roots formed by these plants they can be lifted at almost any time without injury, and will thrive without undue attention when in pots or vases, and employed for the embellishment of balconies, windows, and similar places. If cuttings are taken towards the end of summer, and formed entirely of the current year's growth, just as it becomes woody, they will, if kept in a cool frame, be nicely rooted by the spring, or they may be grafted early in the autumn on the Privet, which forms an admirable stock for these plants. When grafted they grow away at once, but such a mode of increase is always open to the objection of the stock pushing out shoots, which, unless removed quickly, deprive the scion of a deal of nourishment.—T.

**Purple Birch.**—The purple-leaved Birch is worth the notice of intending planters, for it forms a highly ornamental specimen, combining the graceful

gotten by intending planters. It is a bold, free-growing kind, reaching a height of 15 feet or 20 feet, and in spring when thickly covered with its large clusters of white blossoms it is very showy, while at the present time the profusion of bright red fruits render it a very attractive feature in garden or woodland scenery. The leaves, too, generally die off tinted with gold, and often suffused with scarlet. This Thorn can be raised easily enough by means of seeds, which ripen every year. Plants raised in this way present a considerable amount of variation, which will to some extent account for the number of varieties sometimes mentioned, as these latter can be by no means relied on to come true from seed. We have some young thriving specimens in the pleasure-ground here that in the spring were most beautiful from their profusion of bloom, and are now just as conspicuous by reason of their bright-tinted fruits. The scarlet Thorn, from the readiness with which seeds can be obtained and the free-growing character of the plant, is often used as a stock on which to graft the weaker growing, but allied kinds.—H. P.

## INDOOR GARDEN.

### WHITE CHRYSANTHEMUMS.

THE number of Chrysanthemums now in cultivation being very great, it will not be difficult for "Beta" (p. 502) to obtain a constant supply of blooms from August to January. The earliest, which could be had in bloom by the beginning of August, would consist of *Madame Desgrange*, *Virginia*, and *La Petite Marie*. Of these, *Madame Desgrange* is a well-known medium-sized flower belonging to the Japanese section; the two others are Pompons; *Virginia* has a good free bushy habit and produces prettily reflexed blooms, while *La Petite Marie* is, from its dwarfness, well suited for growing in small pots, but for producing cut flowers it is too short, besides which its constitution is rather delicate. By the middle of September, the earliest blooms of *La Vierge* (a beautiful variety with medium-sized full blossoms) will be open, and by the end of that month several may be had in bloom, notably *Lady Selborne*, *Elaine*, *Sœur Melanie*, *Mrs. George Rundle*, and *White Trevenna*. Among these several types are represented, thus *Elaine* and *Lady Selborne* are both Japanese varieties, the first being a large full flower, while the blossoms of the other consist of a cluster of ribbon-like florets. *Mrs. George Rundle* is an incurved flower and well known; *Sœur Melanie* is of medium size; while *White Trevenna* may, perhaps, be best defined as a large Pompon. By the middle of October, the bulk of the collection will commence to bloom, the best whites among which are, in the Japanese class, *Mrs. Mahood*, a good habited variety, the blooms of which are composed of a quantity of narrow thread-like petals, thus stamping it as quite distinct from all others; *La Purété*, a beautiful white kind bearing large full blooms, the outer petals of which droop in a very pleasing manner, stalks stout and habit of plant good. There does not appear to be any difference between *La Purété* and *Mademoiselle Lacroix*, though certificates have been awarded to both. For supplying cut bloom, the old *laciniatum*, a small-flowered Japanese kind with beautifully fringed petals, is very useful as well as quite distinct from any of the others. Amongst incurved flowers should be included *Empress of India* (large), *Mrs. Heale*, and *Beverley*, while among large-flowered *Anemones* *Fleur de Marie* and *Lady Margaret* are both beautiful. Of Pompons there are *Mademoiselle Marthé*, a good full flower; *La Desirée*, in which the blooms are borne in compact clusters on stout upright stems; and the fringed *Marabout*, that when small reminds one to some extent of



Flower-head of Butterfly-weed *Asclepias tuberosa* (red and yellow); natural size.]

fine bush of *Aristotelia Macqui* (variegated), *Diplopappus chrysophyllus*, three-year-old bushes of *Paris Daisies*, the long swords of *Phormium tenax*, or New Zealand Flax, *Dracæna lineata*, *Magnolias*, and *Hibiscuses*. The Flame-flower, *Fuchsias*, and *Escallonia macrantha* grow nowhere more vigorously than on the Clyde, and a hedge-like growth of *Escallonia*, with here a *Gloire de Dijon* and there a crimson Rose breaking through to throw up their blooms on the glossy green background, was certainly not the least beautiful thing in this interesting garden.

P.

***Osmanthus myrtifolius*.**—This pretty ever-green shrub is very distinct in appearance from the commoner *O. ilicifolius*, which bears so great a resemblance to a Holly, that it would be difficult to persuade anyone not acquainted with plants that there did not exist any relation between them. On the other hand, *O. myrtifolius*, as its name implies, is more Myrtle-like in appearance. It most probably originated as a sport from the prickly-leaved kind, as a plant here of the common form has pushed out two or three shoots indistinguishable from that

character of the common Birch with a pleasing metallic purple tint of foliage, while the elegant contour of the plant is so different from that of the purple Beech (the most commonly planted among dark-foliaged trees), that a place may well be found for both. A conspicuous feature in the case of the Birch is the light-coloured bark, which contrasts in a marked manner with the deep tint of the foliage.—ALPHA.

**The broad-leaved Spindle tree** (*Euonymus latifolius*).—According to Loudon this was introduced as long ago as 1730, but it is even now quite an uncommon plant in gardens, though the attention that has from time to time been directed towards it during the last three or four years seems likely to raise it from the neglect into which it had fallen. Loudon says that this *Euonymus* forms much the handsomest species of the genus, from its broad shining leaves and large red pendulous fruits with orange-coloured seeds, which when the capsules open are suspended from the cells somewhat in the manner that the seeds of *Magnolias* hang from their strobiles. Even the wood of this species during winter is much handsomer than that of any other, the branches being regularly divaricate with a clean bark of a reddish green, and long pointed dark brown buds, by which alone this species can be distinguished from all the others.—P. H.

***Crategus coccinea*.**—The scarlet Thorn of the United States is particularly ornamental in fruit, and for the sake of its flowers, too, it should not be for-



the old white Pink. For carrying the blooming season through December into the new year, the best kinds are Fair Maid of Guernsey, a well-known flower with long loose petals; Meg Merrilies, looser looking than the preceding; Ethel, a distinct cup-shaped flower; and Mrs. Charles Carey, a kind of good bold habit that produces large full blossoms. The best incurved flowering kind for this season is Princess Teck, which has long enjoyed a reputation for late flowering. Virginale, a small Anemone-flowered variety, is invaluable for late flowering, and a little button-like Pompon called Snowdrop is among the latest. Though the few last mentioned sorts are spoken of as late bloomers, yet they can if desired be had in flower at much the same time as the bulk of the collection, but are more easily retarded than the others. For very late blooms the best way is to allow the blossoms on the side shoots to develop, and after the removal of the centre one, they will often keep up a succession for a long time. In this way it is sometimes possible to obtain fairly good blooms of Elaine (one of the earliest), as late as Christmas, but it cannot be depended upon like those just recommended for their late blooming properties. In the case of the earlier flowering kinds, they will, of course, open their blossoms readily enough out-of-doors, but they are seldom or never so pure in tint as when moved under glass a short time before the flowers expand. Very late blooming Chrysanthemums require to be kept in a light, dry, and well ventilated structure, otherwise the foliage decays and the blossoms do not expand properly.

H. P.

**Culture of Nerines.**—My gardener and I have been studying the valuable remarks of "S." about Nerines in THE GARDEN (p. 461). We do not make out for certain what he does with them between May and the end of July. He says, "About the middle of that month when their growth is finished the plants are turned out of doors, set on hard ground, and exposed to full sunshine. There they remain till the end of July or the beginning of August without receiving any water whatever." Does this mean that they take their chance of rain in the open air, or that they are kept in some covered place quite dry all that time? If some explanation could be obtained in reference to this matter I should be obliged.—H. E.

\* \* Mr. Ballantine, gardener at The Dell, Egham, says, "The Nerines finished flowering some three weeks ago and have been brought back from the greenhouse (where they flowered) to a pit facing due south, where they remain till flowering time again. They are now in full growth, and require a liberal supply of weak liquid manure. When they begin ripening at the end of February, we gradually give them less water until the bulbs are fully matured, which will be about the beginning of May. From that time until they flower they get no water; they have plenty of air, and are fully exposed to the sun, but always protected from rain, and never turned out of doors."

**Othonna crassifolia.**—At this time of year, when flowers have become scarce, the bright yellow blooms of this little trailing plant are very acceptable. In manner of growth it much resembles the common Stonecrop, and when liberally grown in a basket it forms a dense curtain of fresh, green, succulent foliage, from which the small, but very conspicuous, flowers are thrown up on long slender foot-stalks. This is certainly a capital basket plant, and is very suitable for draughty or arid situations; indeed, it requires a larger amount of air and sunshine than most plants, and will not bloom well if grown in partial shade or in confined quarters.—BYFLEET.

**Pelargonium tricolor**, frequently called *Campylia tricolor*, is a curious and by no means unattractive plant when well grown. The flowers are small, but owing to the decided contrast in colour between the upper and lower petals, they have a rather striking

appearance. When grown into a specimen some 3 feet through, this little Cape species is sufficiently showy to merit the care required to bring it to that size, but it is seldom that one sees so large a plant, as in this respect it resembles many of the choicest hard-wooded greenhouse plants, *i.e.*, it goes off suddenly without apparent cause. In days gone by I have seen large and healthy specimens of it in 12-inch pots carrying individually hundreds of blooms. This *Pelargonium* is easily propagated by means of cuttings made of the matured wood put in in August. Being rather tender-rooted, they should be put singly in small pots, and if placed in the full sun and occasionally moistened, they will quickly make roots. They may then be shifted on without breaking off or injuring any of the delicate fibres. The compost used for the plants above alluded to consisted of sifted peat, with a slight admixture of fibrous loam and abundance of coarse silver sand. In a heavy, close soil the roots make no progress and the foliage turns yellow. In winter considerable care in watering is required, so that the roots may not become injured by excess of moisture.—J. C. B.

## KITCHEN GARDEN.

### SEED POTATOES.

SELECTING seed Potatoes is an important matter. To obtain real progress the seeds should be taken from a healthy vigorous stock. In raising a crop from any other kinds of seed—Radish seed, for instance, a certain portion every year, perhaps an acre, less or more, is planted with roots selected carefully for their superior quality and shape. The produce of this acre is carefully saved to sow again. Now, in digging Potatoes it would not be a difficult matter, when the digger found a better root than ordinary and tubers possessing better qualities than the average, to place them on one side for seed purposes. I have proved to my own satisfaction at least that if seeds are saved from inferior sorts, the crop will not equal the average, but will, on the contrary, show a marked deterioration.

What I mean is this: in every plot of Potatoes, whether the plot be large or small, in field or garden, there will be a certain number of roots above the average in beauty of tuber and in productiveness. On the other hand, there will be a certain number of roots very far below the average, both in point of numbers and also in size, and it will be easily understood that if we select seeds for planting from the former of these, the crop must be better than if we take them from the latter, or do as most people do, select them indiscriminately from the bulk. The crown eyes are the most prolific. For a number of years I carried out experiments with single eyes, and the centre crown eyes always produced the best crops. The crop, too, is more even if in planting whole Potatoes they are confined to one stem. This I have done sometimes by cutting out surplus eyes; at others, by thinning out the haulms after they came up. Weakly looking stems are easily pulled up without disturbing the plant. This plan involves less labour than cutting out the eyes, and in damp seasons, when disease is rife, it has less effect upon the robust tops grown thinly than were all the eyes allowed to grow as they please. In autumn, seed Potatoes should be spread out thinly in a frost-proof building from which light is not altogether excluded. When Potatoes are kept in bulk they will grow as they generate warmth, and the eyes of the Potatoes in the centre of the heap make long weakly shoots, which tend to weaken the vital principle of the plant.

If, from unavoidable causes, seed Potatoes must be kept in bulk, the heap should be

frequently disturbed. This prevents the eyes starting, but the best way of keeping seed Potatoes is to place them in shallow trays in single layers, crown upwards. These trays may be cheaply constructed, the sides being nailed to projecting studs at the corners. These studs, projecting 3 inches or 4 inches above the top of the tray, will enable them to stand one against the other and so economise space, a stream of light at the same time passing between them to prevent undue growth taking place.

E. HOEDAY.

### CUCUMBER CULTURE FOR PROFIT.

I AM anxious to know if Cucumber growing for market is a profitable concern. I also want to be informed what the cost would be to erect a house for that purpose, say 12 yards long and a proper width, including heating apparatus and everything complete, and what the return ought to be under proper management?—P. F., Norfolk.

\* \* Cucumber growing for market may certainly be made fairly profitable if properly carried out. In fact, I doubt if a small house could be much better employed than in the production of early Cucumbers. When the plants are well managed a large amount of fruit can be cut from them, the great point being to get their bearing powers in the best condition at the time when Cucumbers are most valuable. Many imagine that Cucumbers are in great demand through the dead of winter, and that if they can be got in at Christmas they will realise plenty of money. That is quite a mistake, as at that time they are in no great demand, and I have known good samples to be sold at Christmas for 8s. a dozen. Other things are in season then, and Cucumbers are not much wanted. The Cucumber season commences when salmon comes in—that is about the end of February or beginning of March, and then good, straight Telegraph Cucumbers will command from 2s. 6d. to 3s. 6d. a brace. For about six weeks good prices are maintained, but by the end of April they rapidly decline, and during May they are not worth much more than 6s. per doz. I have known excellent samples 20 inches long to be retailed in the Central Avenue, Covent Garden, at that time for 8s. per dozen. In summer, good Cucumbers are not worth more than 2s. 6d. per dozen wholesale, so that it is only on a large scale that Cucumber growing at that price pays, and it is evident that a small house would not bring in much money at that time of year. A house 11 ft. wide would require, to thoroughly warm it, two rows of 4-inch pipes all round it, with two pipes under each bed for bottom heat. It is always well to have sufficient piping, as, when there is a deficiency in this respect, the pipes in very cold weather have to be so strongly heated as to dry the air too much, thus creating a too arid atmosphere. A mistake often made in the cultivation of winter Cucumbers is that of not getting the roof well covered with bine before winter sets in. If the seed is sown at the end of July, the plants get August and the two following months to grow in, and if during that time they are not allowed to fruit they will cover a goodly space, and by only maintaining a sufficiently high temperature to keep them healthy they will quickly respond to a forcing temperature from January onwards. The cost of heating can easily be ascertained by consulting the price lists of those who deal in hot-water apparatus, but the boiler should be rather larger than is stated to be required in such lists. Thus, if the amount of piping to be



heated is 500 feet, the boiler should be one which is stated to heat 600 feet or 700 feet. Then there is no difficulty in maintaining the requisite amount of warmth in any weather; whereas when the boiler is but just large enough to do the work it must be hard driven at times, so that much heat escapes up the chimney, and in hard weather much night stoking is unavoidable. If the house is intended to be a span-roofed one, and this form is the best, it should run north and south, which gives more equal light, and the sun does not shine so brightly on the plants in spring as it otherwise would do. Sometimes much harm is done by sudden bursts of hot sunshine early in the year when the house faces the south. No side ventilation is required, and one ventilator in 8 feet at top is enough. The cheapest way of erecting glasshouses is to obtain an estimate from those who make a speciality of horticultural work; local tradesmen cannot do such work so cheaply, and have not such choice of material. J. C. B.

**Veitch's Autumn Cauliflower.**—In order to show the value of this Cauliflower, I may mention that we have been cutting good heads of it for a long time, and have still some left. The plants were raised from seeds sown on September 6 last year; they are, therefore, more than twelve months old. If it had not been for this lot of plants, we should not now have a Cauliflower to use, as the spring-sown plants all buttoned, owing to the long drought. —B.

#### WORK DONE IN WEEK ENDING NOV. 17.

NOVEMBER 11 AND 12.

DENSE fog on both days, and so mild that we find it most difficult to effectually exclude damp from vineries containing ripe Grapes without the use of a greater amount of artificial heat than is desirable if the Grapes are to be kept plump for the longest time. The excessive humidity is also having a detrimental effect on fully expanded Chrysanthemum flowers, and some are damping off in consequence, and to prevent further injury we have turned on a little more heat and increased the ventilation proportionally; our only fear is that by such additional warmth early Peaches and Vines in which houses the plants are may be started into growth too rapidly. Fog, not frost, has at last settled the Dahlias, and the last roots have been lifted, and all are now being packed closely together on the floor of a dark shed, and the roots covered with rough leaf soil. Still tying Peaches; pruned another vinery—Hamburghs and Muscats—and the house is now being thoroughly cleansed, and the walls limewashed; as soon as this is finished the Vines will be freed of loose bark—not peeled—and painted with a composition made with Gishurst, soft soap, and sulphur. Tomatoes in a temperature of 65°—Melon house—are fruiting away splendidly; they are given water about twice a week, and the growths regulated by tying, pinching, and taking off deformed fruit as soon as it is perceived; there is thus no unnecessary exhaustion of plants from over-fruitfulness. Potted up a few more Spiræas for forcing, also the first clumps of Lily of the Valley and roots of Solomon's Seal, the long stems of which are highly valued for making up large vases of cut flowers. Leaf-raking and carting them to stack-yard has formed the principal of our labours of the last two days.

NOVEMBER 13 AND 14.

The fog and unusually high temperature has continued up to this evening (the 14th), and now rain is falling heavily, which may perhaps clear the air. Leaf-raking and carting them away, trenching in kitchen garden, and planting a few Pears, and a little sweeping up include the whole of our outdoor operations of the last two days. As regards work in the houses, it has been little else than a continuance of the jobs mentioned as having been done for more than a week past. All laterals on late Vines have been cut quite close back to the main buds; thus, air can play about the ripe fruit more freely, the decay of

berries is reduced to the minimum point, and the action of the sap is checked and ripeness of wood assisted. Just now we have more Pines ripe—all Smooth Cayennes—than are required for use, and by way of preserving the fruits in good condition, we cut them before quite ripe, and suspend them to the trellis in one of the late vineries, where they keep from a month to six weeks, the quality of flesh being much improved by hanging in a warm, dry atmosphere. Cleaned up the houses generally. Chrysanthemums, Cyclamens, Bouvardias, Carnations, and double and single Pelargoniums make our plant and Strawberry houses gayer in this dullest of months than they have been at any time this year. All the plants are carefully gone over twice a week to pick off decayed flowers and leaves, and watering is done carefully and sparingly during the prevalence of such damp weather as has prevailed of late.

NOVEMBER 16.

This morning the mercury in our self-registering thermometer stood at 24°, and the walks and ground being dry and hard, our first job was to wheel manure on to Strawberry plantation, spreading it over the entire plot to a depth of 4 inches or 5 inches, working it well up to the plants that it may serve as a protector as well as a fertiliser; also wheeled soil to stations that are being prepared for planting fruit trees; and soon as frost disappeared, leaf-raking and carting were again commenced. Began pruning Pears on walls. Cordons required but very little other than the cutting back of here and there long spurs, that, apart from their ugly appearance, are out of the range of the protection that the wall affords, a remark that applies equally to all other forms of wall-trained trees. Put in the first batch of Strawberries to force. They are stood on a leaf bed, from which there is a gentle warmth, but no other heat will be applied to the pit till the buds have begun to expand. The leaves being full of moisture, overhead syringing of plants will not be commenced till fire-heat is turned on. Tied Peaches to trellis, pruned others, planted out Kleinia repens in frames. Our mode of propagation is to split up the plants at this time, and every bit having a root is planted, and pieces not rooted are preserved and inserted in boxes of sandy soil, and stood over pipes in vineries, when they soon strike and make good plants for next season's use.

NOVEMBER 17.

Sharp frost again this morning enabled us to finish manure wheeling on to all ground that is at present vacant, and old vine border soil over part of Asparagus plot. This vegetable we grow in rows planted a yard apart, and the roots are never disturbed by digging or earthing up from alleys, as is most generally practised, but fresh soil or manure—sometimes both—is annually applied as a top-dressing, all weeds being cleared off previous to applying the dressing. Did more raking and stacking of leaves. We have such an abundance of these, that Oak and Beech are mainly the kinds that we stack for Pines and hotbeds generally; other kinds, together with vegetable refuse, trimmings of hedges, prunings of fruit trees, &c., are burnt, and the ash used as manure for fruit tree borders, Turnips, and Celery. Lifted Broccoli that were ready for use, and heeled them at the foot of a north wall, and covered them up with mats. Cauliflower plants, Endive, Lettuce, and Parsley in frames are now closed up, and the lights covered with mats at night. The lights are drawn right off in all weathers but severe frost, and the same in respect of Strawberry plants for forcing. Put in heat, to sprout, a few Myatt's Ashleaf Potatoes; our first lot we grow in pots, three sets in a 12-inch pot, and as a rule they do very well, and by shifting them about from one house to another, according to the warmth they will bear, we have them ready for use earlier than those in frames. Plant-cleaning, tying Peaches, cleared loose bark off Vines at rest, and painted them with Gishurst. Picked out decayed Apples and Pears in fruit rooms. This is a job that requires continual attention, but one which, owing to pressure of other matters, sometimes gets too long delayed. Pears now in use are Seckle (an excellent little Pear), Beurré du Cercle, Doyenné du Comice, Triomphe de Jodoigne, Duchesse d'Angoulême, Marie Louise, and Maréchal de la Cour. HANTS.

#### FRUITS UNDER GLASS.

##### UNHEATED HOUSES.

WHEN well managed a house that has not been furnished with hot-water pipes is better than no house at all, but narrow, lightly built cases, often glazed with 15-oz. glass, are only a very short step in advance of good 14-foot brick walls. And yet there are numbers of these cheaply erected structures in the country, for the most part devoted to the culture of Peaches, Nectarines, and Apricots, but no one who has had any practical experience, either as a builder or cultivator, will advocate the attempt to grow these early flowering trees in cases if houses can be had, neither will he admit that the gardener is not heavily handicapped where he is expected to produce full crops annually without the aid of fire heat. Fire heat to many owners of gardens represents heavy items for fuel, but this is really a mistaken notion, as there are only two short periods during the year when artificial warmth is actually required, and it very often happens that a crop of fruit is lost through the want of it during the two or three weeks the trees are in flower in the spring. Frost, by many, is their most dreaded enemy, but there is another quite as subtle and more difficult to render harmless without the aid of gentle fire heat, which might often be obtained from the combustion of a few barrow-loads of slack or cinders. This, it is hardly necessary to say, is a damp, stagnant atmosphere, which ventilation without it fails to correct, while its continuance affects the petals of the flowers and renders the pollen pasty and incapable of performing its office. Externally during the early spring it frequently happens that a cold, heavy atmosphere prevails for days and weeks together; the floors may be kept as dry as the withholding of water can make them, but the temperature is low, the pollen cannot burst and fly off in golden showers, and the crop is lost. The next period when fire heat is really needful sets in after the crop of fruit has been gathered, and it extends to the fall of the leaf. The wood and buds must be ripened, otherwise no matter how favourable the ensuing spring may be, the fruit buds either drop or set badly, and disappointment is the penalty which gentle fire heat for a month during the preceding autumn might have turned into profit and pleasure. When well managed a house without fire heat is better than a wall case without it, because the house is less subject to the influence of sudden fluctuations from heat to cold, or the reverse, but how shall we define the difference between good management and bad? The well managed structure is closed early every fine afternoon with dry sun heat from the time the last fruit is gathered until the leaves fall; the ventilators are then thrown open by night and day to keep the buds in a dormant state through the winter, and plants that require much water are excluded. With returning spring the buds persist in swelling, but in order to prevent them from bursting into flower, to be nipped by frost or paralysed by damp, ventilation is, if possible, increased and shading may be resorted to on bright spring days. As days increase in length and sharp morning frosts become more dangerous, the opening of the first flower is the signal for closing with sun heat in the afternoon to secure warmth that will, if possible, prevent the temperature from descending to the freezing point before morning. If in pots the trees are kept away from the glass, water is sparingly used, and ventilation through the early part of the day is on a very liberal scale, provided air can be admitted without producing a cutting draught; in fact, everything that can be done to delay the opening of the flowers, to shield them from damp, and to protect them from frost is brought to bear in the well-managed unheated house. In the badly managed house the ventilators are left open by night and day after the crop is gathered, and the ripening of the foliage in advance of the wood and buds is facilitated by unchecked attacks of spider, and perhaps a little mildew, which invariably finds a home where a sloppy condition for the benefit of plants is maintained. Later in the season the house is closed early, or kept shut up altogether for the protection of the plants, and a few bright sunny days are looked upon as a godsend for these illegitimate occupants. But what about the fruit trees? If the winter is mild and damp, the buds on Peaches, Apricots, and Cherries begin to swell towards the end of January; in



February they are in full flower; bad weather prevails, and the crop is lost or sadly decimated because the owner cannot or will not afford to put in a flow and return pipe connected with an already existing or an independent slow combustion boiler. I have this day read an article in which the writer says he can work an underground flue three hours a day for nothing. I do not presume to corroborate this statement, but I do say the fuel needed for ripening the wood and securing a good set of fruit costs very little, and now is the time for the owners of all unheated houses to commence putting them in order for the forthcoming season.

#### FIG TREES IN COLD HOUSES.

The advent of cheap glass and timber has induced a great number of owners of well-furnished walls to cover them with glass cases from 6 feet to 9 feet in width, and gardeners who know what they are about succeed as a rule in securing one crop of fruit annually. Aided by the flow and return pipes which I have always advocated, they might take two crops and sleep in peace. But lacking these, the cost of fuel must be expended in extra labour, and then there is the possibility of the trees being injured, as it is a well known fact that early excited Fig trees in a cold house suffer quite as much as dormant trees on an open wall, and it is no uncommon occurrence for a very hard frost to kill cold house Figs to the ground where protected wall trees escape. Therefore, to avoid mishaps, the early closing which I have just suggested for ripening the wood and buds of Peaches must not be neglected, and the annual root-pruning and planting in poor well-drained soil, advised in my paper on wall Figs, will also apply. When the wood is ripe and the foliage has fallen from the trees, the house or case must be kept as cool and dry as possible, to prevent the embryo Figs and buds from pushing, and in this condition it may be allowed to remain so long as the winter continues mild and open. In the event of a change to frost, it will not, however, be safe to trust the young fruits to the protection which a dry house alone will afford; therefore, the trees must be untied and set quite free from the wall or trellis and drawn down as far as may be practicable from the glass, where they can be protected with dry Fern or straw until the weather changes. Wall Fig trees winter best close to the foot of the wall; trellis trained trees may rest on the dry border; in either case the covering must be taken off and full air admitted as soon as external conditions will admit, otherwise the latent warmth from the soil and the covering combined will hasten the swelling of the buds.

Having succeeded in steering clear throughout the winter, it will not be well to be too venturesome in the spring, as Figs can be handled and tied in after the young fruits begin to show signs of swelling. Then will be the time to prune and train; mulch with good rotten manure and supply the roots with water. Air on all favourable occasions must still be freely admitted, as it is good policy to keep the trees as hardy and backward as possible until all danger from spring frosts has passed away. More water in a tepid state will then benefit the roots; the trees may be syringed once on bright days, but early enough to insure the drying of the leaves before nightfall, and the house may be aired and shut up with sun-heat during the time the fruit is swelling. The amateur who may wish to enclose a snug warm corner for Figs will do well to plant his trees against the wall where they are safer than on trellises, while absorbed and reflected sun-heat favours the swelling and ripening of the fruit. For general purposes and for quality the brown Turkey still stands well, but there are a number of good varieties of recent introduction which may be planted as worthy companions. From a long list the following may be selected: Angélique, the black and grizzly Bourjassotte, Col di Signora Bianca, Col di Signora Nero, Fig d'Or, Doctor Hogg, Grosse Monstreuse de Lipari, the black, brown, and white Ischias, black and white Marseilles, Negro Largo, and Osborn's Prolific. I have purposely omitted Brunswick, Castle Kennedy, and Williams' Prolific, as they are strong growers, requiring an abundance of space and do not, as a general rule, fruit so freely as the others.

W. COLEMAN.

Eastnor Castle, Ledbury.

#### ROYAL FUDGEOLOGICAL SOCIETY.

At the last monthly meeting of this society, Prof. Walker read a paper on the cause of "clubbing" in Turnips. The professor said he had made the subject one of close personal observation daily (almost hourly) for the last sixty years, and was confident the only cause of clubbing was the one discovered by his dear friend, Prof. Wakka, of Potsdam. He had performed numerous experiments during the past year to the number of 365, and all the experiments confirmed the truth of Prof. Wakka's theory. Everyone was aware that Oak trees were infested with a microscopic green fly called an aphid; this aphid was invariably hatched at the time when Turnip roots were formed, and the period of the aphid's residence on the Oak was only probationary. Having arrived at a fitting stage of growth, the green flies were washed on to the ground by rain, and then they attached themselves to the young Turnips, and set up clubbing by nibbling the young Turnip-tops. This nibbling caused an instantaneous rush upwards of the juices of the root to the injured parts. The upward rush set up a strong current in the roots, an excess of gas and water was absorbed, and clubbing was the result. Prof. Wakka had therefore proved, and Prof. Walker had confirmed the fact, that Oak trees were the sole cause of the mischief to Turnips, and Prof. Walker agreed with his illustrious friend, Prof. Wakka, that all the Oak trees in Great Britain and the colonies should be immediately exterminated. Prof. Stretcher here suggested that Prof. Walker should give himself a grant from the Gold Stick Society's funds for the proper printing and illustration of his most invaluable paper, or Prof. Stretcher would himself award this grant to Prof. Walker, if Prof. Walker in turn would next year award a like sum from the same funds to Prof. Stretcher for the publication of the latter gentleman's paper "On the fungoid origin of the red colour in Carrots." At this point a visitor said he thought there might be some other cause for the clubbing of Turnips, as he had seen the disease in a bad form in districts where no Oaks were near, and where Oak trees and their green flies were virtually unknown. Prof. Walker, in reply, said he had repeatedly seen the green flies running with great rapidity over Grass, evidently making their way from Oak woods to the distant Turnip fields, and he had commonly seen some of the microscopic green flies being carried on the backs of others; these couples were evidently the young ones carrying the old ones, or the old ones carrying the young ones, but, without further study and research, he was unable to say which. Furthermore, he indignantly referred to his 365 experiments as quite conclusive, and said, moreover, the theory had been quite settled twenty years ago by his friend, Prof. Wakka. He had watered Turnips with water, swarming with green-fly, taken from Oak trees, and all the Turnips which he so watered became clubbed, whilst his check Turnips remained quite unaffected. Professor Fudge said he thought there had been a mistake somewhere, as in his part of the country both Oak trees and green flies were extremely common, but the Turnips were never clubbed; he said he had already given himself a sufficient grant of money from the Gold Stick Society's funds to pay for his past researches, which researches proved that clubbing in Turnips was a disease identical with dropsy in the human subject, and could easily and cheaply be relieved by digging up the Turnips once a week, tapping them of their superfluous gas and water, and then replanting. When it was found that Professor Fudge had given himself all the cash

placed at the disposal of the Gold Stick Society for the current year, the meeting came to an abrupt close, the funds of 1856 being promised for Professor Walker, L.S.D., and those of 1857 for Professor Stretcher. The three professors in the meanwhile cordially agreed to recommend each other for the decoration of C.C.G.—i.e., Companions of St. Clement and St. Giles.

W. G. S.

#### OBITUARY.

AFTER a short illness and a good old age, SAMUEL WALTERS, a well-known west of England florist, died on the 11th inst. In 1830 he left the trade in which he had been brought up, and established himself as a florist at Hilperton, Trowbridge, Wiltshire, where he cultivated Tulips, Auriculas, Polyanthus, Ranunculus, Dahlias, &c. He was a constant and very successful exhibitor at the west of England shows for many years, and not infrequently in London also. Ten years ago he had to give up exhibiting through weakness of sight, but he retained his love for the flowers which he cultivated to the very last. Mr. Walters was greatly respected in the district in which he resided.

#### LATE NOTES.

**Water plants** (*J. G.*).—*Aponogon distachyon* will do well in a tank in your fernery.

**Tritoma**.—Some of our readers, we hear, think this a better name than the newer one *Kniphofia*; the latter is, however, the correct one, and that now generally followed by botanists.

**Large white Funkia** (*Mrs. D.*).—This being less hardy than the others only flowers during warm dry summers. This year it has flowered well in light soils about London. Your locality is probably too cold for it.

**Chrysanthemums** (*J. Young*).—Very good blooms indeed.

**Apple twigs** (*J. de C.*).—There is no fungus on the twigs sent; the white material is an insect production, and the twigs are swarming with the aphides which have produced it. As soon as the leaves are down apply some of the remedies used for destroying such pests.

**The Kieffer Pear** (*Vicars Collyer & Co.*).—The two fruits of this Pear sent to us by you are large (10½ inches by 1½ inches) and somewhat coarse and gritty. Little, however, can be said about its merits or demerits until it is seen how it behaves in this country.

**Royal Caledonian Horticultural Society**.—In THE GARDEN, p. viii. (November 14), the date of the flower show here is stated to be November 25 and 26; whereas it should be November 25 to 28 (four days). Apples and Pears will be very largely shown; it is expected there will be 10,000 dishes of these fruits.—P. NEILL FRASER.

**Trichosanthes Anguria** (*J. H.*).—The Snake Gourd is a native of India, China, &c. Several plants of it have been well fruited this year at Kew, and there is now one in the Water Lily house with a fine fruit 3 feet long and orange-red in colour. When young the fruits are green, afterwards becoming streaked with white, then changing to yellow, and finally becoming a uniform brilliant orange-red. *T. colubrina*, which is a variety of this, produces fruit often more than 6 feet in length. Both these plants are annuals, and thrive only when grown in hot moist houses and treated liberally as regards soil and manure. They are worth growing as ornamental climbers for large stoves.

**Naming plants**.—Four kinds of plants or flowers only can be named at one time, and this only when good specimens are sent.

**Names of plants**.—*A. S.*—*Arbutus Unedo* Croomiei. —*A. D.*—1, *Ligustrum chinense*; 2, *Erica vagans*; 3, *E. mediterranea*. —*F. W.*—*Veronica salicifolia*. —*G. G.*—*Datura Stramonium*. —*P. D.*—American red Oak (*Quercus rubra*). —*R. Hartland*.—Appears to be *Quercus obtusiloba*, but cannot be certain without fuller material. —*J. M. K.*—It appears to be what you say (*Mignonne*), but we do not attempt to name varieties. —*E. F. C.*—According to some authorities all the British Brambles are sub-species or varieties of *Rubus fruticosus*. Others reckon some thirty or forty distinct species in Britain. They vary extremely in size and outline of leaflets, in the character of the barren stem, prickles, &c. Without good specimens it is impossible to name *Rubi*; and with leaves alone it is useless attempting it. There are no English names for the very numerous forms. If you will send full material next season, we will try to name the Bramble for you. —*J. Field*.—*Jasione montana*.

**Names of fruits**.—*Periwinkle*.—1, Manks Codlin; 2, Hawthornden; 3, French Crab; 4, Emperor Alexander. —*L. C.*—1, Apple, White Calville; Pears, 1, Winter Nelis; 2, Beurré Clairgeau; 3, Swan's Egg. —*T. D.*—Your fruit was quite rotten when it arrived. —*J. Thornton*.—1, Norfolk Beautin; 2, Cellini; 3, Easter Beurré; 4, not recognised. —*Anon.*—1, Cellini; 2, Duchesse d'Angoulême; 3, Beurré Diel; 4, Flemish Beauty. —*Miss Pasley*.—Nonsuch.



## WOODS & FORESTS.

### THE BEECH AS A TIMBER TREE.

VALUABLE as this wood is in many respects, it will not bear neglect in lying exposed that some trees do with apparent immunity; therefore, unless proprietors know where to place it beforehand, they would do well to offer it standing, as when once the saw has been set to work the Beech must go into the market, no matter at what price, for if left to lie on the ground it will assuredly spoil. From one cause or another it occasionally does happen that this tree cannot be removed at an early date after it has been felled, or if it is removed, that it lies about in yards or other places, with the more or less certain result that it becomes tainted and unfit for any of the uses to which it is most generally put. It would be easy to enumerate instances showing that the loss of the timber is not the only result when proper care has not been taken of the trees, but one for the present will suffice. This was where a man in the trade, very well known to me, bought up a quantity of Beech which had become thus tainted, but which he considered good enough for a purpose for which he had an order, viz., to turn up into pickle stoppers for a firm in France, and for which he accordingly used it. The sequel, however, was very striking, for after they had been manufactured, packed in bags, and the carriage paid over, the firm found, on the arrival of the stoppers, that they were useless, and consequently, without waiting for instructions, again consigned them to the mill in this country, with the carriage to pay. The experiment was an expensive one, but it taught the manufacturer to be chary in working up Beech of doubtful quality, and in the end perhaps was not lost. He humorously remarked that on their arriving back he stored them away in a cellar, and when occasion offers and the coast is clear he fetches up a bag of the rejected Beech stoppers from their hiding-place and consigns them to the fire in the boiler of his engine. All the Beech, however, that goes to this mill does not share the same fate, as a very large proportion is cut up for parasol and umbrella sticks. For this the very best quality is essential, as the sizes are so small that the least knot would be fatal. Another purpose is for making the small rods which serve to keep the legs of some of the lighter classes of chairs rigid, and some is worked up into saddle trees. The rougher pieces are cut up for staves for dry casks, for which there is a considerable demand, and the very small pieces come in for bobbins and some kinds of toys.

The maker of brushes for domestic use consumes a quantity of Beech, as the backs of a great number of these articles are made from the wood, and although a brush individually does not consist of a piece of any great dimensions, when their numbers are considered which are constantly required, the trade must be a large one. When Ash poles are to be had they cut up capital bobbins, but as Beech is the cheaper wood it is often substituted, and in the manufacturing districts large quantities are sawn up for this purpose. The handles of edged tools of various descriptions draw largely upon the Beech, and next to the Ash is well adapted to the work. For hammer, spade, and fork handles it would not be sufficiently tough, but there are many classes of tools where this quality is not so essential, so long as the wood used will stand driving and is suitable in other respects.

Planes and carpenters' tools of various kinds consist largely of this wood, as when thoroughly

seasoned it is not liable to warp, and when kept in constant use it is not so likely to be attacked by insects. For common chairs, which are largely made in Buckinghamshire, it is one of the principal woods. Indeed, there is reason to believe it was for the sake of the Beech that the manufacture came to be located in that county. Much of the soil there is admirably adapted to its growth, and better quality wood is scarcely to be found.

The framework of the ordinary cane-seat chair is almost always made of Beech, and the legs and back of the well-known kitchen Windsor is also cut from the same wood, besides children's nursery chairs and a host of others which need need not be specially spoken of. Those who believe there is now no use for home-grown woods, we would commend a visit to the centre of the chair-making district in Buckinghamshire, and we are safe in saying that they will return impressed with the fact that in one particular line, at least, the day is not passed where they can be usefully turned to account.

In other classes of furniture the Beech is also used, but perhaps not so much as formerly, as since the introduction of metal for bedsteads one branch which used to consume a by no means inconsiderable quantity year by year has been almost entirely driven out of the field. For kitchen tables, various kinds of domestic utensils and turnery goods, the Beech is worked up, and millwrights also employ it for cogs and for bearings in some kinds of machinery. When it has to be continually under water, it can be used to some extent for engineering operations, but it is not so suited for house building, as, although it will stand almost any amount of hard wear, damp is its great enemy. For this reason, although it is sometimes bought for colliery propping, proprietors prefer other woods, a further objection being that it weighs heavily and cannot, therefore, be so profitably used, as in small sizes it generally goes by weight. Besides these channels, there are many others through which the Beech finds its way into use, and amongst these may be mentioned the manufacture of gun-stocks, pulley-blocks, wedges, and some other purposes in the army and navy. On account of its weight the railway companies carry only 40 feet of this tree, the Oak, and the Ash to the ton, while most, if not all, of the other woods commonly grown in this country go at 50 feet to the ton.

The best quality of Beech wood is invariably found where the tree grows thickly in clumps or plantations; therefore if the picturesque and the best value for the timber are both aimed at, the most likely way of combining the two will be to cultivate this tree in groups or plantations, so that whilst the outside trees throw out an abundance of branches and foliage, the bulk in the interior will only possess a small proportion of either, and as a consequence the growth will be concentrated in producing timber. Beech in avenues may produce a fine effect, but they grow a lot of waste material. D. J. YEO.

**Tree planting in the past.**—I do not wish to undervalue what has been done by the old planters "T. B." holds in such veneration, but I certainly object to the assumption that a tithe of the Elms growing in this country were ever planted at all in the sense "T. B." puts it. It is very considerate to enlighten me as to the fact that it is unusual for what is known as the English Elm—viz., *Ulmus campestris*—to ripen seeds here, but of this I was fully cognisant, and no not see what bearing it has on the subject. It is very convenient to dispose of anyone who happens to hold a different view of a matter by

the rough-and-ready method of asserting they know nothing about it. Although the most common mode of natural reproduction is by seed, it is by no means the only one, and "T. B." has not a tittle of evidence to support his view that the Elm is not naturally reproduced. On the other hand, the evidence is abundant that great numbers of *Ulmus campestris* are annually reproduced without the assistance of man at all.—J.

### VALUING DAMAGED TIMBER.

OBVIOUSLY there can be no fixed basis on which to assess the damage done to timber trees, young plantations, and under-growth, such as "Sufferer," p. 498, speaks of. It is scarcely possible that two cases exactly alike should occur; or, in other words, two cases where the same rate of damages would be fair for a like extent of injury. Each case would require to be dealt with according to the particular circumstances connected with it. There would be no difficulty in arriving at the value of trees, young or old, from a pecuniary point of view, but compensation for the injured appearance in a park or grounds attached to a mansion would depend on the more or less conspicuous position of the trees or plantations injured, or their proximity to the dwelling. In places where the undergrowth was required for covert it would be necessary to take into account the injury done in respect to this. Looking at the matter from a legal point of view, the lawyers are much more ready to admit real than what may be termed sentimental injury. Some time back I had to do with a case where some extent of trees and shrubs in a cemetery had been burnt by sparks from a passing train. A good deal of undergrowth was destroyed, and some large Oaks that would take ages to replace were much injured. Here the damage in appearance was so far a real injury, that no attempt could be made to dispute it, for the better the appearance of the place, the more were people likely to patronise the company to whom it belonged. I mention this case as an instance to show the difference that there may be in the damage done under the head of appearance, as in private grounds a similar rate of damages on that account would not have been admitted. "Sufferer's" case, like others where injury of a similar nature has been done, could, I should suppose, be settled without difficulty by allowing what was reasonable for actual damage and for the injury done to the appearance of the grounds. T. B.

### CUTTING UP TIMBER ECONOMICALLY.

IN a knowledge of the proper conversion of timber lies the key to the whole question of forest conservation, as without this forests may be conserved or replenished in vain. The reason why so little is said upon this subject, to a great extent, is that it is a thing which cannot well be learned by rote. After admitting this, however, it cannot be denied that forest literature, which makes no attempt to deal with the most vital part of the matter because it is difficult, falls far short of what should be its aim.

It may be argued by some that this is a branch of the subject which lies beyond our legitimate scope in these columns. To such we would reply that the work is only half accomplished which deals only with production, and that some light upon consumption and the methods by which the rough material is prepared with the least possible amount of waste is equally important. We have recently been looking a little into the questions of sawing and seasoning, and some of the purposes to which



our commonest woods are put have been under review, but from the manner in which these questions were necessarily treated in the limited space allotted to them, little indication could be given as to the means by which the greatest amount of sawn material could be obtained from the least quantity of unsawn timber.

In a general way, in cutting up our common timber trees, if it is properly made use of, a great advantage lies in having a purpose in which one is not in every particular confined to a definite length or size. As an illustration of what we mean, we will suppose that the wood-work of a building has to be cut up from some given wood of which there is a sufficient supply, and that some of the lengths cannot in any way be deviated from, whilst others, as is the case with every building, can rest to a great extent upon the will of the converter. In such cases a perfect or imperfect knowledge of how to get about the work makes all the difference. A novice into whose hands the specification was put would be as likely to order, in the first place, the cutting up of the material in which variation was admissible as he would any other; but a more experienced hand would, before making a movement in this direction, select the trees from which his longest lengths and largest sizes could be sawn with the least possible amount of waste, and so on until all the dimensions to which he was absolutely bound were provided, and then from the remaining timber so arrange his lengths and sizes, where the discretion was allowable, as to bring the whole into use with very little waste indeed, whilst if the opposite course had been followed, the chances are greatly in favour of the best timber being sawn up for these latter purposes, with the sequel that when the turn came for the selection of the long lengths and large sizes that a further supply would have to be obtained, as there would be nothing fit for use left of the original lot. In making selections a very important matter is, if possible, to so arrange the lengths that the cross-cut comes at the point in the growth of a tree where a large branch starts out from the trunk, as generally at such places the falling off in size is very marked, and if the length has to be carried on beyond this, a great waste of material is the result. Of course instances are constantly occurring where the requirements render it essential that this should be disregarded, but a little foresight very often will prevent it, and the different lengths made to coincide with these natural divisions of the tree.

The arrangement of the comparative widths and thicknesses of the various scantlings which can be cut from a tree has much to do with the quantity of usable material to be obtained from it. Looking at the subject cursorily, it may seem that however a piece of round timber is cut, it would not alter the amount of wood to be got from it, and although such an assumption is true in the abstract, in practice the results are very different, and a great deal of scheming is necessary to saw it up without waste. The most elementary part of the timber converter's practice is that of sawing up trees by means of parallel cuts, but even here he is liable to go astray unless he attends carefully to the direction of the shake, and also to the bend of the tree. Whilst upon this it may be well to call attention to the fact that as a rule, although trees do not generally grow in straight lines, much may be done to minimise the proportion of waste which cannot be altogether avoided in bringing an uneven surface to an even one, by being careful that the saw cuts

are arranged to pass through the tree in the straightest direction of its growth. When it so happens that the line of the bend clashes with the way in which the cuts should take from the position of the shake, some little difficulty will be found in deciding upon the lesser evil, but these are things which can be determined by practice, and will soon drop naturally into their place as one of the little obstacles which have to be contended with in every profession, and disposed of as they arise. In cutting up timber it is not an unusual occurrence to find trees with the bend in both directions, and this is not a little perplexing. The single bend—*i.e.*, when the piece is straight one way—is sometimes more valuable than a perfectly straight length would be, as in constructive purposes where such a form is required it has the advantage of not being cut across the grain, and also of being in one piece, instead of two pieces fastened together, a plan which has to be resorted to when wood sufficiently crooked cannot be had. It is, however, where the bend is less marked, when, for instance, it merely deviates a few inches from the straight line, that the novice is most likely to go wrong, as it is liable to be overlooked by the unpractised eye until it is seen by the waste material coming off. With regard to trees having a double bend, the only way to prevent waste is to cut them up for purposes for which short lengths only are necessary, and it should be arranged as far as practicable for the cross cut to come in the middle of the bend. Referring to this, important as it is, has led us a little away from the question of arranging the different dimensions of material so as to get the greatest amount of scantling from a given piece of round timber. It has been said that cutting up a tree by means of parallel cuts is the most elementary part of the practice. This, of course, refers to the mere cutting into boards or planks, which come off hap-hazard as to width and with wavy and irregular edges, as it is obvious that when the factor of thickness alone has to be reckoned with, the same amount of judgment has not to be exercised as is the case when both width and thickness have to be taken into account. In cutting up scantlings, which may be taken to include almost all rectangular pieces of any considerable lengths, and in any approximate degree approaching the square, the factors of width and thickness have both to be reckoned upon, and hence it is that unless due care be exercised, either the scantlings will be defective by not holding to the square, or timber will be thrown away in one part of the tree in order that this defect may not occur. The greatest amount of skill, therefore, is necessary in planning the conversion of trees into large rectangular scantlings parallel throughout their lengths, as in addition to the natural taper of the tree, there are certain to be irregularities which, if not carefully watched, will interfere more or less with a satisfactory result. When dimensions are large, but the length is short, the danger is not so great. With long lengths, whether the tree has to be sawn by the mill or by the pit sawyers, in deciding upon the sizes into which it shall be cut, a straight line passed from end to end of the tree and making it into as nearly as may be equal sections will aid greatly, as then the number of inches it will work up to on each side of this centre line may be readily calculated, and the dimension book consulted as to which of the sizes it will cut with the least amount of waste.

D. J. YEO.

**Yew diseased (Query).**—The name of the fungus infesting the living leaves of Yew is *Sphærella Taxi*. The fungus has only been known for a very

few years. Like many other destructive fungi, this pest first appeared in the south of England, and from that position rapidly spread northwards. In bad cases it causes the leaves to fall in hundreds of thousands from the affected trees. Your experience as regards this fungus, if published in *Woods and Forests*, would be very acceptable.—W. G. S.

### THE BLACK WALNUT.

IF there really is a necessity to increase the number of timber trees growing in this country, it is certainly desirable that the subjects should be selected from amongst those which are likely to be of some commercial value when grown. We do not underrate the importance of growing trees which are proved to do well in this climate and on certain soils, but notwithstanding this, however freely a tree may progress, if it is of no money value when grown, it would be infinitely better, even if the tree were not so thoroughly suited to the situation, to raise kinds which could be turned to account when the time came for them to be felled.

There appears, however, to be no evidence that the tree of which we wish to say a little, *viz.*, the Black Walnut, is not thoroughly suited to this climate. Loudon speaks of it as, in favourable conditions with good soil, attaining the height of 50 feet to 60 feet in forty years. It is, we know, admitted that the concentric circles do not at all times correctly represent the age of a tree, but there is a case on record where only a short time ago a Black Walnut which had grown in the midst of the London smoke was felled and sold as another kind of wood, but which, when it came to be sawn, proved to be one of these trees, as nearly as could be judged from the circles referred to, of forty years' growth, and containing nearly 40 cubic feet of timber. Leaving an abnormal case like this, we would point out that the suitability of the Black Walnut to this climate has been proved by examples in the grounds of Fulham Palace, Syon House, where in Loudon's time it had reached a height of 79 feet, a diameter of 2 feet 11 inches, and a spread of 59 feet; at Testwood, in Hampshire, where a tree seventy years old was 52 feet high and 2 feet in diameter. One at Bowood, Wilts, was 48 feet high and 1 foot 2 inches diameter at 35 years, besides others in Lancashire and in Scotland.

This rate of growth is certainly as rapid as most of our common hard-wooded trees, and the only objection to planting it extensively would seem to be that it requires a good soil. This, however, may be said of almost all of our timber trees, as the Elm, for instance, which has some points in common with the Walnut, delights in a good loam. Indeed, were the question of planting the Black Walnut seriously taken up, it is doubtful if any better plan could be adopted than that of growing it under similar conditions to those in which the Elm is found. There are a number of trees which will grow on more or less sterile soils, so the introduction of a species now and again for the better class of soils is not so objectionable as may at first appear. Raised as it is from the nut, there seems to be a doubt existing whether it will bear transplanting, but there is really no evidence of which we are cognizant proving that it cannot be removed in the ordinary way. The best mode of culture is to plant the nuts in drills a few inches apart in good fine soil and let them grow on for a year. They should be planted as soon as may be after they are ripe, as they do not retain their germinating qualities nearly so long as some seeds. After this period has elapsed, the young plants can be transferred into the



nursery rows, and treated in the usual way with seedlings, as so far as their standing removal is concerned, notwithstanding what has been urged to the contrary, there is plenty of evidence showing that no great difficulty has been experienced. In the case of trees like this, which have suddenly sprung into favour, it must not be overlooked that there is just the same chance of their falling into disuse; but, nevertheless, it cannot be doubted that the Black Walnut has many good properties. In America, where it is principally grown, it is put to a variety of uses. As here, it is much used for furniture, and it is also used in house building and for shingles. In some places it is there used for the naves of wheels and other similar purposes, and posts made from the tree are said to remain undecayed for many years. Another thing in its favour is its comparative immunity from the attacks of insects, but it is, of course, the heartwood which is really valuable, as the sapwood is of comparatively little account.

#### TIMBER TRADE VAGARIES.

"YORKSHIREMAN" will not, I suppose, deny that in a paper on the most valuable timber trees, on page 384, he said that "Oak of moderate size for ordinary purposes will be a drug in the market for many years to come, whether trade revives or no," and that in the next sentence he added, "In this part of England at the present it cannot be profitably or easily disposed of unless put with Ash or something else." In the face of this I am informed by the individuals who have the work in hand, and they are resident within half-a-dozen miles of me, that they are cutting up very considerable quantities of Oak into scantling and sending it to Yorkshire. Two more opposite statements it would be difficult to meet with, and I hold that I was entitled to ask if any explanation could be given, or whether the circumstance must be set down as a mere vagary. The reply "Yorkshireman" gave was, "When I spoke of Oak, I spoke of Oak timber in the rough, not of timber sawn up and sent by rail"—a most remarkable explanation, truly! Are there no means of removing and sawing timber in Yorkshire, or what possible bearing can he suppose this will have on the question? "Yorkshireman" says there is no sale for Oak in his county, and I point out that Oak growing here is bought and sawn and sent into Yorkshire, *i.e.*, being done now. Does "Yorkshireman" suppose that the bulk of Oak grown is used without being cut up, or what can he mean? If there is a market for sawn Oak in his county, there is certainly one for Oak in the rough, as by what other means can sawn timber be obtained than by getting it "from the rough," as "Yorkshireman" expresses it. If the timber grown in Yorkshire is not good enough, and buyers have to come here for it, the explanation is clear, but to shift the question by saying sawn Oak was not spoken of is no explanation at all. If, on the other hand, the timber is suitable for the purpose—and I mentioned the sizes which would cut up to advantage—it behoves "Yorkshireman" to be a little more watchful of the market, and not let the trade drift into a distant county. It is all very well to quote the remarks whether of best or little known buyers, but their opinions, however weighty, will not controvert facts.

All the statements I have made upon the subject I am prepared to prove if necessary, and, so far as I am aware, there are no special conditions which would serve to make the matter clearer. I have nothing whatever to conceal beyond the actual names of the parties

concerned, and these I should have no objection to give were it not for the fact that I have no authority to make them public.

WILTSHIRE FORESTER.

#### SEASONABLE WORK.

PLANTING.—As early autumn planting on well-prepared soils generally gives the best results, the planter should push forward these operations as fast as circumstances will permit. It is not enough that the ground has been well fenced, thoroughly drained, and hard impervious subsoils broken up and prepared for the plants, but the planter should make himself acquainted with the different classes of soils to be planted, and the kinds of trees that are known to thrive best on any particular class of soil and situation. He will then be using the best means within his reach to obtain successful results from his work. Another point of vital importance for the success of the trees—and one which should never be lost sight of—is to see that the roots of the trees are spread out in a regular manner from the collar of the plant. Want of care in this respect is sure to be fraught with serious consequences, so that a sharp eye is necessary on the part of the planter to see that the work is properly carried out. The forester should now make a careful calculation of the number of trees he intends to plant, which will enable him to send his order to the nurseryman, either to forward them at once or keep them in reserve, as by so doing he will get a larger selection of plants to choose from before the nursery stock begins to get exhausted. He should likewise calculate in the same way the number of plants he will require to fill up vacant ground in the home nursery, and give his order at once, so as to enable him to secure good, clean, healthy plants that had not formerly been picked over. Before commencing to plant ornamental trees the planter should have his plans thoroughly matured, which will enable him at once to plant each kind of tree in the exact spot wanted without loss of time, and in order to attain this, in all cases where the work is on an extensive scale, it is a good plan to place a small peg in the centre of each pit with the name of the tree or shrub to be planted attached, by which means the work can be carried out expeditiously. Game covert should be planted now in places where it can be done without disturbing game.

NURSERY.—Transplant hardy Coniferae and other young stock into nursery lines, and allow the plants plenty of space to encourage the formation of strong bushy plants, which will increase their value, especially when used for planting cold upland districts. If not already done, finish putting in evergreen and other cuttings. Lift and remove Lime tree and other layers from the stools, and plant them in rich, well-prepared ground in nursery rows, allowing them plenty of room to extend their side branches. Finish the sowing of Oaks, Haws, Hazels, Walnuts, Chestnuts, &c., choosing a fine dry day for the purpose. Choose a piece of rich ground of rather a light texture, well worked and free from weeds. In dry weather collect cones and other tree seeds as they ripen, and store them away in a dry loft, turning them occasionally during winter. Vacant ground in the nursery should be trenched or ridged up in a rough way to keep it dry and admit frost during winter. Pick out weeds as the work proceeds, and, if necessary, give a dressing of well-decomposed manure, road scrapings, or earth and lime well mixed and incorporated, any or all of which may be applied to exhausted soil with advantage.

THINNING AND FELLING TIMBER.—Continue the thinning of young plantations and felling of heavy timber as formerly advised. One of the great drawbacks to the successful rearing of valuable timber trees is the neglect of early and judicious thinning, so that we cannot impress too much watchfulness and care on the part of the forester to this important point. Cut out all inferior trees, and allow the rest sufficient space for development, so as to produce a proportional thickness of stem to the height of the tree. In cases of mixed plantations it is also a matter of importance to retain as far as possible the species of trees found to be doing best on the different classes of soil and situations for the principal crop. Proper attention to these points may be said to form the base of sound practice and successful cultivation. Examine plantations generally, and all trees upset by recent gales of wind should be removed and prepared for sale. Number, measure, and value the trees as the work proceeds, and record the particulars, which will be useful as a reference at the time of sale. When convenient, cart in timber to the sawmill, and have it cut up into boarding, planking, and scantlings of different sizes to be seasoned for estate purposes.

ESTATE WORK.—Owing to the heavy fall of rain which has recently been experienced in many parts of the country, roads in many cases have become much cut up, and will require repairing. In doing so use broken stones in preference to water-worn pebbles, as the former bind and grip together, and form a hard, firm surface; whereas the latter always shift by the pressure of wheels, and are therefore objectionable on that account, at least in all cases where the traffic is heavy. After applying the stones, spread a light coat of gravel over the surface, and finish by passing a heavy roller several times over the road to firm and consolidate the material. Gather leaves and rubbish from walks and drives, and where necessary give a coat of gravel. Clean out drains generally, and see that the outlets of all culverts and shut drains are in proper working order. Trench and level old ditches, alter old, and erect new fences where necessary.

#### WHAT TREES TO PLANT.

THIS is an important question to owners of barren ground unfit for tillage, and at page 411 I stated as my experience that the Larch was the best, giving the quickest and best return, even when planted on soil unsuitable to its full and healthy development; notwithstanding which, Mr. D. J. Yeo, at page 439, seems to take exception to this statement. But can he, from his own experience, name a tree which has merits of a higher order than that of the Larch, and that he has found to give a better return when planted under the same conditions, as regards soil and exposure, in a like period of time? In almost the next sentence, he says: "Without disparaging or in any way underrating this tree, I am not sure that Mr. Webster is right." Now, from his former remarks—I had better say attacks—one would suppose he had something to tell us which would be useful for the edification of planters generally, and that he could speak with confidence and to the point.

Mr. Yeo takes a high view of the Ash, and in doing so he is traversing ground that has been well trodden before him. He tells us, in speaking of this tree, that there are two potent factors to be reckoned with in timber growing as well as in anything else—*viz.*, supply and demand;



but why does he not tell us about other two potent factors—viz., suitable soil and exposure; which is the base to give supply and furnish stuff for demand?

In discussing the uses of the Elm Mr. Yeo (p. 495) is too sweeping in some of his assertions, as, for example, he says, "Another large user of this tree is the undertaker, as although for sentimental reasons the Oak is sometimes preferred, not a tithe of the coffins annually made are of any other wood than the Elm." Now, this may be the case in his locality, but certainly not so in others. I was told by the workmen in the largest establishment of this sort in Glasgow that the best class of coffins was always made of Oak, and the cheaper sort of deal boarding, and that they never used or knew the wood of the Elm put to such a purpose.

But the question of questions is what are we to plant, or are we to plant anything at all? "Yorkshireman" gives us no encouragement to plant the common Spruce nor Silver Fir; the Scotch Fir is a failure with him; and now he tells us that he would not advise anyone to plant the Larch or its substitutes (although the latter has yet to be found) on an extravagant scale, his reason being principally founded on the fact that it is calculated by some that our "coal-pits will be practically exhausted in about a hundred years, and in some cases even before that period, and before the crop of Larch planted now shall have come to maturity." Such may be the case in Yorkshire, but I can tell the writer that we are still finding new coal-fields north of the Tweed. No doubt everyone will continue the culture of the Larch and other hardy useful timber trees, more especially the kinds that have proved suitable for clothing our barren heather hills and waste peat bogs, and should they not be wanted for mining purposes, we anticipate a brisker demand than ever, as timber will then be wanted in large quantities to take the place of coal for fuel, and in this respect I think we can see a little further into the future than some of your writers.

J. B. WEBSTER.

### THE CORSICAN FIR.

"YORKSHIREMAN" has now, it seems, told all he knows about this Fir, and everyone may draw his own inference as to the value of the information he has given in the matter. "Glendye," he says, "is one of those persons who objects to being convinced against his will." What he means by that does not much matter, for I do object to being convinced when there is a want of authentic evidence to prove a case; that is, I cannot accept many of the fanciful propositions of these times paraded for acceptance on mere speculation. "He ('Glendye') will, I hope, take same little pains, and more than he has done in the past, to inform himself on the subject." That remark is not bad considering that "Yorkshireman" knows so very little about the subject himself. He says, "I can at least show it (the Corsican Fir) from about five to seven years old." . . . "I have given 'Glendye' assurances in regard to this Fir, and the way in which it thrives in Yorkshire." If "Yorkshireman" could have assured us of the realised price of an acre, of the matured timber of the Corsican Fir, that would have been an actual assurance; or, if he could have shown me a small plantation of the Corsican Fir ten times the age of those upon which he founds his calculations, I might probably have travelled as far as Yorkshire to see them to look at his seven-year-olds. In forty years

hence these Pines will be worth a visit, should they be alive then. While Corsican Firs of the age "Yorkshireman" names can be seen in almost any part of the kingdom, I know of two or three pretty large plantations of Corsican and Austrian Pine, twice the age of "Yorkshireman's," doing well and promising, at the present rate of growth, a splendid product; but all this in quite a different climate and soil to that in which we generally plant the Scotch Pine here. Perhaps "Yorkshireman" will adduce some particulars concerning the soil and subsoil in which he is growing the Corsican Fir. This is not the first time such information has been solicited. Hitherto he has been too abstruse in particulars.

"I believe," says "Yorkshireman," "that several of the Scotch and English nurserymen could furnish the information he wants." How an English or Scotch nurseryman could furnish the information regarding the following proposition is not quite clear, viz.: "If I were to plant for profit," &c. No, I cannot go to a nurseryman for information on that head; it is to those such as "Yorkshireman" to whom I must apply for information on the point.

Now, it does look as though "Yorkshireman" did not exactly comprehend the extent of his own proposal. In publishing such a proposition he is seeking to induce and bias others to concur in what he proposes. However, he must be very sanguine, indeed, if he fancies such dubious propositions will pass unnoticed. See, says he, behold: "There were, or are, good trees of it on the Corstorphine Hills, near Edinburgh, which were tall trees ten years ago, if the late gales have not damaged them. . . . On the Mendip Hills; also at Lilleshall, near Donnington, on the Stafford and Shrewsbury Railway, and Mr. McLaren, the forester there, can report on the quality of the timber." Certainly if it please Mr. McLaren to do so; it will afford pleasure to many to read his report, but let us trust it will have more substance about it than "Yorkshireman's" propositions.

It is not so long ago, if I rightly remember, since the Austrian Pine was all the cry with "Yorkshireman," but tastes change, so do opinions, and doubtless "Yorkshireman's" will change very frequently in coming years.

"I fear 'Glendye' practises under adverse circumstances." Yes, truly, very adverse; so much so, that we never think of planting the Corsican Pine in the conditions in which we commonly plant the Scotch Pine with the greatest success here. Concluding the contention between "Yorkshireman" and myself, I consider the Corsican Pine has about as much claim to be named a substitute for the Scotch Fir as the Douglas Fir has to be called a substitute for the Larch, and that is not much.

Mr. A. D. Webster, writing from North Wales, says: "Apart from the controversy now going on . . . I consider the Corsican Pine the most valuable of the Pine tribe as yet introduced into Britain." Now, I am not going to argue anything about that, because I agree the tree is valuable, and especially valuable, when assigned and confined to congenial conditions; but what I contend is that it cannot be planted promiscuously without any regard to its proper disposition. Than that fine maritime situation and mild climate of North Wales from whence Mr. Webster writes there is nothing better and more conducive to the growth and well-being of all kinds of trees (to be found) in any other part of these islands. The Corsican Pine particularly delights to luxuriate under the influence of marine climate. I

do not suppose Mr. Webster has planted the Corsican Pine at Penrhyn much above 300 feet mean sea level, and in fairly good soil, and pretty well sheltered from sea gales.

GLENDYE.

### MANAGEMENT OF OAK COPPICE.\*

A CONSIDERABLE extent of the woodlands of Scotland, particularly in the counties of Argyle, Dumbarton, Stirling, and Perth, being occupied with a crop of Oak coppice, its treatment and management form a most important branch of the forestry of Scotland. Oak coppice is grown for ornament and shelter, as well as profit, on many estates, and we have only to glance at it as it decks the shores of many of our most beautiful Scottish lakes, or contemplate it as it clothes the rugged slopes of some romantic mountain or deep glen, to realise how peculiarly appropriate it is, and how well adapted to contribute to the wild grandeur and natural scenery of these Highland situations. Even in the vicinity of a mansion-house there are many portions of ground, as, for example, on the sides of a drive, or in a belt on the outskirts of the lawn, where it may be desirable to have an extensive view, and at the same time concealment from the outside, where Oak coppice, interspersed with a few standard trees, forms the most suitable crop. When these places are divided into nearly equal portions and managed in a systematic manner, part being cut over every year or so according to the extent, they form a very useful and, in some situations, a most ornamental screen to those parts where tall-growing trees might be objectionable.

Whatever be the extent of coppice plantations on an estate, they should be apportioned and treated in succession. If there is sufficient acreage to allow a portion to be cut over every season successively, it is beyond all question the most judicious and profitable plan; this method enables the forester and proprietor to have an almost accurate estimate of the expense that is to be annually incurred in the rearing and cutting over of these, and keeps up an almost regular annual income from the plantations. If, for example, an enclosure of about 100 acres is divided into, say, four portions of about equal size (according to soil and other local peculiarities), and one of these cut over every five years, it keeps up the ornamental appearance of the district much better than if the whole plantation were cut over at one time. Another important advantage, especially in high-lying and exposed situations, is, that it tends to keep up the shelter that stock and crops derive from the proximity of plantations. The preservation of shelter should always form a primary consideration in determining the extent that is to be cut over in one season.

In very exposed situations, where shelter is really indispensable to the increased fertility and proper cultivation of the soil, as also to the health of the stock, it is almost impossible to over-estimate the bad effects that follow its sudden removal. When the productiveness of the soil has been increased by the influence of plantations, it is of paramount importance that it should be continued; when it is injudiciously and suddenly removed, the soil not only decreases in productiveness, but in some instances we have seen it incline to return to its pristine sterility. Wherever shelter is a primary object, it should be the aim of the forester, in apportioning and arranging the time of cutting over

\* A paper on "The Treatment and Management of Oak Coppice in Scotland" (from the Highland Society's Transactions), by Andrew Gilchrist.



the plantation, to preserve as far as possible a certain amount of shelter to the district. This, and the proportion of any plantation that is to be cut over in one season, must be determined by a careful study of the peculiarities of the situation, nature of the soil, &c.

**TIME FOR CUTTING.**—No absolute law can be laid down regarding the exact age at which Oak coppice should be cut over; this can only be properly determined by the appearance of the crop, which to a considerable extent depends on the soil, situation, exposure, and method of rearing. It is from the appearance and condition of the bark that the most profitable time to cut must be determined. On damp soils the bark is frequently covered with Mosses and Lichens; it becomes rough in the exterior at a much earlier age. On such inhospitable soils we have seen instances where it would have been a decided advantage to the proprietor to have cut it over at fifteen years instead of leaving it for twenty; generally it should be cut over as soon as the annual growths begin to show signs of decreasing in vigour; it has certainly been left too long if the shoots have begun to dwindle to a dwarfish curled spray. When they are not cut over till this stunted state of growth has taken place, the value of the bark will be considerably lessened, as there will be a deficiency of circulating sap. The *liber* or inner bark of these stunted trees is thin, and contains but little tannic acid; it takes a greater quantity to make a ton, and a limited supply of ascending sap makes its removal difficult and expensive. The rate of growth on poor soils and exposed situations is at best generally slow, and long exposure impairs the vital energies of the tree, gradually causing it to become stunted and hide-bound; consequently it is also most profitable to cut over these early.

**TIME FOR BARKING.**—On suitable soils the bark is generally at its best after twenty years' growth; at this period, if the trees are in vigorous growth, the bark contains a greater proportion of tannic acid than at any other time. The bark of old trees of slow and impaired growth is generally thick in the cuticle (or corky bark), consequently it is of less value to the tanner; but even old trees, that have but a thin exterior bark and a greater proportion of cellular matter, are often deficient in circulating sap; therefore, there is but a small proportion of tannic acid found in the bark. Generally speaking, the best bark is obtained from trees that are in a healthy growing condition, which not only have a large supply of ascending sap, but a greater thickness of *liber* to retain the sap as it ascends. It is during the ascent of the sap before the leaves have expanded that most tannic acid is present; after the leaves have fully expanded, the quality of the bark is not nearly so good; when the ascending sap reaches the fully-expanded leaves, exposure to the atmosphere causes it to be carbonised, and the cambium as it descends gives the inner layers of the bark a brown colour. Bark peeled after this takes place is comparatively deficient in astringent matter, and it takes a greater bulk of it to make a ton; and another disadvantage is, that the late cut stools send up much weaker shoots than those that are cut in the early part of the season.

**METHOD OF CUTTING.**—After determining the most suitable time at which the coppice is to be cut, the first thing to be done is to go over the plantation and select a few of the best-looking and most tree-like shoots, and mark them with paint, to be left at intervals over the whole of the ground; these should not exceed twenty to the acre, and even this number should

be cut over with the next crop, and not be allowed to grow till they cover a large space of ground, as they through time overshadow the coppice shoots, and cause some of the stools to die out.

Where ornament is an important consideration, it is a common practice to leave a considerable number of old standards at equal distances over the ground; still, though this is desirable for the sake of appearance, it is often carried too far for the profitable growth of coppice. Large numbers of old branchy wide-spreading trees will prove hurtful, and through time exterminate the coppice stools. Wherever a number of standards must be interspersed with coppice, they should be brought up under a judicious system of foreshortening, and the strongest and most wide-spread of the side-branches restrained and kept from overshadowing the coppice. Before commencing to cut over the shoots, the proper method is to send a person with a handbill, peeling iron, and a mell, and instruct him in the first place to press down with his foot all the soil round the collar of the stool (or shoots), and then with the handbill cut through the bark to the wood, making a ring all round the base of the stem of each shoot, not more than 2 inches from the surface of the ground; a similar ring is cut about 30 inches higher up on the boles, and the bark between the cuts is removed for the purpose of preventing it from being rudely torn from the stool during the process of cutting over the shoots. It also serves as a guide to those who cut over the shoots, causing them to cut so as have a low stool. When the axe is used for cutting, the stools should be sloped slightly up from two sides, so as to leave them with a sufficient convexity to prevent water from standing on their surface. It is absolutely necessary that the axemen who are employed should be ambidexters, and most expert and neat-handed men; when men of this class are employed, they very often take an interest in the work, and exert themselves to try how low and neat they can make the stools. With good clean-cutting axemen the axe is better than the saw for all shoots below 6 inches in diameter.

On sloping ground the expert ambidexter, by standing on the high side, can cut over the shoot neatly with the slope of the ground, while those men who can only use the one hand always leave a rough surface on the stool, and the one side higher than the other. When the work is performed by these unpractised men, the stools are often too high above the surface of the ground, and the shoots that spring from these are never so strong as those that grow from low stools, where they are able to send out individual roots into the soil. When the cross-cut saw is to be used in cutting over strong shoots, in order to prevent the stool from being injured by the shoot falling, and tearing part of the outer wood, they should be laid in, and then neatly faced with the axe on that side on which the tree is intended to fall. As soon as the shoots are cut, the stools that have been sawn should be dressed with an adze, the outer edge being reduced to the level of the surface of the ground, so as to form a slight convexity to prevent water from standing on the stool. It is generally best to keep the most expert woodmen felling, and some less experienced, following with light axes, pruning of the branches from the bole; and these are followed by others with handbills, who prune out all the branches to about an inch in diameter. This part of the work is light, and should be done in a most active and expert manner. The operator, as he prunes out the branches, should cut them

off in handy lengths of about 3 feet, and leave them collected in heaps ready to be carried by another set of men to the peelers. During the time of pruning the men should be instructed to preserve as many forked branches, similar to Y as possible; these should be from 3½ feet to 4 feet long, and are required for the erection of the drying ranges. The peelers are arranged on the sides of a plantation road or other suitable place where the work can be carried on without injuring the stools, and at the same time not at too great a distance from the cutters, and also convenient for the removal of the wood and bark. The whole of the wood should be carried to these suitable places for the peelers.

**STRIPPING THE BARK.**—The peelers are each provided with a peeling-iron and mell, and those who are to peel the smaller wood have a smooth stone about 10 inches square by 6 inches deep. A few of the best peelers are started to peel the boles and strongest pieces of wood; the bark on each bole is first cut into about 3-feet lengths with a handbill, and then taken off with a peeling iron, great care being taken to keep the bark in as large pieces as possible. It greatly facilitates the work when each pair of these peelers is provided with one or two of what is technically called a *horse*; on these they lift one or both ends, and are thus the better enabled to take off the bark speedily and in large pieces. As soon as the bark is stripped, it should be laid in heaps with the fleshy side down, ready to be carried to the drying ranges. Those who peel the smaller wood generally sit on the ground with the wood to be peeled on their left side, and they start the bark by beating the piece of wood over the stone with the mell. When the bark is in good condition for peeling, a very moderate beating generally causes it to open from the wood, when it is easily taken off in one piece with the hand without the aid of the peeling iron; but it sometimes happens that the iron is required, especially with the stronger branches. Severe beating with the mell should always be avoided, as it injures the bark and lessens its value to a considerable extent, causing it to contract mould, and making it more difficult to dry. When the bark is stripped off it is laid on two pieces of wood on the right-hand side of the peeler, and thus as it is taken off it is built up nearly into a bundle, keeping the white side of each piece undermost. The various pieces of bark composing a bundle vary considerably in length; but they should be all stretched out to their full length, and any very short pieces laid in the middle, while attention is paid to keep one end of the bundle neat and even. The bark that composes the bundle is not compressed together, but all the pieces are laid in a careful manner, so that they can be readily lifted in a rope and carried to the ranges, and laid on these in a neat and even way, keeping the even ends of the bundles all on one side of the range. This neat and careful method of laying the bark in bundles as it is stripped off is easily done, and saves a great deal of sorting and gathering, as the bark is readily laid out on the ranges without the bundle being tossed and ravelled; indeed, it is an advantage to the handling of the bark all through the time of drying and working.

**DRYING THE BARK.**—The ranges should be erected on the most dry and airy situation that can be got in the wood. The best way is to drive in two rows of forked sticks into the ground, about 4 feet apart, opposite to each other, and about 30 inches between the rows, and leave them about 3 feet high above the ground, laying on other pieces of wood, and making the range in the form generally adopted.



The ranges are sometimes put up with a considerable hang, so that the one side of the bark is higher than the other; this practice cannot be recommended, as it allows the water that falls on the high side to run inwards and pass down through among the bark to the lower side. A very little hang on the range is all that is necessary (at most not more than 2 inches), as when the bark is laid on to the range, with the even ends of the bundles all to one side, it gives a considerable amount of slope to the bark sufficient to carry off the water without risk of it being admitted at the high ends of the bark.

The erection of the ranges and laying out of the bark should be entrusted to a careful and experienced man. A person should either be kept regularly carrying the bark to the ranges, or each peeler caused to carry his own bark every two and a half hours; when this system of going to work is adopted, the superintendent should be present at the ranges when the bark is brought in, to see the quantity and quality that each peeler brings in, and at once check every appearance of carelessness.

When laying the bark on to the ranges, the outside should always be kept uppermost, and the bark laid not more than 18 inches deep, and the whole covered over with the largest and most flat pieces of bark, laid on in a way that will carry off the water from the range; in fact, the most particular attention should at all times be paid to prevent it from being even slightly saturated from water. "In the presence of moisture, tannic acid exposed to atmospheric agency absorbs oxygen, and is converted into gallic acid, a compound which is of no value to the tanner;" neither should the inner side be exposed to the influence of the sun, as it evaporates the juices that are most useful to the tanner. When the bark has been on the ranges for three or four days, it should be turned, or rather shifted, so as to keep it in an open state; this permits the air to circulate freely among it, and prevents it from becoming mouldy. Properly-cured bark breaks freely, and has a light cream colour, but when it has been damaged by exposure to the weather it is brown-coloured. This at once indicates that part of the astringent matter has been extracted by exposure to unfavourable influences during the drying process. It generally takes from two to three weeks to dry Oak bark, but with favourable weather we have had it properly cured in eight days. As soon as it is considered to be sufficiently dried, it should be carted into a shed or built into an oblong stack, where it is chopped into pieces about 2 inches square, and put into bags ready for removal to the tanner. When it is built into a stack, it should be thatched, and a large tarpauling erected to keep off rain during the time it is being chopped and bagged.

Ranges are very often carelessly put up. We have seen instances where the one end of the range rested on the ground, and the other not more than 2 feet high. It is obvious that bark laid on in this careless way cannot dry so fast as it does when on properly-erected ranges; and besides, when the ranges are put up in this sloping fashion, the water naturally inclines to run down among the bark, thus causing a considerable waste of tannic acid. The bark being laid so near the surface of the ground, the drying winds do not circulate so freely through among it; consequently, in the best of seasons it takes longer to dry, and the quality is very often much inferior. Surely, if it is worth while to strip the bark, it ought to be carefully and properly cured. Where there is annually a considerable quantity of Oak bark to be dried, it would pay to keep portable sheds with shelves

in them for drying the bark. With these, an improved quality of bark would doubtless be produced.

When the bark on the shoots is partially covered with a growth of Mosses, it should be scraped off with an iron scraper previously to the bark being taken from the tree, as when this is not done it deteriorates the quality of the bark considerably.

During the progress of the work the superintendent should see that everything is going on with the greatest possible activity and regularity. The peelers should not be allowed to lag behind the cutters; on the contrary, let them be so close up to them that while they may not be out of wood, there may at the same time be but a small quantity of unpeeled wood left over-night, as it gets much stiffer to peel the longer it lies after it is cut. The state of the weather affects the progress of the work. A genial shower after cold weather makes the stripping much easier, and gives a better quality of bark, while continued drought has the opposite effect. There is a great deal connected with the stripping and drying of bark that can only be learned from having participated in the work. When the hands have been hardened with the use of the various tools it becomes a much easier matter for a man to lead on others with expedition. The peeling is generally performed by women, and, along with the drying, costs 35s. to 50s. per ton, according to the size of the trees, rate of wages, and other circumstances.

As the cutting and peeling advances there should be a party following burning up the brushwood, so that the growth of the young shoots may not be obstructed in any way; it is very bad management to delay this and the collecting of the wood till after the peeling is finished. The young crop is sure to sustain permanent injury if these operations are delayed till the shoots have begun to grow.

In another paper will be given the mode of planting, thinning, &c.

#### DESTROYING TREE ROOTS.

THIS may be set about in a variety of ways. The most effective way of all is, of course, to grub the trees, and so bring out the tree and roots entire. This, however, is not very generally done, so when the trees which have been felled by the saw are removed, the difficulty of getting rid of the roots remains. The time-honoured plan of extracting them by cleaving them with beetle and wedges may still be followed to fill up spare time where the numbers are not very great, but on a large scale the process would be tedious and expensive. There are, however, two methods by which it may be done more expeditiously, viz., either by the use of explosives or by burning. With respect to the former, accounts have from time to time appeared as to the successful use of dynamite cartridges, and the plan of cleaving by gunpowder is well known. Whether the suitability of lime cartridges which have been used in mines has ever been tested we do not know. It is not to the use of this class of agent that we now particularly wish to refer, but to the adaptability of some of the plans of burning. There is a method in vogue in America which consists of boring a 2-inch vertical hole into the stump to be burned, and of making another in a horizontal position close to the ground to meet it. A channel or flue is thus formed for the air, and if some burning material is dropped down the vertical hole, it is stated that the fire will continue to burn until the interior of the mass is

consumed. There are one or two drawbacks to the introduction of this plan here exactly in this shape, viz., the less resinous character of most of our woods, and the necessity, for the sake of the timber, of cutting the trees off much closer to the ground. As a provision for the lack of resin some have advocated the saturation of the wood with petroleum or some other inflammable substance. This, of course, would add to the cost, and if done must be effected by means of a vertical auger hole which very nearly, but not quite, reaches through the substance of the root. If continued completely through, the liquid would, of course, simply soak into the soil and thus defeat the purpose intended.

That fire burns very strongly through a small aperture, anyone who has observed the burning of a log which has had a hole bored through it will know. If anyone has not particularly noticed this, if they will bore a hole through a small log and place it upon a dull fire, they will soon discover that the centre will be burned almost entirely out before the outside is aglow. We have not had an opportunity of testing the plan practically, but from these facts we conceive that if, after the vertical hole had been bored, either completely through at one operation, if no inflammable substance was used, or finished subsequently if it was, and sufficient earth removed on the windward side to form a channel of communication, underneath the root, with the vertical hole, and some inflammable material was placed in this channel and lighted, that the interior of the root would continue to burn until little more than a shell would remain, which could then be easily dealt with. It may be that some such plan as this has been tried, but as we have never heard of it, if any reader could give his experience about it, it would be interesting to know the result.

D. J. Y.

**Larch diseased (*Nemo*).—**The name of the fungus on the Larch branches sent is *Peziza calycina*. At one time a limited number of observers considered this fungus to be the cause of the worst form of disease in Larch. The general idea now is that the fungus is harmless, and only grows on the injured or decayed parts. Your ideas and experience of this fungus would no doubt be very acceptable to readers of *Woods and Forests*.—W. G. S.

**The saw in tree pruning.**—I am among those who object to the use of the saw in tree pruning. Where timely pruning with the knife has been neglected, rendering the use of a saw necessary, I question whether it would not be better not to prune at all, unless it be for the purpose of admitting light and air. A large wound made by cutting off a limb of a tree may heal over, to outward appearance, leaving no defect; but when the tree comes to be sawn up for use, the injury to the timber will be perceptible. I do not approve of the fashion of pruning to naked poles; I would have a well-balanced tree feathered from bottom to top.—G.

**Native trees injured by frost.**—Is the Oak or other timber trees ever injured by frost in this country when not in leaf? The question has cropped up more than once in connection with alleged cases of injury by the fumes from furnaces, and is a moot point. In one part of Yorkshire I am acquainted with, it is said by old woodmen that the Oaks have never recovered the damage done by the severe frosts of 1860-61. During that winter, I am told that for a considerable while the trees were thickly coated with ice to the very extremities of their branches, and to that some attribute the marked decay which certainly prevails almost everywhere in the district; but, on the other hand, the excessive drainage caused by the coal-pits, &c., below, and the smoke emitted by them above ground, are also blamed for the mischief, and no doubt deserve it in a large degree. The question is, Are our native and foreign forest trees likely to suffer from such frosts as we ever experience in this country?—Y.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## INDOOR GARDEN.

### CULTURE OF GLOXINIAS.

FOR conservatory decoration, through the late summer and autumn months, Gloxinias have few equals; they are extremely showy, and last a long time in beauty; that is, if during the growing period they have had right treatment. Both upright and drooping flowered kinds are beautiful, and for the sake of variety, both should be grown. The spotted kinds, too, which created such a sensation in Paris when exhibited some years ago by M. Vallerand, with whom they originated, have a charming effect. For summer blooming, and in order to obtain a succession from June onwards, potting of the tubers should be commenced about the middle of January, and others should be potted a fortnight or a month later. As to compost, some use loam with a little leaf-soil, others employ nearly all peat, and many prefer a mixture of two or three different soils. M. Vallerand, above alluded to, considered peat with some leaf-soil and silver sand to be the safest of all mixtures for Gloxinias. The spotted varieties, however, are rather more delicate than ordinary kinds, and consequently are apt to suffer at the root when given a rich compost; therefore, in all cases it is best to be safe, and use soil not liable to become close or water-logged, and administer nourishment in the form of liquid manure when there is a sufficient quantity of roots to quickly utilise it. The finest plants I ever saw, however, were grown in loam and rotten manure, the foliage being almost phenomenal in size and the flowers very numerous, and of unusual dimensions. They were in 6-inch pots, and many of them carried quite fifty blooms. They, however, evidently represented a coarse-habited, vigorous strain, the flowers, though very showy, not exhibiting so much refinement as one likes to see in Gloxinias, and I much doubt if the best named kinds could be grown in that way; the strong food would probably, at some critical moment, induce torpidity of the roots. It is the same with Gloxinias as with many other plants, particularly those having rather delicate roots. They demand very careful and judicious watering when much nitrogenous food is used. If they get this, they probably flourish exceedingly; but any slight mistake is injurious to an extent which can scarcely result from the employment of a poorer soil. If loam is used to any extent in Gloxinia culture, it ought to be of the very best description, and in any case I should recommend quite one-third of rather fine peat to be used, with a little leaf-soil, unless there is some thoroughly decomposed manure at hand which has been turned over many times to sweeten, and which can scarcely be distinguished from soil. I have grown Gloxinias very much to my satisfaction in this material alone without peat or sand of any description, but it was quite four years old, had been turned over a great many times, and was therefore quite sweet and good.

THE TUBERS may either be put in their blooming pots or in small ones, shifting them later on. The former method is more economical as regards labour; the latter is the safest.

There is great danger of the comparatively large body of soil contained in a 6-inch pot becoming sour before the roots can occupy it. For a moderate sized tuber a 2½-inch pot is large enough until the foliage begins to develop freely and there is but little danger of over-watering. For large tubers, 4½-inch pots will be needed, draining them well. In this early stage of growth, a very sandy compost should be used, as all depends upon the freedom with which root action commences. Gloxinias require an average day temperature of 65°, with a few degrees less at night; they like plenty of moisture in the atmosphere, but they ought not to be wetted overhead. They should also have a light position from the time they begin to grow freely. They should grow quickly, but sturdily, and when the leaves are drawn up and flaccid-looking, they lose that compactness of habit which is a pleasing characteristic and renders them so valuable for decorative purposes. As the days lengthen and solar heat increases, they will need a slight screen from the sun during the middle of the day, and sufficient air must be admitted to solidify the tissues. It is only when the leaves acquire the substance natural to them that flowers of good quality are produced. In the early stage of growth, watering must be carefully conducted; the soil should become nearly dry before water is given, but later, when the plants get into free growth, much harm will result from allowing the roots to get quite dry. Gloxinias need much watchful attention in this matter; in fine weather they should be looked through in the morning and afternoon, and when they are coming well into bloom and the weather is hot and drying, they should be looked to in the middle of the day as well. When the pots become well filled with roots, which they should be from the time the flower-buds appear, weak liquid may be given twice or three times a week, and will greatly influence the size of the flowers. It must, however, be used much weaker than is customary in the case of the generality of flowering plants, for the tender roots can soon be destroyed by over-stimulation.

IN A COOL HOUSE, from the middle of June onwards to the close of the season, Gloxinias do well, the only particular care required being to guard them against the rays of a hot sun and cold draughts, at the same time admitting plenty of air in fine weather, and light enough to keep them in health and vigour. In hot, dry weather the paths and stages should be frequently damped down, and in periods of exceptional heat and drought the foliage may be refreshed occasionally by watering overhead with a fine-rosed pot, carefully avoiding wetting the flowers. The morning is the best time for doing this, as then all moisture is sure to dry off by night. From the time the flowers fade, and until the foliage decays, the amount of water given must be gradually decreased, and when the leaves have turned yellow, the pots may at once be turned down on their sides. The tubers should be wintered in a house the temperature of which ranges from 50° to 55° through the winter. If kept colder than this they are apt to lose vitality, and if kept in a higher temperature they do not get that period of complete repose which it is natural for tuberous-rooted plants to enjoy. When, in times past, I grew Gloxinias largely, I found that the tubers kept best in the old soil, not in any way disturbing them until the time for potting them again came round. They may, however, be safely preserved in coconut fibre, or in any similar dry material, and to the generality of growers this will probably be found to be the most convenient method of wintering them. In any case, be very particular

that they do not get wet, for they will either rot or start prematurely into growth. The raising of Gloxinias from seeds seems to be increasing in favour, more especially because when seed from a reliable source is obtained, the plants obtained therefrom equal the named sorts; indeed, some of our leading seed firms have now quite given up their growth.

IMPROVED STRAINS are obtained by means of rigid selection. A half-crown packet of seed will yield as many bulbs as would demand the expenditure of twenty times that amount if choice named varieties were bought. If sown in March and the young plants grown along freely through the summer, they will be ready to bloom just at the time when old bulbs are going out of flower. Gloxinia seed is very fine, and should be covered with silver sand only, putting a pane of glass on the pot till germination takes place. If the soil is watered before sowing and the pan is stood in a close place, little or no water will be needed until the plants appear. If confidence can be placed in the quality of the seed, sow very thinly, so as to avoid overcrowding until the plants are large enough to be safely handled, when no time should be lost in pricking them out into pans nearly an inch apart. Then, by transferring them to small pots and shifting on as required, they will by the end of July come into 5-inch pots, which they ought to fill with roots by autumn. If there is any doubt as to their ability to do this, be content to get them well established in those of a size smaller, for good specimens carrying a score of blooms can be grown in 4½-inch pots, and for many purposes these are the handiest, especially where plants of moderate size are required for room decoration. The soil required for seedling Gloxinias should, in their earlier stages of growth, be much finer than that employed for potting the tubers. It should consist mainly of peat, with a rather liberal admixture of leaf-soil and quite one-fifth of silver sand. Hard potting should never be practised with Gloxinias; a smart tap or two on the bench will settle the soil sufficiently without pressing it in with the fingers—in fact, as regards both potting and watering, Gloxinias require a light hand. As before mentioned, they ought never when in growth to become quite dry, but they will be sure to suffer if heavily watered. One of the best Gloxinia growers I ever knew said that little and often was his rule, and I think, too, that the amount of liquid nourishment they require does them more good when administered in smaller doses than it is customary to do in the case of the generality of flowering plants grown in pots. For winter blooming a light position is needed where a constant temperature of about 60° is maintained. If the plants have been well grown, they will continue to throw up blooms all through the winter; and they are invaluable where choice flowers are occasionally in request at that time of year. In a cut state they harmonise beautifully with other flowers and the delicate fronds of Maiden-hair Fern, but of course they can only be used in rooms which are constantly heated. I think that those who may never have grown Gloxinias for winter bloom would be much pleased with them. J. C.

*Byfleet.*

**Chrysanthemum Miss Rose.**—This, in my opinion, is the best single Chrysanthemum grown, an assertion borne out by all who have seen it growing here in company with other kinds, new and old. In habit it is remarkably free and bushy, and bears delicate blush pink blossoms. The petals are somewhat pointed, a character which gives to the bloom a



light appearance. It has but one row of petals; therefore strictly a single flower, and not semi-double, as many of the so-called singles are. It is a capital plant for growing in small pots, that is to say, pots 5 inches or 6 inches in diameter. We have a few of it grown in this way that were struck in May; they are now neat little bushes about a foot high, and profusely laden with bloom. In a cut state too they are much admired, being to all intents and purposes pale pink-flowered Marguerites, white kinds of which are now so much sought after.—H. P.

### PLANT HOUSES IN WINTER.

THAT winter has commenced there can be no doubt. Some writers are apt to associate only hard frosty weather with winter, but cold, dull, wet days, with mud underfoot and darkness overhead, are, as far as plants are concerned, really as much winter as frost and snow. These conditions of wet and darkness require from plant growers constant attention and supervision, as they are hostile to plant life. Several little matters require attention at once. If there are any cracked or broken squares in frames or greenhouses, let them be repaired; and if drip is caused by any slight openings, they should be stopped. Nothing is worse than constant drip falling on plants or soil during the dead season of the year. Although cleansing of the interior of the house should be a precautionary act on the approach of winter, a growth of green will sometimes gather on the damp part of the walls, especially if the house be as many plant houses are—unheated. This should be rubbed off, and the glass at the sides and on the roof made as clean and bright as possible. We have great faith in the value of as much light as possible for plants during the dull winter months; its importance cannot be over-estimated. Then it is necessary to keep both house and plants as dry as possible during the winter, watering but seldom, and only when the plants really need it. This work should be done as early in the morning as possible on a fine drying day, so that any water on the floor may dry up ere night sets in. And it is not well to overcrowd plants during winter, as it prevents the free circulation of air among them. Better to get rid of any that can easily be replaced in spring. Pelargoniums, Cinerarias, Cyclamens, and Chinese Primroses, being more or less active at this time of the year, should be as near the glass as possible, where they can have most light and air. They should also have the warmest position consistent with the requirements just stated. On all favourable occasions, too, air should be admitted, at the same time avoiding cold draughts. Some are far too anxious to set the fire going in their houses, and the plants suffer from over-dryness. If the weather be very cold, a little fire-heat may be an advantage; but, as far as practicable, air should be given at the same time, and on the opposite side of the house to that on which the wind is blowing. If a boiler and hot-water pipe are used, care should be taken that the soot be cleaned from it, so that the draught may not be interfered with. If an old-fashioned flue is em-

ployed, it also should be cleaned out ready or the winter's work.

If the house be an unheated structure, the best temporary heating apparatus is perhaps a good petroleum stove, with three lines of hot-water pipes. With a petroleum lamp having a powerful duplex burner, a good warmth is soon got up. A great deal of genial warmth may thus be distributed through the house, and the steam arising from the heated water keeps the atmosphere moist. The lamp should be kept in good order, and the best paraffin oil should be used, when there will not be much smell. Some smell, however, is inevitable from all petroleum lamp stoves; but it does no injury to the plants. Should green fly put in an appearance, fumigate with tobacco smoke at the close of a still, dry day. We always use tobacco rag; it goes farthest, keeps best, and is deadly in its operation. A few red-hot cinders placed in the bottom of an 8-inch flower-pot, and the slightly moist tobacco rag pulled into small pieces, make a good and ready-to-hand fumigating apparatus. As spring comes on, such plants as need it may be trained as required, and if the soil in the pots becomes sour, let it be removed, and some fresh and sweet material put in its place. Any pots, too, that have become green and slimy should be kept washed, taking advantage of a mild day on which to do it; but on no account within the house if it can be helped. Should a spell of hard frost set in, any tender plant should be placed in the warmest position until danger from this cause is over. It is a good plan in frosty weather to protect the front and sides of the house with mats or any such covering, and especially so on the side exposed to the north. This will help to reduce fire-heat, as in the case of prolonged frost, when air cannot be given, warmth from a flue, and the dry heat it generates, is hurtful to greenhouse plants generally.

In a cold house it is difficult to have much in flower at this season of the year, unless it be Chrysanthemums, Christmas Roses, zonal Pelargoniums, Chrysanthemum frutescens, and a few others. In a heated house a good succession of winter flowers can be had—Camellias, Hyacinths, Narcissi, Tulips, Crocuses, Primulas, Cinerarias, Cyclamens, Cytisus, Pelargoniums of the zonal type, Acacias, Deutzias, and others. In the case of a small house, but few of these are required. Let us recommend a few pots of *Ixias* and *Sparaxis*, and of the white *Gladiolus Colvillei albus*, also *Chionodoxa Lucilæ*, *Snowdrops*, *Crocus Imperati*, and the charming purple *Iris reticulata*. These have a claim on the side of novelty, and those who are successful with them (and they are not difficult to cultivate) will find greater pleasure in them than in commoner subjects, such as Cinerarias, Primulas, &c., useful as they are. D.

**Untrained Chrysanthemums.**—Mr. Woodfield, gardener to Sir Henry Thompson, East

Moulsey, showed the other day half-a-dozen Chrysanthemums, some 3 feet in height and about the same in width, and one mass of flower. Of supports they had very few—just enough to keep them together, and the result was plants worth looking at—plants just as effective in the conservatory as on the exhibition table. As much cannot be said for the specimen Chrysanthemums usually met with, which are stiff and formal, and often quite out of character. Of course, while prizes are offered for trained plants, trained plants will be forthcoming, but let us hope that in future prizes will be offered for untrained plants, and also for cut flowers accompanied by foliage.—GEO. CARPENTER, *Rydens, Walton-on-Thames.*

### ABUTILONS AND THEIR CULTURE.

A FEW years ago the number of Abutilons to be obtained was small, but a glance at trade catalogues reveals the fact that something like fifty hybrid kinds may now be had. Such an increase shows that they must be advancing in popular favour, a fact doubtless owing in some measure to their being capable of being brought into flower in winter. One result of the increased attention that has been paid to them is the production of a much brighter coloured race than hitherto existed. Where cut flowers are in demand, Abutilons are very valuable, being most prolific in the production of blossoms. Where the plants are large, they are very useful for cutting. For vases and similar purposes, an entire branch, with its drooping, bell-shaped flowers, is very pretty. Single blooms, too, can be put to various uses; indeed, the white varieties are now largely employed in the making of wreaths and crosses, now so much in demand. When thus employed, the centre part of the flower is generally removed, and the petals are often turned back, so as to form an open flower. This mutilation completely destroys the beauty of the blossom, yet it is frequently done, as the removal of the yellow brush-like centre renders the flower wholly white, and when open it appears larger than in its natural state.

A good way of growing Abutilons, where they are required for supplying cut flowers during winter, is to employ them to cover a back wall, or to furnish pillars or rafters in a house kept at a temperature somewhat above that of an ordinary greenhouse. In this way, if the plants are in good condition, they will flower continuously throughout the winter; indeed, they are seldom without blooms at any season. Where no such spot exists for their accommodation, they do well if planted out during summer and lifted in autumn. This latter operation needs to be done carefully; otherwise, if the roots are too much disturbed, the plants will suffer to such an extent, that it will take them some time to recover. The best to plant out are those that have been grown in pots for a year or two, as a compact ball is then formed, the roots from which never run away to the same extent as those of young free plants. I have seen the different varieties of Abutilon (but generally the white one) grown in this way for a supply of cut blooms. The plants had been used for various decorative purposes in a small state, and when the spring was sufficiently advanced, they were turned out of their pots and planted in the open ground.

With an occasional watering during summer, they yielded a great quantity of cut flowers; and in autumn they were lifted, potted in good-sized pots, and, with the assistance of a little heat, flowered throughout the winter. Grown in this way, the plants will bloom nearly all the year round. Besides the cut-flower supply, the dwarfier kinds form good pot plants that can often be used for table decoration. For this they should only be struck in the spring or



summer preceding. Abutilons can be propagated to almost any extent, as cuttings strike freely; indeed, in about a fortnight they are fit to pot off, always supposing, of course, in the first place that good cuttings are obtained. Besides this mode of increasing them, they can be readily propagated from seeds; yet, though the raising of seedlings and the watching for their flowering is very interesting they generally run up so tall and bare that they are of little use the first season, though of course, in the event of any showing exceptional merit, they can be propagated and grown on another year. Though, as just stated, something like fifty varieties are now catalogued, it by no means follows that they are all distinct, as, in common with many other subjects (*Chrysanthemums*, to wit), a distinctive name is by no means a guarantee that the plant is different from some of those already in cultivation.

After trying great numbers of varieties, I should take the following as a good representative dozen, and quite enough for any garden: Amongst whites, *Boule de Neige* is still by far the best, therefore the only white one that need be grown. Of yellows, I would grow *Cloth of Gold* and *Canary Bird*; the first deep yellow, the other of a paler hue. Of reds, I would select *King of Crimsoms*, dark; *Royal Scarlet*, light; *Eclipse*, orange-scarlet; and *Emperor*, deep crimson. Rose-coloured kinds might consist of *Anna Crozy* and *King of the Roses*. Purples—*Purpleum* and *M. Pynaert van Geert*; and striped, *Striatum splendidum*, orange-striped crimson. Besides, there are three very dwarf varieties, viz., *Scarlet Gem*, *Roseum compactum*, and *Vivid compactum*, that flower when but a few inches high. The double-flowered form of *A. Thompsoni* does not bring many blooms to maturity, most of them falling off, though grown under just the same conditions as the others. As a strong growing kind for a large pillar or some such spot, *A. venosum* is unsurpassed, the foliage being handsome, and the large, bright-coloured, beautifully-veined flowers remarkably showy. ALPHA.

**Chrysanthemum Cullingfordi.**—Among new *Chrysanthemums* many had better have never been distributed, for instead of being any advance on existing varieties they are quite the reverse, and after a season, or perhaps two, many of them will disappear, never to be seen again. On the other hand, a few good kinds have made their appearance, and foremost amongst them stands *Cullingfordi*, a kind that already has become very popular. It is a free grower, good in habit, and has ample foliage, of a rather distinct type. Its flowers are very full, and it belongs to the reflexed class, though it is quite as much entitled to rank as a Japanese variety as many others admitted to that distinction; now almost everything that does not strictly conform to the rules laid down for other classes is at once placed in the Japanese section. The blooms of *Cullingfordi* are large and symmetrical, the petals overlapping each other with great regularity, but its most striking feature is the rich crimson-red colour of the blossoms. Apart from the colour, too, the flowers have a peculiar velvety appearance, and the reverse of the petals being pale yellow, a striking contrast is the result when the blooms are in a partially expanded state. The extremely rich colouring of this flower has rendered it conspicuous beyond all others shown this autumn. Such a grand flower being of English origin should stimulate *Chrysanthemum* raisers to fresh exertion; up to the present the French, and latterly the Americans, have nearly enjoyed a monopoly in the way of new *Chrysanthemums*.—T.

5422.—**Tuberoses.**—I should advise "A. W." to throw his old *Tuberoses* away and buy new ones, which he can do at 12s. per hundred. I have seen

to-day 10,000 African *Tuberoses* just arrived, and which will be potted in a few days, and be placed in moist heat. The same cultivator is growing *Gladiolus The Bride* to the extent of 3000, and he has 1200 *Gardenias* in one house, all of which will be in flower at Christmas.—H. M. L., *Ravensbourne Lodge*.

### STORING FRUIT.

ADVICE on this subject, *i.e.*, the amount of care to be exercised in picking, the rejection of unsound and bruised fruits, and how the rest may be placed under the best conditions for keeping—is often given; but little is said about the fruit room itself. Do gardeners think the ordinary style of fruit room, and the usual method of storage therein, the best that could be devised? I, for one, do not. The prevailing style of fruit room is one usually fitted up with tiers of slat shelving, with spaces between each slat of from half an inch to 1 inch in width. These spaces are presumably for allowing the air free play around the fruit, which is recommended to be always laid out in single layers, in order, I suppose, that it may shrink and acquire that degree of skin-toughness which will the better enable it to withstand the vicissitudes of an ordinary fruit room. But, in addition to the slat shelving, some contain a grate, in which an occasional fire can be made in dull, damp, or frosty weather. Others there are furnished with a row or two of hot-water pipes, along at least one side, for use on similar occasions.

Now, such modes of heating are not essential in a fruit room if it be well constructed; and in one where this has been neglected there is even less need for fire-heat, for the admission of air from outside that is unavoidable, and which plays through the open spaces in the shelving, is quite sufficient to reduce much of the crop to the texture of leather, rendering it about as indigestible, without the aid of fire-heat, as it well could be. Fire-heat, slat staging, and single layers of fruit thereon ought, in my opinion, to be discarded, as one and all tend to render one half of the fruit uneatable, and to shorten the season during which it ought to be, by proper keeping, sound and usable. The easiest and best method of keeping fruit, and one which we have practised for years, is simply to take ordinary wine cases, halves and quarters, as different sizes are handy, line the bottoms well with short sweet hay, and take them on a hand-barrow to the orchard. There the fruit should be laid carefully in them, taken at once to the fruit room, and placed on close-bottomed shelves. Under such circumstances it will keep until April, and one year I kept some until June, but this was in sand. I need scarcely say that the greatest care is used in the picking and handling of the fruit. It may be thought that, when in single layers, fruit is more easily examined, and decaying fruit cleared away; but from many years' experience in storing fruit in barrels and boxes, I can say that only a small quantity is lost by decay or wilting. I can safely aver, too, that no such vigilance is required in the way of periodical gleanings as some would have us believe. The very act of searching for such is inimical to the good keeping of the rest, as we cannot see the side furthest from us; consequently the fruits have to be handled, and the oftener this is done the sooner will the bloom—the best safeguard to keeping—get rubbed off. In boxes this is avoided—at least, with me it is, for I simply commence using from the top, and go on until the bottom is reached; and not only does the fruit come out clear and clean-skinned, but as sound and firm as when put away. It may be

asked, "How do you get rid of decayed fruits?" To which I reply, "I simply leave them alone until I find them." "But will not one decaying fruit spoil many others?" "It will not." "How do you know?" "Because I have proved it, and in this wise: Many years ago I saw barrels and boxes opened in the spring which had stood thus packed from early fall, and out of the lot scarcely two dozen were rotten; but what struck me most was the fact that the fruit lying next the decayed ones were as sound as could be."

My advice, therefore, to those who have never tried the box plan is to give it a trial in this year of plenty, when room must in many cases be limited, and I will guarantee they will never go back to single layers on slat staging, and that they will have sounder and firmer fruit over a far longer period than they have hitherto had.—J. K., *Epsom*, in *Field*.

### ROSE GARDEN.

#### BRIERS FOR BUDDING.

IT is to be regretted that many who are fond of budding a few *Roses* do not make an effort to get the *Brier* stocks planted earlier than they generally do. If they knew how much the *Brier* lost in strength by the delay, they would certainly adopt earlier planting. We have many times proved that when stocks are planted by the middle of November, we get much stronger growth and more roots than when they were put in later, and not only that, but they start into growth earlier in spring, and are in a condition to receive the buds three or four weeks before those the planting of which has been delayed—no small consideration in the case of persons who want *Rose* trees as soon as they can get them. By planting as above suggested, we are often able to put in the buds at the end of June, and all the stocks are ready for budding by the middle of July; therefore, by autumn many of the buds first inserted have grown a foot or more in length, and many of them flower. When cut back in spring, they send out three or four shoots, and form good heads the first year. It will thus be seen that there is a great gain in getting the *Briers* planted early. We would also direct attention to the condition of the *Briers* before planting, for no small part of the future health of the *Roses* that they are destined to support depends upon whether the stock is in a suitable condition to fulfil the demands that will be made upon it. Those who wish for long-lived standard *Roses* must reject all stocks with hide-bound stems, as well as those which are small and weak. Hide-bound stocks are those with a fine grained brown bark—conclusive evidence that they are too old to support a vigorous tree—and not unfrequently they are more or less covered with a grey *Lichen*. For ourselves, we would much rather plant a *Brier* that might be considered too young than too old, for a young stock, kindly treated, may ultimately form a vigorous tree. We object to young stocks, principally because they are liable to get killed by severe frost should it occur immediately after planting; but persons who can afford them a sheltered position need reject only those with green stems full of soft pith instead of hardened wood.

In regard to the roots of *Briers*, we are of opinion that our nurserymen mutilate them too much. This is done, no doubt, with a view to get handsome straight-stemmed plants, but we think it a great mistake to do so. Such a short length of root-stock is left, that there is not surface sufficient from which roots can proceed to sustain the plant in vigorous health. What



can it matter whether that part of the stock which is buried is a little unsightly or not, if it affords more favourable conditions of growth? It, however, does more than that. If there is a good length of root-stem, the fixing of the plant in the ground is made more secure; and we all know how essential it is to have standard Roses planted so as to prevent wind-waving. Growers of standard Roses, are, we must say, too much in favour of high-stemmed plants, and the difficulty in the way of securing them against rough winds is not discovered until too late. Standards on stems 5 feet high may do very well in sheltered places, but in gardens much exposed to rough winds they ought not to exceed 3 feet, with the exception of a few just to break the line of sight, which may be 4 feet high.

In the matter of soil, Briers are too often differently treated. The common practice is to plant them in any out-of-the-way corner, where the ground is of the poorest description—a great mistake. Briers are not very particular whether the soil is heavy or light, but they like a bit of manure as well as any plant we know; and those who well prepare the ground by deep digging, and at the same time incorporate with it plenty of rotten farmyard manure, will find that they can grow much finer Rose bushes on their Briers, and in less time, than those who plant them in poor ground. It is surprising, too, how much more freely the bark runs in the case of well-nourished stocks, when it is time to insert the buds, compared with stocks in poor soil. The bud, too, we believe, takes more quickly when the growth is healthy than when it is not so; that, at least, is our experience. J. C.

## KITCHEN GARDEN.

### CUCUMBER CULTURE.

GROWERS of Cucumbers on a small scale do not often start to work before February, and if they must be grown in a frame on a bed of manure February is quite early enough. The best soil under all systems of culture is good turfy loam from the surface of an old pasture with a dash of manure in it, but if the soil contains wireworms they will prove very destructive, unless the whole is all carefully hand-picked. Where there is a house heated by hot water, the seeds may be sown early in January for spring and summer and about the middle of August for autumn and winter, and in the latter case, if they are intended to last well through the winter, they should be cropped lightly in autumn. The temperature for winter Cucumbers should be about 65° at night. In mild weather it may go up a few degrees higher, and in very cold weather it may drop a few degrees lower. The Cucumber plant does not require a great amount of soil to start in; what it does require is a frequent addition in the form of top-dressings on the surface afterwards; the bottom-heat may range about 75°, and this holds good whether the bottom-heat be obtained from hot-water pipes or from fermenting materials. To grow Cucumbers well requires some experience, as there are many little details of cultivation which are all very important to attain success, but which can only be obtained by experience.

**MAKING THE HOT-BED.**—If the plants have to be raised at home, two hot-beds will be required—a small one to raise the plants, and the other to grow them, unless we can wait till the end of March or beginning of April before putting out the plants; then the same bed will do for both purposes; but as a rule, early in the season Cucumbers do not succeed so well

if planted in a cooled-down bed. The application of hot water to horticulture has brought the old-fashioned hot-bed into disrepute in comparison with the favourable position it held with our forefathers, and less care is bestowed upon its construction. Nevertheless, the hotbed is found a cheap and handy way of forcing on many things by those who know how to make the most of it. The size of the hot-bed should be proportioned to the season and the work it has to do. For Cucumbers in February it should be 5 feet high at back and 4 feet high at front, and should be 2 feet longer and 2 feet wider than the frame. The beds should occupy a sheltered site, as cold winds in March will blow out a good deal of the heat. If the place is exposed the frame ground should be sheltered in some way to keep out cold currents, which prevent the beds heating regularly. The fermentation and mixing of the materials will take from ten days to a fortnight, according to their constituents, and during that time the materials should be turned over twice, throwing the outsides into the middle, and *vice versa*; any dry spots should be watered. Tree leaves, when available, are excellent for mixing with the manure; those from the Oak and Beech are best; from one-third to one-half of the bulk may be leaves. Tan and spent hops from the brewery are sometimes used to impart warmth, and all vegetable substances that contain moisture when placed in a heap will ferment and raise heat. When the materials have been brought into a nice genial, lively condition by shaking, mixing, and, if needful, watering, mark out the site of the bed by driving a stake down at each corner, and on the spot thus marked out build up the bed in a neat and regular manner, applying the right amount of pressure to make the heat regular and steady. The heap of materials when made into a bed is capable of creating a certain amount of heat; if thrown together loosely it will heat violently and then become cold; such a bed is of no use for the cultivation of anything, but if packed together with a moderate degree of firmness the heat will be regular, steady, and continuous. The best way is to apply the pressure either by treading or beating it down with a fork, building up the sides of the bed to a straight face, so that it stands firmly and about the same size at the top as at the base. When the bed is finished, put on the frame and insert a watch stick or a thermometer to tell the heat, and when the evaporation that settles on the bars inside the frame has become clear and colourless the bed is in a nice condition to receive either plants or seeds. Warm coverings will, of course, be required at night and perhaps occasionally on cold days.

**SOWING THE SEEDS.**—This should be done in 3-inch pots, one seed in each pot, and they may be planted out as soon as they have reached the rough leaf stage. One bushel of soil in the centre of each light will be quite enough to begin with, but it is very important that a little fresh soil should be scattered over the surface frequently. It tends to keep the plants in active growth and maintains a sweet, buoyant atmosphere. The soil should be placed in the frame a day or two to warm it before spreading it about, unless there are other means to do this. It is often advisable to buy the plants for the early Cucumbers, and then there is no occasion to start the bed quite so early. As a rule, plants can be purchased almost as cheaply as they can be raised at home.

**WATERING.**—This is a very important operation. In the spring it has to be done with care, and the water must be clear and free from lime (soft, not hard). It should also be of the same

temperature as the frame, and if there is no means of warming it the pot may be stood in the corner of the frame. In the early spring not much water will be required, as the vapour arising from the bed will both keep the soil and atmosphere moist, but when March sets in water must be given at the root and also over the foliage, sprinkling the surface of the bed to keep up a genial atmosphere. In the early season the watering and sprinkling should be done in the forenoon. After the days get longer and warmer they are best done in the afternoon, varying the time according to the season.

**VENTILATING.**—This, again, is a matter requiring care and attention, watching carefully the weather. On a warm, genial day a little fresh air will do good, but if the sun is bright and the wind keen and biting, shade in preference to giving much air. But shading, though at times necessary, is not an unmixed good, as its tendency is to weaken growth, and it must, therefore, be used with judgment.

**PRUNING.**—This is a necessary operation, but should be done with care, and in the early life of the plant should be done with the thumb and finger. When the plants have made a good honest rough leaf, pick out the centre bud. This will cause several buds to shoot and start away instead of only one; and this finger-and-thumb pruning will be enough for a considerable time if punctually attended to. Once a week at least the plants should be gone over, and all surplus shoots removed when but little advanced from the bud state. One of the great evils to guard against is overcrowding, but the regular weekly looking over will prevent that. As a rule, one plant in each light will be found better than more unless the light should exceed the average size. All shoots should be pinched one joint from the fruit. Later on in the season when the frame is full of growth of a kind that pinching will not avail, it may be necessary to use the knife, but the longer the knife can be done without the better. All fruits should be cut when in a fresh usable condition unless seed should be required, but seed-saving is very exhausting to the plant, and even if in ordinary culture the fruits are left to get larger than is required for table, they weaken the plants a good deal. Nice young fruits that have been grown quickly are best for both table and also exhibition.

**TOP-DRESSING.**—I have referred to the value of fresh soil in small quantities all through the season of growth, but when the plants have been in bearing some time something rather stronger is required. A very good reviver will be found in Amies' manure, which should be mixed with the soil used for top-dressing at the rate of two pounds to a bushel of soil. Sometimes a top-dressing of old cow manure in a mellow condition is very beneficial mixed with about half its bulk of loam.

**VARIETIES.**—Very long Cucumbers, unless a prize is offered specially for length, do not win. A nicely grown young fruit, with a neat handle in proportion to the length, which need not exceed 18 inches to 20 inches, evenly swelled, the closed-up blossom still remaining on the end of the fruit, will beat anything where judges understand their business. The Telegraph is grown a good deal, and takes a lot of beating, especially the true Rollisson variety. In some places popular fancy runs after varieties which carry more spines and are ribbed, but for general usefulness the smooth varieties should have the preference. At the head of the list I, therefore, place Telegraph, Model (Carter's), and Cardiff Castle. If grown in a frame lying on the soil, some means should be adopted to keep



them straight, and also to keep them from the soil, so that they may be of the same colour the whole length. Glass tubes are sometimes used, and they answer very well, and are moderate in price. I have seen cottagers, who grew Cucumbers, lay the fruits on a strip of slate, and make them grow straight by the use of pegs. Necessity is the mother of invention, and this and similar plans answer fairly well in default of better contrivances.

WITH HOT-WATER PIPES we need apprehend but little from wind or weather, though the moisture of the atmosphere, and also of the bed in which the plants are growing, will require careful attention; but otherwise the culture of Cucumbers is much the same under both sets of conditions. The nature of the heat from fire being dry and scorching, will call for more care, especially as regards the supply of water, special stress being laid upon the necessity for keeping the atmosphere charged with moisture.

PROPAGATION FROM CUTTINGS.—Where there is a hotbed and a glass frame, Cucumbers strike freely from cuttings, and so later beds may be planted with cuttings raised from the first set of plants. The best sorts of Cucumbers do not seed freely, and the seeds are expensive.

SAVING SEEDS.—Many growers make a speciality of seed-saving, all the handsomest fruit of the first crop being left for seed-bearing. It is a good plan to fertilise the fruits saved for seed of a shy-seeding sort.

DISEASE AND INSECTS.—One could hardly write a treatise in however humble a manner without referring to this subject. Gummy is the chief disease, and it appears to be acknowledged by good growers that stamping out is the best remedy. Strong moist heat has sometimes forced the plants out of it when taken in hand at the first, but clearing out soil, plants, and everything, and giving the glass a good clean with soap and water, and starting again with plants and soil from a new source seem to offer the best chance of getting rid of it.

MILDEW may be got rid of by the use of flowers of sulphur, green fly and thrips by fumigating with tobacco on two or three alternate nights, being very careful to fumigate only when the foliage is dry, and not using much heat. Red spider should never be allowed to enter. Water it dislikes, and if the atmosphere is sufficiently moist it will not enter, and the same means that will keep out the red spider must be employed to oust it when it gains a footing—namely, plenty of water.

E. HOBDAY.

**Carpeting bulb beds.**—When “J. R.” tells us (p. 529) that the hardy bulbs of the northern world “grow out of the turf or other close vegetation, and are not ruined by it,” he only reminds us of the patent fact that Nature in fields and on mountains produces quite easily a host of effects which in gardens generally are most difficult of attainment. Plants in their native habitats have the natural care of Mother Earth, but the garden is after all only a step-mother to them, and oftentimes a very bad one. I do not desire to quibble about this question; I simply wish “J. R.” or any other able cultivator who has succeeded in carpeting bulb beds to tell us how it can be permanently done with success. What bulbs are used, what carpet is planted over them, and how long have the bulbs and the carpet above them remained untouched? By continually buying newly imported, or by continually replanting home-grown bulbs in masses one may get good annual effects, provided the carpet be also frequently and thinly replanted. It sounds nice when people recommend the planting of Sedums, Saxifrages, Stellarias, Cerastiums, or

Acænas as a covering for the flowers of bulbous plants to peep through in the early spring days, but my own experience, and also that of many others, go to prove that any permanently dense growing evergreen carpet above soon ruins the bulbs below, or so weakens them that they do not bloom well after the first year. What I desire is for those who have succeeded in forming permanent bulb beds or borders on the carpet-covered plan to tell us how they managed it. On the other hand, I should like to hear from some of the many who have failed. My own experience is that bulbs of all kinds when carpeted with anything but the most slender growing of annuals (say Linarias of the *L. maroccana* type, or *Ionopsidium acaule*) do not ripen and bloom so well as they do without a carpet. Perhaps “J. R.” will tell us that they do.—LEX.

## FLOWER GARDEN.

### CALIFORNIAN ANNUALS.

A POINT of some importance in reference to these annuals is the fact that they sow themselves freely, and come up year after year, needing no more attention than that of thinning out the young plants, specially encouraging such as have happily alighted on fresh soil. This allows the ground on which the old plants grow to be



*Phacelia (Eutoca) viscida.*

worked and well manured every alternate year. With such shallow-rooting annuals as these are bulb beds are often carpeted, a practice which I have followed on a large scale for years, and have as yet seen no bad effects therefrom; but perhaps in heavy soils, where there is a difficulty in getting bulbs thoroughly ripened during summer, covering the beds or borders with dense foliated annuals might not be desirable. The *Eutocas* and *Whitlavias*, both now included under *Phacelia*, are amongst our best annuals. *Eutoca*, now *Phacelia viscida*, of which the annexed illustration is a representation, has been long an inmate of our gardens, and although far surpassed in beauty and size of flowers by *P. grandiflora*, *P. campanularia*, and others, it still supplies a colour which we do not get in later introductions. Moreover, it is one of the hardiest of the race to which it belongs. It is an incessant flowerer, continuing in blossom all through the summer months, and in northern parts retaining its beauty well into September. The flowers are bright blue; the corolla, which has little or no tube, is spreading, and about an inch in diameter. The new species called *P. Parryi* differs but little from this, except in colour and length of sepal. *P. campanularia* is the richest coloured of the genus; its flowers, which are large and campanulate, are of a most beautiful deep bright blue. It flowers freely, and may be sown in the open air along with the others. It should be left undisturbed—*i.e.*, not transplanted—as these annuals generally resent such treat-

ment. *P. Whitlavia*, or *grandiflora*, and its varieties are also pretty and well worth growing. *P. tanacetifolia* and *loasæfolia* are very curious species, having large branched or spreading heads like those of a Forget-me-not. Others are *P. Wrangeliana*, *P. Franklini*, &c. *Nemophilas* may be grown in the same way, and the colours of many of them, such as *insignis*, *maculata*, *discoidalis*, &c., are very handsome. *Limnanthes Douglasi*, *Linarias*, Californian Composites, of which there are many, give such a variety of colour and form, that a most beautiful showy border might be made by means of such annuals alone. K.

### ON DAFFODILS.

KNOWING a little of the *Narcissi*, my individual opinion is that every year of waiting will render the preparation of any botanical study of the family more and more perplexing—perplexing, of course, in inverse ratio to the exquisite pleasure infinite variety affords us in gardens. Mr. Baker's classification, as applied to the wild species, answers so far fairly well, and with some little modification will, I fancy, withstand any test, criticism, or opposition our own epoch can bestow upon it. At the same time, I cordially agree with the Rev. W. Dod that, instead of quibbling as to the pre-eminence of former workers, some of us might be better employed in hunting out the wild Daffodils and *Narcissi* of Europe, “or even of our native land.” Mr. Dod has done us yeoman's service in this way, and I only hope that his advice may inspire our English friends, “who emulate the swallows,” as Leigh Hunt says—*i.e.*, those “who go abroad for the winter,” to pay us a willing income-tax on their pleasure in the shape of the bulbs of every different wild *Narcissus* they may chance to see. This morning's post brings me a letter from a sunny land. Here at home fogs now reign supreme, and frost bites away our tenderest growths, but it is pleasant to know that there is sunshine somewhere. “You would like to be here at Biarritz,” says my friend. “It is delightful. Yesterday, for the first time, I was out above the shore, and your favourite Daffodils are shooting up everywhere among the ‘blue-eyed’ *Lithospermum*, and here and there in the sunniest nooks and in sheltered corners they are showing for bloom. As we stay here for two or three months, we shall, of course, dig up bulbs for you of all the sorts we can find, and Mr. — has already begun to make you sketches of the delightful little bits among the stones where these flowers best like to grow.” After this, one wishes for friends all along the sunny Riviera, in Algeria, and on the sunny hills of Spain; but, at any rate, Queen Daffodil is now so popular, that winter residents abroad are sure to pay court to such a fresh and graceful beauty. That was rather an unfortunate simile used by our good friend Mr. Engleheart in your last number (p. 528). One doubts the logic of a meaningless comparison between things living and things dead—between coal and old iron and living Daffodils! But one can forgive much, since Mr. Engleheart has the fame of his dead and illustrious kinsman Dean Herbert at heart. The only thing I am sorry for is that he should have slighted Haworth, who studied the *Narcissi* before Herbert, and whose real knowledge of them was far deeper and wider than his published works can show.

I am very chary in accepting evidence from anonymous sources, and should not give the slightest credence to Mr. Wolley Dod's informant as to “Leeds having received some species of Daffodils or *Narcissi* from Dean Herbert,”



unless, like Mr. Wolley Dod, I knew the informant's name. The value of information of this kind cropping up in a moment of doubt has a made-to-order ring about it that nothing but the name of the actual informant can ever hope to dispel. It is mere hearsay at the best, and what we desire is undoubted truth, such, at least, as would pass muster in a court of law. One must not be blown about by every wind in questions of this kind.

I have had the advantage of looking over many private letters of Haworth and of Herbert which show to some extent the rough scaffolding on which both men raised their work, and that Herbert followed Haworth in his studies of the *Narcissi* and of *Croci* is a well-known fact. That he improved in some ways on his predecessor's work is only what one expects. Herbert himself was a man of Darwin's type, but not of Darwin's calibre. In his paper on "Hybridism among Vegetables" (*Jour. Hort. Soc.*, vol. ii., p. 1, *et seq.*) he shows that evolution can take place, but he did not show us how it takes place. Haworth was a good botanist of the type then popular, systematic; while, as I have before said, Herbert had a grasp of hybridism and of evolution, so that it is quite natural that we should to-day imagine Herbert to be the greater man generally, even if, as their respective works prove, he did not possess so wide and deep a knowledge of *Narcissi* in particular as he ought to have had, seeing that all Haworth's works were before him.

I have quite recently been looking over some fine old folio works, and find therein some *Daffodils*, &c., figured which are not known in our gardens to-day. Now, seeing that the *Narcissi* known to us are figured most faithfully in these books, no doubt these varieties once really existed. One of two things must, of course, follow. In a word, these lost *Daffodils* were either wild kinds now lost to cultivation, or they were seedlings or hybrids raised in old gardens, and now lost to them. In the former case, if wild, we may again discover them, or if they were hybrids, we still may have hopes of raising them over again. One of these is a "reflexing *Daffodil*," *N. minor cyclamineus* of Haworth, and it is figured first in the "*Jardin du Roy*," an old folio of copper-plate etchings published in Paris in 1623. It is again figured in the "*Theatrum Floræ*," published in 1641, and looks like a form of *N. minor*, the narrow perianth segments of which reflex, as in *N. triandrus*. Again, the *Narcissus de Campi*, of which two or three sorts are figured in the last-named book, look very much like hybrids of the *N. Bernardi* group.

In conclusion, I may say that one can never have too many actual observers in a field so wide and rich as is this of *Daffodils*, any one species of which would afford study for a long and active lifetime. I am, indeed, assured that the best results would follow the restriction of our studies to one species at a time in this way. Take the *Daffodil* (*N. pseudo-Narcissus*), for example; Mr. Wolley Dod has studied it for the past ten years at least, and yet is anxious for more light in the shape of wild European varieties. Again, Mr. Barr has studied *Narcissi* for twenty-five years, and yet is a learner like the rest of us all to-day. I hope sincerely that those who live where *Narcissi* are native in Western Europe will help us in our attempts to get together all the really wild kinds. Again, while our friends abroad are busily searching the meadows and the mountain-sides we must by no means forget the old and out-of-the-way gardens of our own country and those of Ireland, where the dwarf or pigmy *Daffodils* and

white or silver trumpet kinds seem peculiarly at home. They were brought, as is now believed, by the Huguenot refugees who were driven over to England and to Ireland by the Revocation of the Edict of Nantes. These people settled in Northern Ireland, bringing their pet flowers with them. The art of damask weaving is also well known to have been brought in that way. Whenever anyone is sceptical as to there being any old kinds lingering undiscovered around us here at home, I always say, Remember Sir Watkin, the big Welsh Peerless, which escaped observation for at least sixteen years, or, as someone tells me, perhaps for sixty years or more. Our duty is clearly this: we must make pilgrimages after wild *Narcissi* abroad, and also raise seedlings by the thousand in our gardens at home.

F. W. BURBIDGE.

*Trin. Coll. Botanic Gardens, Dublin.*

### GROUPING CHRYSANTHEMUMS.

I HAVE seen here and there dwarf-trained *Chrysanthemums*, especially Japanese kinds, much less formal than usual, and some few standard plants with good free-grown heads, far more pleasing than any stiffly tied ones could be, yet the latter were not wanting, and it is even now too evident that the old style of training with its squat, unnatural form is still triumphant. If those who make schedules for *Chrysanthemum* competitions would invite specimen plants in moderate-sized pots only, and such as would show the least training and the greatest beauty, we should in time see the gigantic floral Cauliflowers into which *Chrysanthemum* plants are converted wholly die out. But it is doubtful whether the common form of *Chrysanthemum* plant-grouping is not equally uninteresting, and but little is done to improve it. I think it will be found that plants at *Chrysanthemum* shows, as now arranged, attract but little attention. It is to be doubted whether any grower who has to furnish a conservatory with plants ever groups them at home so baldly, and with such utter lack of taste as custom demands that he shall set them up at shows. Ninety-nine out of every hundred groups are mere solid masses of bloom, sloping from back to front with a semi-circular outline, flowers large and of average quality, intermixed without regard to colour, grouping, or effect, and the whole, though sloping, yet flat, dull, and uninteresting. The plants and pots, too, on the outer margin display much evidence of naked stems, stays, and supports—such an unpicturesque array of pots of various sizes that whatsoever of beauty may be found in the floral tops, is far more than discounted by the view of the groups below. Judges, too, are assumed to make the awards dependent upon "quality" found in the flowers, by which chiefly is meant size, thus leading to hard disbudding and to the production of one, two, or three flowers only on a plant. These being also stiffly tied to one position, resembling an unfortunate head fixed in an iron collar, all the elements of stiffness and formality are presented. A little regard is paid to public taste by the added condition that arrangement shall also be considered, but practically arrangement has nothing to do with it. Most certainly, it is a fact that all those elements found in mixed plant groups at summer shows, and in which elegance of arrangement constitutes the most distinctive feature, are wanting in *Chrysanthemum* plant groups.

If *Chrysanthemums* were grouped on the same basis, and with a desire to produce similar effects, then a revolution in our autumn shows would indeed be evident. It is also an unfortunate feature of these groups that they tend to

strip greenhouses far too largely of their autumn decorative elements in the month of November. One-third of the plants usually lumped together would give more pleasing results if the base of the groups were composed of Ferns or something else suitable for the purpose. In such a case, too, we should not have sloping solid heads of bloom, but some variation in height such as would materially help to produce variation in the combinations. Thus we might have a class for twenty-four untrained plants of Japanese kinds, with Ferns as an outline, also the same number of incurved kinds, if desired. Then we might have similar quantities of plants with unthinned heads of bloom, to show natural growth and habit, or, further, groups, which included equal numbers of incurved, Japanese, and Pompons unthinned, and so on. It seems to be overlooked that in trained specimen plants, and in the cut-bloom classes ample room is given to display the finest properties of a thinned and highly cultivated flower, and there is no necessity for that sort of cultivation to be repeated in the ordinary decorative plants. Again, the placing of "quality," which chiefly means size in the blooms, so much in the foreground tends to check the cultivation of many of the most pleasing sorts, simply because their blooms are not so big at any time as the requirements of judges demand, and yet many of these sorts give the most bloom naturally, and the best material for ordinary cut flowers. What lady could utilise big blooms in a bouquet or vase? and if one or two be cut from the plants, the vacancy created is not easily filled. On the other hand, plants naturally bloomed can spare some few trusses here and there and yet be hardly missed. Possibly it will be pleaded that those who grow a few score plants for exhibition grouping can also grow as many for home decoration, or for the supply of cut bloom, but that is poor reasoning, because what is most decorative at home should be esteemed the most decorative elsewhere.

Perhaps some promoters of *Chrysanthemum* shows will venture upon a class for groups in which effective arrangement with other plants of any description shall be considered in preference to size of bloom or mass of flowers in one group. Those who have studied the effects of artificial light upon colours will doubtless find that in such grouping, to produce good results at night, too many colours should be avoided, and certain brownish or bronzy hues especially so. Still, further, they will probably find also that the globular incurved kinds are much less fitted for the production of pleasing effects than are almost all other sections or varieties.

A. D.

**An effective flower bed.**—We have many beds of flowers, though they are fewer than they were ten years ago. Amongst them one of the most effective this year was composed of very simple materials, viz., a groundwork of the old *Viola cornuta*, with Mrs. Pollock and Lady Cullum Tricolor *Pelargoniums* dotted rather thinly all over the surface, so that the flowers of the *Viola* could rise up between the leaves of the *Pelargoniums*. The bed was of considerable size and circular in form. The groundwork of *Violas* was planted thickly the first week in May, very small plants having been used, and the *Pelargoniums* were put out about the end of the month. By that time the *Violas* were in flower, and they have been covered with blossoms ever since, and are so now, and though the *Pelargoniums* are injured by the frost, the *Violas* are as fresh as ever. I had discarded this old *Violet* some years ago, but went back to it again because I could not obtain the same colour and the same hardness of constitution in any other.—E. HOBDAV.



## NOTES ON HARDY PLANTS.

**TRICYRTIS HIRTA** is again caught in the lurch—plenty of growth and buds, but all too late. It loves a dry soil. On this point the following may convey a hint, which may be taken for what it is worth: Two rows of this plant were found to have a mole-run crossing them, and the two plants in each row close to or immediately over the hole grew much taller and stronger than the rest. They were nearly 3 feet high, and the offsets were also better developed. I wonder how many of what may be called “fickle” plants would be benefited by hollow spaces just underneath their roots in this way.

**BULB PACKING.**—Doubtless Buckwheat husks, or whatever else Dutch bulbs may be packed in, are well adapted for the purpose, owing to their light and soft character; but I think they are not an unmixed good, especially when used for some things, say the open-scaled Lily bulbs, Fritillaries, and such as allow the chaff to get into the hearts of the roots, for I find that these husks turn mouldy as soon as they become damp, and when left in the bulbs when planted, they are a greater source of danger than we are apt to imagine. I have often found decaying spots caused by a single husk left between the scales. The husks should, therefore, be removed, and it may be thought that such a trifling matter need not take much time or hinder the otherwise convenient use of the chaff, but let anyone who has several hundred Lilies to plant in these short days note the time taken up in extracting the husks, to say nothing of the many stabs which the bulbs are likely to get during the operation and brittle scales liable to be broken. For my own part, I prefer to have such bulbs in dry Moss, or, in the case of Fritillaries, Moss slightly moist rather than sawdust, to which I have also a strong objection. The husks may be safely employed for Tulips, Hyacinths, &c., as about such they cannot lodge, but even about these I have seen the dust-like particles of meal of the Buckwheat turned into mould when the bulbs have stood a short time in a damp place.

**VALLOTA PURPUREA.**—Nobody wishes to say that this is quite hardy, but a few facts which I noted down in a friend's garden would seem to almost bring it within the line of hardy bulbs. On a sunny slope near the top of one of the higher hills dividing Airedale and Wharfedale, and on a somewhat shelving part where the depth of rich loam is notable, and where Lilies of all kinds grow with extra vigour, I found a bold clump of eight or ten strong crowns or growths of this Lily. They were quite unlike anything I had ever seen grown in the ordinary way in pots, and I should scarcely have known them had there not been flowers open at the time (October 24), which were as remarkable for their size and colour as were the leaves for their large dimensions and depth of green. This lot of bulbs, originally small, had been out two winters, and in every way the results were in marked contrast to specimens under greenhouse treatment. No protection whatever had been given, but we must remember that the past two winters were not very trying. This bulbous plant quickly propagates itself, and often the spare bulbs might be usefully set in the open on the chance of either getting flowers there, or of developing large clean bulbs for potting up again. The possible gain is greater proportionately than any risk there is to run.

**SPIRÆA PALMATA.**—It is asked (p. 502) if this *Spiræa* will force as well as the better known white one? I answer, yes, in the sense that it forces well enough when not

neglected in the way of water after growth has once fairly begun, but it cannot be placed above dry flues or pipes without almost immediate injury. The change that takes place in the flowers from being grown under glass is, however, against it, for whilst the white *Spiræa* is vastly improved in flower, colour, and foliage, the red blossoms of *palmata* are inferior in colour to those produced in the open air, and the big leaves often become sere from lack of moisture in the forcing house. In forcing this hardy *Spiræa* two facts should be kept in mind, viz., that it is a bog plant, and that it is later in ripening its crowns than the white one. If home-grown roots are being dealt with, they will scarcely be ready yet for potting, and it would be no loss of time, but the opposite, to let them rest for a time. A well ripened and rested clump, though started a month later, will often excel such as have been put in heat with a bristling of greenish leaf-stalks adhering to them. As regards imported clumps, they are likely to be more forward than home-grown ones, and the fact of their having been in the market ensures them a rest, but, on the other hand, these roots with their prominent big crowns often sustain injury, and it is conceivable enough that if they get flattened the growing sprouts will have some deformity about them. I am of opinion that many things such as Valley Lilies, *Pæonies*, *Dicentras*, *Hellebores*, *Primulas*, &c., with exposed and bulky crowns fail to do so well as expected, because they have been too roughly handled between lifting and replanting. Both home and imported roots should be sound, ripe, and rested. The resting can be allowed after they are potted by permitting them to stand plunged in ashes out-of-doors until January or February; root action (which is not impeded by resting) will then go on, and a start all the more vigorous will be made when the plants are put into heat. This *Spiræa* is worth forcing where the white one is grown, as a few red ones among the whites give a more cheerful effect. I may add that three years ago the best results were experienced with strong imported clumps, but seeing that we now have fine roots in damp places, one might confidently use home-grown material.

**PLANTING IMPERFECT PLANTS IN AUTUMN** is a grievous error, every year causing disappointment to scores of inexperienced cultivators. It seems to be thought that any morsel of a hardy plant will stand the winter merely because it is hardy. What I mean by an imperfect plant may be either a seedling too young for transplanting at that period, a rooted cutting without a base, crown or sprout, or a bulb or other form of root naturally unsuited for removal in the autumn from the manner in which they complete maturity at that season. Mistakes are frequently made with the two former classes of defective plants, and they would be better left alone, either in store quarters or in the protected situations in which the cuttings were rooted until spring. These are more especially the hardy plants, the planting of which should be deferred until that season.

**DAPHNE CNEORUM.**—Than this charming pink, sweet-scented, twice-flowering Garland-flower, no more pleasing subject could well be set along with alpine on a sunny rockwork. But what I wish to direct attention to now is a larger form than the type called major. I have grown it a year or two, and it proves, so far, much superior to the ordinary kind. It keeps better furnished with leaves which are bigger and of a lighter green, and the extra vigour of growth brings out the autumn-flowering property in a freer style; the flowers also are

larger individually, also the clusters. I could not say yet in what proportion this form may be larger than the old *Cneorum* or if any, but it cannot grow taller, the habit being procumbent and the more so on account of the heavier foliage and buds. The two notable gains appear to be the increased autumnal flowers and the more robust habit. It may be readily increased by grafting.

J. WOOD.  
*Woodville, Kirkstall.*

## SEEDLING DAFFODILS.

ALLOW me a few last words in reply to Mr. Engleheart's final rejoinder, as that does not leave the matter fairly before your readers, so far as I am concerned. The general subject I left to Mr. Barr, because he only had the knowledge needful for a full reply to the original statement, which was (p. 363) that it always seemed likely to Mr. Engleheart that many of the Longford Bridge varieties were not raised by Mr. Leeds, but were either old garden forms collected by him as materials to work with, or were Herbert's productions. Now, as both Mr. Barr, who bought the whole collection after long correspondence, and Mr. Ellacombe, who corresponded with Mr. Leeds at the time of their production, have certified to their belief that every one of these seedlings was of Leeds' own raising—an opinion in which I most thoroughly agree—we may consider that point authoritatively settled, so far as it is possible to settle it.

Mr. Engleheart, however, refers to my challenge, which was that he should give one single reason for believing that Leeds was capable of putting forth old forms raised by others, and some probably by Herbert as seedlings of his own raising, and, as he professed to be related to Dean Herbert, to say if he had any positive knowledge that he ever exchanged a word with Mr. Leeds, or ever gave him a bulb. Now he varies this challenge (p. 528) so as to give it a wider scope, and then triumphantly quotes from a letter of Mr. Wolley Dod, who says he has been informed by one who knew Mr. Leeds that “he always said he had his original collection from Dean Herbert.” Mr. Wolley Dod said more than this, but Mr. Engleheart suppresses the remainder of the sentence because it disproved his innuendo. The whole sentence was as follows: “I was well acquainted with Mr. Leeds and his collection. He always said he had his original collection from Dean Herbert, but I think he referred to *species*. He continued to hybridise as long as I knew him.” I had nearly the same from this correspondent on February 28 last—viz., “Of the Daffodils you well know they were sold to Barr and Nelson. . . . I always understood Mr. Leeds to credit Dean Herbert with furnishing material and information for his early collection.” Now, out of numerous contributions received by me from friends of Mr. Leeds who knew him intimately, and who were well acquainted with his gardening operations—including his two last gardeners—this is the only scrap of information I have gleaned to prove the actual acquaintance of Leeds and Herbert. As Mr. Engleheart seemed to speak as if he knew, I asked him to state what he knew. It turns out that he knew nothing, but shot his barbed shaft at random.

Herbert tells us in his “*Amaryllidaceæ*” that he found it almost impossible to obtain seed from the *Narcissi* then growing in English gardens, because by frequent divisions they had become weakened and were mostly sterile, and therefore he took pains to obtain fresh bulbs, true to name, from the native habitats of the



plants. No doubt, he did, as friendly gardeners do now: he distributed his imported bulbs, and to Mr. Leeds amongst the rest. As to his method of hybridisation, it was already fully detailed in the *Botanical Register*, and there Leeds could read it for himself. These I take to be the sum and substance of the facts deduced from what is before us.

Mr. Engleheart, however, sums up, as he says, like an old-fashioned preacher, pretty much as he started—viz.: "My contention is that, although the Longford Bridge seedlings were probably raised by Leeds himself, yet it is likely that Herbert's plants were incorporated with the collection"—a somewhat unfair conclusion from the above premises fairly stated, and one which is unjust to the memory of Mr. Leeds. With reference to the plate of Dean Herbert's Daffodils, Mr. Barr was wrong (p. 507) when he stated that his plate was from the Linnean Society's Transactions. By the kindness of Dr. Murie, who has searched through the whole of the Transactions, I am enabled to say that no such plate has appeared therein. I have already stated that it is to be found in vol. xxix. of Edwards' "Botanical Register." I can only suppose that Mr. Barr must have obtained some loose plate, badly coloured, and perhaps, therefore, rejected by the publishers, and that it was on such a picture that Mr. Engleheart made his remarks. Surely a little more care should be exercised by persons who write on botanical matters in your columns. We shall never arrive at truth in this loose fashion.

WM. BROCKBANK.

Brockhurst, Didsbury.

#### NOTES ON RECENT NUMBERS.

**Fritillaries** (p. 529) do not seem to have followed the example of many of the families of bulbous plants and become fashionable and plentiful, for, with the exception of Crown Imperials, their presence is absent in many gardens. It is suggested that they are put aside because they require care in their cultivation, but is there any special difficulty in dealing with the smaller varieties beyond the difficulty of getting them into one's hands to deal with? From the way *Meleagris* grows wild in some of our English meadows, where the children may be seen gathering them "in armfuls," one would almost think it would be looked upon as too common for a tidy garden, and yet what amateur on seeing blooms for the first time would not ask where bulbs could be got? The rose-coloured forms always appeared to grow the largest and strongest; is it likely that they are natural hybrids between the white and the purple? I suppose most nurserymen know that Fritillaries, like *Lachenalias*, will not stand being kept out of the ground, and so do not care to run the risk of a stock going rotten on their hands; the prices usually charged for the good varieties are quite enough to deter purchasers. They increase rapidly, and are easily raised from seed if sown as soon as ripe, so there should be no excuse for their apparent scarcity. I ordered a dozen varieties three years ago of *latifolia* (not from Messrs. Krelage). Most of them died; one lived and flowered, and that was *pyrenaica*.

**Too many Pears** (p. 532) may well be the cry of any novice trying to find out the best to plant. Should it not rather be "Too many names for Pears," seeing how many might be struck off the list without our having to lose one single distinct sort? The advice often given to choose well-known good varieties and keep to them is right enough, provided it is not understood in the sense of planting many trees of only a few sorts, except, of course, when grown for sale; for ordinary house use a good variety in order to keep up a succession is important. The way in which the fruit from a whole tree will ripen all of a sudden, and as suddenly go sleepy, must often be a sore trial to gardeners, and it would be a great mistake for anyone with limited garden space and a limited consumption of Pears, intending to plant

say two dozen trees altogether, if he or she were to select only six sorts and put in four trees of each. Most Pears ought to be eaten on or about the right day; a week too soon or a week too late makes all the difference, and with a large quantity of any one variety one must begin them before they are ripe, or else throw them away when they are rotten. I do not mean to say that careful selection as to names is not most necessary, but those who have not had to do with Pears before might be led into making the mistake I have just indicated, especially if they happen to have been struck by the merits of any one in particular.

**Acacias** (p. 540).—Many people only know these Acacias, or Mimosas as they are frequently called, by the bits of branches usually seen in the flower-shops in London which have been imported from abroad, and which, although in themselves readily appreciated, are very different from the flowers growing on the tree. Almost all of them seem to lose the soft fluffiness and wither up to a certain extent as soon as cut, and in the south of France, where many more varieties are grown than we usually see in England, I tried in vain to find one which would preserve its freshness when put in water. Judging by the names one usually sees mentioned in English gardening papers, it would seem there are many still comparatively unknown in this country which might with advantage be made popular; for not only is the variety of foliage and colouring of the flowers very considerable, but the period of beauty (a lengthy one) is, in many cases, very distinct. They are easy to grow, in some places almost hardy, and I feel sure that many people who have seen those figured in the plate last week will wish they had got them.

Sussex.

C. R. S. D.

#### NOTES OF THE WEEK.

**Dracænas seeding**.—Mr. Burbidge sends us *Dracæna* (Cordylina) *australis* loaded with seed, ripened at the Old Mill Garden, Mount Ussher, near Rathnew, Co. Wicklow. The plant there is 15 feet high. This seed sown now in a cold frame or house would, perhaps, produce a hardier race than imported dry seeds would do.

**Lilium neilgherrense**.—I send a spike of this Lily bearing three flowers on one stem, an unusual occurrence, at least in a cultivated plant. I wonder this Lily is not largely grown, as there is no difficulty about it where a cool greenhouse is at hand. I have a score or so of plants of it, and am rarely without a bloom from September to Christmas. When I say I purchase mine at 20s. for twenty-five, and that out of twenty-five I had at this price last year twenty-three bloomed, and nearly every one is again blooming now, I think no one need be without flowers. I find there is some little variety in colour of flower and breadth of foliage. The average height is from 2 feet to 2 feet 6 inches.—A. RAWSON, *Windermere*.

\* \* The spike in question, apparently an unusually strong one, bore three large and handsome blooms of a greenish white colour.—ED.

**Scarlet Musa** (M. coccinea).—Of this brilliantly flowered and noble-leaved plant, Mr. Wilkins, the gardener at Inwood House, Henstridge, sends us a fine specimen. The flowers themselves are small and inconspicuous, but they are accompanied by large, broad bracts of the most brilliant scarlet, gathered into a dense cluster terminating the stem. The leaves, though not nearly so large as those of the common Banana (M. sapientum), or even the Plantain (M. Cavendishi), have a noble appearance in a warm greenhouse at this season, when, in the absence of other bright flowers, this Musa is the more noticeable. Mr. Wilkins says it is an easy plant to grow in a warm, moist house. So seldom do we see it grown in private gardens, that it is worthy of special note.

**The Backhouse Daffodils**.—Reference has been made several times lately (during the discussion upon Dean Herbert's Daffodils) to the curious fact that the two most notable hybridisers lived in Lancashire and Yorkshire, the two counties in which his personal influence would naturally be felt. Now

one of these would be Mr. Backhouse, the raiser of our two grand Daffodils, Emperor and Empress, but he lived at St. John's, Walsingham, which, I should think, is not in Yorkshire, but in Norfolk. If this be so, one of Mr. Engleheart's arguments fails. Can anyone tell us about Backhouse; we have surely had enough of Leeds, and we know even less of Backhouse than we did of Leeds?—W. BROCKBANK.

**Proposed enlargement of Hampstead Heath**.—Notification is given of an intended application in the ensuing session of Parliament for leave to bring in a bill to enable the Metropolitan Board of Works to purchase and acquire lands "adjoining or in the neighbourhood of Hampstead Heath," and to preserve and maintain the same as open spaces for purposes of public use and recreation. The lands are those respecting which there has recently been so much controversy, being specifically alluded to as "comprising about 214 acres, and belonging to the Earl of Mansfield, parts of which are commonly known respectively as Parliament Hill and Parliament Fields and the Elms Estate, and certain lands known as East Park Estate (comprising about sixty acres), belonging to Sir Spencer Mayon Wilson." The bill will, it is asserted, contain clauses enabling the owners and persons interested in the lands to enter into and carry into effect agreements for the sale thereof to the Board.

**Crinum augustum**.—A large-growing species, with a fleshy stem formed by the sheathing basis of the leaves, which are 1½ yards long by 6 inches wide, channelled, the midrib whitish. The flower-scape is 3 feet high, slightly compressed, thick as a child's wrist, and bears an umbel of about eighteen flowers, subtended by a pair of large greenish bracts. The length of each flower, including the long tube, is over 12 inches, the segments measuring 6 inches by three-quarters of an inch in width, spreading towards the tips, and displaying the short stamens with their long orange-red anthers in the middle of the flower. The colour of the whole flower on the outside is deep crimson, the margins of the segments rosy pink, whilst inside they are pinkish white with a broad streak of crimson down the middle. An aromatic fragrance is emitted from the flowers in the evening. It will be seen from this brief description that this *Crinum* is a very handsome garden plant, and as it is easily grown in a warm, moist house, it deserves to become popular. There is a plant of it now in flower in the Palm house at Kew from which the above description is taken. In the same house we noted *C. asiaticum* in flower, a gigantic species over 6 feet high with very large fleshy leaves, and a tall flower-scape bearing a dense umbel of flowers, which, however, by the side of *C. augustum* appear thin and poor. The latter species is a native of the East Indies.

**Asarum Thunbergi**.—This is the name now adopted for the singular little Birthwort hitherto known as *Heterotropa asaroides*, so that we have now in the genus *Asarum* about a dozen species of small perennial herbs which may be grown either out-of-doors or in a cool greenhouse. To the hardy species belong *A. canadense*, the wild Ginger of North America, a name given to this plant because of its creeping stems being a good substitute for Ginger proper; *A. caudatum*, a Californian plant with kidney-shaped leaves and brownish-red flowers, which are pretty as well as curious; and, of course, our own native species, viz., *A. europæum*, must be included. This last is found wild in some parts of England and Scotland, forming in damp woods circular patches of green, heart-shaped leaves, at the bases of which appear in May the dull brown fleshy flowers, which are not pretty, though full of interest in their structure. Economically, this plant, known as *Asarabacca*, is of value in various ways, one of them being the drying and reducing to powder the leaves to be used as a kind of snuff. *A. Thunbergi*, which requires greenhouse treatment, has leaves exactly like those of the garden Cyclamen, and a large urn-shaped flower 2 inches across the mouth, and coloured dull purple with small yellowish dots. The flowers remain fresh on the plants for several weeks. A nice flowering specimen of this plant may now be seen in the Cape house at Kew.



**LEIGHAM COURT, STREATHAM.**  
 LEIGHAM COURT may be taken as the type of the many fine old residences that have so long adorned the suburbs of our great metropolis, but which, alas! are fast disappearing and giving place to crowds of monotonous villas and other creations of the modern builder. Not only, too, are these grand old houses being swept away, but with them, of course, go many beautiful gardens, and often the tree growth of many generations. No tree is spared, be it a common Elm or a majestic Cedar; all are ruthlessly destroyed. The fact that grand old places are disappearing so fast makes us cherish the more the

here surround the house, being only interrupted by noble trees either isolated or in picturesque groups, and it is this uninterrupted lawn-surface that makes the garden so pleasant. In the season there is, of course, plenty of colour, but it is not obtrusive; it margins the walks chiefly, and one has to look for it amidst the snug recesses of the shrubberies. The essence of good design in gardening is to make the place appear larger than it really is, and by no means to see the whole of it at a glance, and whoever first laid out the Leigham Court garden, no doubt had this in view. It is a very old garden, as one may see by the great

later, like others in the neighbourhood of London. There appear to have been many other uncommon trees planted about the same time as the Cedars, for on the other side of the house are fine specimens of several kinds not generally planted. Among these are two fine Catalpas, one having a spread of branches of between 40 feet and 50 feet, and a girth of stem of 6 feet just above the ground. There is also a noble Tulip tree on the east lawn (shown in the engraving, p. 565), and among other deciduous trees may be seen specimens of the Wild Service (*Pyrus torminalis*) and *Pyrus* (*Aria*) *latifolia*, the latter a really noble-leaved tree



Leigham Court, Streatham. West view of house.

few that remain, and amongst these must be included Mrs. Tredwell's charming place at Leigham Court. The garden here is truly beautiful, such as one would scarcely expect to find within six miles of London. It is, therefore, quite within the smoke area, and having regard to this fact it is remarkable that trees and plants flourish so well as they do. Inside the garden one might fancy oneself far away in the country so far as the appearances of the trees go, for they show no indication of the ill effects of the smoky atmosphere, with the exception of some of the Conifers; these exhibit unmistakable signs that the atmosphere does not suit them. Those whose ideas of a beautiful garden are not limited to gay flower-beds would be sure to admire the broad expanses of lawn which

trees to be met with in it—not common trees, but choice exotics. On the lawn on the west side of the house are numerous fine Cedars, apparently of about a hundred years' growth, and, as may be seen in the annexed illustration, some of them are planted in groups, but much too thickly, the result being that they have but one good face. In beautiful contrast with these noble Cedars are some fine white Birches, and these are allowed to stand out boldly unencumbered by shrubs or undergrowth of any sort. Seen in proximity to the Cedars, with their great white trunks springing out of the lawn they produce a most striking effect. At present the Cedars show but slight signs of unhealthiness, but they undoubtedly will decline sooner or

allied to the White Beam. It has leaves nearly a foot long, proportionately broad, and silvery beneath. It is to be regretted that this and other rare specimens should be crowded by commoner and less valuable trees.

The glory of the garden, however, is the evergreen trees and shrubs, and someone, at some time or other, has fully appreciated the importance of clothing it with a view to its winter appearance. We have rarely seen a garden so rich in variety of evergreen growth, and this is the more noticeable just now, when the summer leafing trees have shed their foliage. There are some magnificent evergreen Oaks, and these have been planted in picturesque groups, often combined most happily with other trees; for instance, a large



White Thorn thrusts its spreading head out from between two Oaks, the charming effect of which in Hawthorn time may be imagined. The Yew seems to be a favourite evergreen, for one sees it at every turn—huge pyramidal specimens kept in neat outline by clipping, but not disfigured in any way. They thrive uncommonly well, and their deep sombre green throws up the lighter shades into agreeable relief. Hollies and Arbutuses, too, are particularly noteworthy. The Arbutuses are trees 15 feet to 20 feet high, and as much through, and at this season loaded with fruit and blossom. The finest specimens of Arbutus and other shrubs are planted on either side of a long broad walk, and intermixed with them are crowds of spring and summer-flowering trees and shrubs, so that in early summer the place is quite a floral paradise. In one place we noticed, too, that Laburnums and Thorns, for example, were not dotted here and there, but gathered into picturesque groups, an arrangement by which the effect of their sheets of golden bloom in spring is heightened. In one part groups of these may be seen in proximity to a fine Copper Beech, and the contrast between the two may be imagined. Irregular masses of Rhododendrons beautify the lawns, and here and there one comes across isolated beds of some noble hardy plant, such, for instance, as the great double herbaceous Pæonies, which were a grand sight this season. Any one desirous of producing a fine effect on a lawn during several weeks in summer should plant the modern race of herbaceous Pæonies. All kinds of hardy plants seem to be appreciated here, and a capital place for growing them and displaying them to the best advantage is the borders by the side of the long walk. Here flowers of all seasons from early spring till late in autumn may be seen to interest one, and even now these borders are not flowerless, for there are masses of the great white Hellebore, *H. altifolius*, in bloom.

A small, but extremely pretty, lake is situated oddly enough on what appears to be the highest ground in the place, and much has been done to render it natural looking by planting the margins and islets in a tasteful manner. The Pampas Grass just now is a conspicuous feature, and masses of it have been happily planted just where they would be protected and show themselves off to the best advantage. This lake has been skilfully made, its extremity being hidden by a little rustic boathouse embowered in greenery. The summer display of bedding plants is confined to parts near the house, and there is a good Rose garden in which may be seen all styles of growth—the standard, the dwarf, the bush, the pillar, and the festoon, the latter consisting of climbing sorts, the effect of which is beautiful during the flowering season.

Among other Evergreens that thrive to perfection here is the Sweet Bay, of which there are gigantic bushes, some of which flower and fruit abundantly, and on some specimens the small fruits, like miniature Olives, are hanging thickly. A commendable

feature, too, is the Ivy, which drapes the pedestals of the statuary and deep tree stumps, and in some cases it is commingled with Honeysuckle; nor must we forget the Magnolia-covered walls, as fine as could be seen anywhere, there being not a square yard but what is covered by the noble leafage of *M. grandiflora* and its varieties. Just now one tree is hung with great flower-buds, which seem to be waiting for a sunny day to expand.

Near the house is one of those old-fashioned orangeries which seem to have been inseparable from old gardens in days gone by, when it was thought that a garden was imperfect without mop-headed Orange trees, Bays, and Myrtles to adorn (?) its terrace. This orangery still affords shelter in winter for huge Orange bushes, Tree Ferns, Palms, and the like, while a pleasant feature in summer is the canopy of Vines trained under the roof. In contrast to the square and heavily-built orangery is a modern curvilinear conservatory adjoining the house. This is kept gay from January to December with flowers of the season, while the roof is hung with such choice creepers as Tacsonias and Lapagerias, the latter now carrying myriads of crimson bells. Besides, there are goodly numbers of glasshouses, but none of them are so remarkable as the unique fernery, for a description of which we refer the reader to *THE GARDEN* for August 29 last. It is unquestionably one of the prettiest ferneries we ever saw; the variety it contains and the luxuriance of every plant make it a scene of indescribable beauty. In one of the plant stoves there is a remarkable specimen of the Night-flowering Cactus (*Cereus grandiflorus*), which is probably one of the finest in cultivation. It is planted against the back, and densely covers an area of 27 feet in length by 4 feet in breadth. It flowers plentifully in summer, and a more beautiful sight than its great creamy-white flowers opening in the twilight could scarcely be imagined. Cactuses are commonly considered to be lovers of dryness, but here this grand specimen luxuriates in a hot and moist stove with a miscellaneous collection of plants.

The other plant and fruit houses are on a scale proportionate with the extent of the place, and there is a capital kitchen garden. Notwithstanding the naturally heavy cold soil, all fruits are admirable, Peaches and Nectarines in particular, while Figs ripen to perfection against walls. The whole place is in a high state of keeping, and since it has been under the charge of Mr. Butts various improvements have been carried out. In common with most first-class suburban places, it contains a small farm and grazing and meadow land, making the place pleasant and country like.

W. G.

**Dome-top cylinder boilers.**—In reply to "St. Maurice," this form of boiler has not been so much in use since the cheaper forms of "Economic," "Star," and others with the extended fuel hopper at top came into use. None of these patterns capable of efficiently heating 800 feet of 4-inch piping are

often to be found in stock, but are mostly made to order by any of the noted houses. The india-rubber socket rings, with portland cement stopping, make very good joints, but it is well to protect the ring from contact with the cement by first caulking in a strand of yarn. There is a knack in the work, the requisite appliances being a light crowbar and a piece of small chain; twist the chain round the pipe, and get a purchase with the bar.—H. H.

## GARDEN DESTROYERS.

### INSECTS AFFECTING TREES.

THE character of sap-wood varies much in different kinds of trees. In some it soon proves itself to be inferior to the heart-wood in both strength and durability, while in others there appears to be but little difference between them in either respect. In some, like the Ash, Poplar, and Holly, all the concentric layers of the wood from pith to bark seem alike. In all the specimens I have seen of the Spanish Chestnut the sap-wood was limited to the three outer layers, while in the British Oak as many as nine or ten are commonly found, and even more than that number in the trunks of very young trees. This, as most people know, is the perishable portion of the wood, but it may be doubted whether it is any softer than the rest at the time the tree is felled; and as the heart-wood of the Oak and the Spanish Chestnut is usually found to be worm-proof, it is not unlikely that the insect does not approach it until its texture has become different from that of heart-wood. It may have become softer, though softness does not appear to have much to do with the choice these insects make when they are looking for a safe place in which to deposit their eggs, as I shall presently show. But with reference to the sap-wood of Oak, I will mention an experiment which I made many years ago on this material. I did not, however, make it with a view to test the strength of sap-wood, or its power to resist the attacks of the worm. From an Oak tree that had been cut into inch boards about two years, I made the slats of a swing, eight in number, and entirely from the sap-wood. They were all rubbed over with linseed oil several times in preparing them for use; and when the swing was no longer wanted, it was laid by with other lumber for several years, and was finally destroyed. But I never noticed in any of the pieces the perforations of the worm, and that after twenty years' service and lying by for ten or fifteen years afterwards. These insects seem very fond of the sap-wood of the Spanish Chestnut, which, when they once get hold of it, they do not leave it till they have reduced it to powder. A piece of Spanish Chestnut from a tree cut down last year I have tested with a bradawl, and I find that the power of resistance in the three outer layers is much the same as it is in the others. Four or five years hence they will become of a lighter colour, though at present they are of a slightly darker shade, as is sometimes the case with the sap-wood of Oak when first cut into boards.



I will now give a list of the other woods that have come under my observation, taking them in order, beginning with those I have found to be soonest attacked :—

Horse Chestnut.....	Rather soft
Turkey Oak .....	Hard and heavy
White Thorn .....	Hard
Mountain Ash .....	Hard
Sycamore .....	Hard
Willow .....	Not so hard as most
Beech .....	Hard
Elder.....	Hard
Pear tree.....	Rather hard
Holly .....	Very hard and close-grained

Now, it will be seen at a glance at this list that in the choice of their homes these insects are not guided by the softness of the wood. Horse Chestnut is, indeed, perhaps the softest of our home-grown woods, but then the Turkey Oak, with which the other might very well be bracketed, is harder than most of the others on the list. I have placed the Holly last, because the pieces I have examined remained so long before any sign of mischief had appeared. But once there they began to increase, and in a piece that for some time had been lying in the basement of a building used as a workshop, the surface soon became dotted with holes, while its fellow, cut from the same piece, was found in the loft overhead punctured indeed, but not to so great an extent. The White Thorn, like the Horse Chestnut and Turkey Oak, is soon taken possession of by these insects, and they seem well contented to return to it in greater numbers; and next to these come the Mountain Ash and the Sycamore, which are also soon overrun with them when they have once made a beginning. But pieces of the latter may remain for many years without even a trace of the worm being discovered. In Willow, Beech, Elder, and Pear tree a hole may be seen occasionally, but it is evident that the presence of other and more tempting substances will draw the beetles away from any of the four I have named. Beech enters largely into the manufacture of joiners' tools, and if these are laid on one side for a few years and not used, they are liable to become worm-eaten. But here, again, it may be observed how these insects will instinctively find the safest side on which to make their attack. A few years since I was surprised to find a perforation in the side of my trying plane. I knew that there were very long periods during which the tool remained on its shelf undisturbed, and, just as I expected, the hole was found to be on the side furthest

removed from the light. Of Holly I possess several other portions, not quite so old, however, as the two already mentioned, but not a trace can I discover in any of them of the presence of wood-boring insects.

Worm-eaten wood, if carefully examined, will often be found to contain perforations not all exactly of the same diameter. Here and there in the same piece of wood may be noticed a hole about half as wide again as the others. The larger holes are those of the *Xestobium tessellatum*, a beetle about one-third of an inch long; the small holes are made by either the *Anobium domesticum* or the *Ptilinus pectinicornis*, small insects only one-sixth of an inch long. The first two named are, I believe, the commonest, and from the noise they make when they are at work, they have acquired the name of the Death Watches, the larger one being the Death Watch *par excellence*. Their mode of

gardener just now what his impression of *S. sicula* is, and he replied at once, "We did not like it so well as the rest." There is no occasion for lifting the bulbs every year. I have several large clumps which have been untouched for four or five years, and they have done exceedingly well this autumn. I am greatly indebted to M. Dammann for what I get from him. His terrestrial Orchises are to be especially recommended, and my garden is full of them.—H. EWBANK.

#### MEALY BUG ON STEPHANOTIS.

I HAVE read with interest the discussion in THE GARDEN, first mooted, I believe, by Mr. Muir, relating to this favourite climber. One of our plants of it occupies the south side of a span-roofed stove, and I must admit that for some years past it has given us a great amount of trouble. It is a well-known fact that many gardeners ride hobby-horses. We find in practice that one man may grow the *Stephanotis* without a bug on it, while with another man it is literally covered. At the present moment I have a man who is neither more nor less than a *Stephanotis* physician. One day last autumn I found physician and patient standing face to face, the former evidently deliberating what treatment he should pursue.

Tom Newbold, the man in question, said to me, "I think I can cure the bug, sir, if you'll allow me to try;" and being always willing to encourage my young men in anything out of the beaten track, I at once said, "Go on with your experiment." He immediately took the plant down from the rafters, cut the whole of the bad wood out of it, and gave it a thorough washing with soap and water mixed with one wineglassful of

paraffin to a gallon of water. After well washing the woodwork of the house with the same mixture, he tied the plant right along the front of the house at the bottom in a thin roll, and syringed it every night. The following February it began to break, and such shoots and leaves it was never my good fortune to witness before. Immediately it began to break it was disbudded, leaving the strongest breaks. We then fixed good strong string at 9 inches apart under the roof, from top to bottom, and to each string a shoot was led. They went to the top of the house in a very short time, fixing themselves firmly to the string. When at the top, they began to branch out and show bloom, which in due time was fully developed. Such *Stephanotis* bloom I never saw before, and it was produced in fine trusses and clean. I feel sorry now that a proper account was not kept of the quantity of bloom cut. I may add here that the bug generally fixes itself in the axils of the leaves and in the bloom, and when the shoots of this plant become badly entangled, it is impossible to see it; when, on the contrary, they are thin on the roof, as I have tried to describe, every leaf can be seen, and also every bug; of the latter, I have not seen one since the plant was cleansed. Having had such excellent fortune with what I might term



Leigham Court, Streatham: East front, with Tulip tree on the lawn (see p. 563).

attack is very simple; they deposit their eggs in tiny fissures, which they make in the surface of the wood, and the grubs, when hatched, eat their way into the interior, where they go through the usual process, and in due time emerge in the winged state. But as the common house moth never lays her eggs in a place where cleanliness and ventilation indicate insecurity, so for a similar reason it will be found that as long as any article made of wood remains in constant use, there is no danger of its becoming worm-eaten.

The information required to enable me to give the foregoing account of the wood-boring insects was kindly supplied to me by Mr. Saunders, of Tunbridge Wells.

B. S.

**Sternbergias.**—M. Dammann's note (p. 514) puzzles me a good deal because my bulbs of *Sternbergia sicula* came from him, and unquestionably the blossoms were of a very pale yellow. *S. aetnensis* was bought at Ware's nursery, and is of a much more golden colour. I cannot understand how M. Dammann calls *S. sicula* the best of all. I asked my



bad wood, we this month have laid in, in a row in front, some splendid shoots, so that next year we expect better success even than that just recorded.

To be perfectly understood, I may say that all shoots not wanted to lay in in the front were cut right off. The whole treatment, in a word, is, clean the plant first, and syringe it twice every day afterwards, and if not satisfactory after that, I shall be indeed deceived. I feel sure that Mr. Muir's advice to throwbug-affected plants of *Stephanotis* away must have been a slip of the pen.

R. GILBERT.

Burghley.

## ORCHIDS.

### ORCHIDS AT THE DELL, EGHAM.

BESIDES many superior varieties of Orchids that flower naturally at this time of the year, such as the beautiful *Lælia elegans* and the extremely pretty *L. Dayana* or *marginata*, the different varieties of *Cattleya speciosissima*, *Dowiana*, and *Loddigesi*, and various *Oncidiums*, this world-famed collection at The Dell, Egham, is remarkable now chiefly on account of three grand specimens of the comparatively new *Vanda Sanderiana*, which, flowering simultaneously, produce a striking effect; their flowers possess quite a unique appearance, especially when set on spikes containing as many as eight of them, all open at one and the same time. Another attractive Orchid here is a fine variety of *Lælia Perrini*, which, on account of its more than ordinary bright colours, is a most valuable plant at this time of the year. This particular species does not appear to be cultivated so extensively now-a-days as it used to be—a matter to be regretted, for it is an easily-grown plant, and one which never fails to produce its flowers in abundance. Some of its varieties, it is true, are not very attractive, but when one chances to get such a form as the one now in flower at The Dell, it may safely be pronounced to be one of the very finest of all autumn flowering Orchids, a worthy rival of the much appreciated and always sought-for *Cattleya labiata* *Pescatorei*. Amongst *Dendrobiums*, *D. rhodostoma* is producing five spikes of pretty flowers, which somewhat resemble those of *D. Huttoni*, but their colours are much brighter and more distinct; the pretty *D. heterocarpum philippinense*, also in flower, has blossoms much paler and more uniform in colour than those of the common *D. heterocarpum*, and they also differ from the type in being produced on thick fleshy bulbs, which, instead of being erect, are nearly as pendulous as those of *D. crassinode*. Judging from the appearance of the plant in this collection, and which is grown in a teak basket close to the light, one would naturally come to the conclusion that it is a very good grower, as it is in nowise inferior in health to any of the other kinds generally recognised as being easily managed. The handsome *D. formosum giganteum* and the elegant *D. Dearei* are two other autumn-flowering *Dendrobes* which should have a place in every collection, the former on account of its large snow-white blossoms of extraordinary size blotched with yellow, which, in many cases, extends the whole length of the throat, and the latter, for its pure flowers, also white, but possessing more than ordinary lasting qualities, remaining as they often do quite fresh for from ten to twelve weeks. In the curious and deliciously scented *Peristeria pendula* we have another of the scarce plants which as yet are only found in very select collections; in fact, this is the first time that it has been our good

fortune to see it in flower. The growth of the plant and its general appearance, as well as the conformation of its flowers, are similar to those of the Dove Orchid (*Peristeria elata*); but instead of being produced in quantities on erect flower-spikes, its peculiar blossoms are borne in threes or fours at the base of the bulbs; and instead of being pure white, as in the ordinary form, they are densely spotted all over with very minute purplish dots; they, moreover, possess the same lasting qualities, and are also of an equally fleshy substance as *P. elata*. A magnificent form of *Oncidium varicosum* loaded with flowers, a grand variety of *O. ampliatum majus*, a superb *A. Marshalli*, a perfect mass of the beautifully elegant *O. incurvum*, and of the deliciously-scented *O. ornithorhynchum* form the principal attraction in the cool house, which contains besides a unique specimen of the rare and lovely *Odontoglossum Dormanianum*, bearing three spikes of very attractive, though rather small flowers in the way of those of *O. nævium*; the habit of the plant and the way in which the flower-spikes are produced are, however, totally different from that species; in this case the spikes are perfectly erect, and the flowers closely set upon them call to mind *O. blandum*, although the botanical characters peculiar to this species are altogether wanting. The ground colour of the flowers in question is a pale yellow, almost entirely covered with numerous spots of a lighter shade than in any of the above-named species; indeed, it seems closely related to *O. crocidipterum*, and may be considered a real gem among autumn-flowering Orchids to which cool treatment may be applied with advantage. Close to the plant just named is also an exceedingly fine pure white form of *O. Alexandræ*, with flowers very symmetrical, their petals and sepals nearly overlapping one another and elegantly crisped. We also noticed the extremely rare *O. Wilckeanum Godefroyæ*, with its peculiar sulphur-yellow flowers just beginning to open. Amongst *Cypripediums* a good many are in flower, among the most striking forms of which we noticed *C. purpuratum*, *cænanthum superbum*, *vexillarium*, and a grand form of *C. Spicerianum*. All the above are represented by very handsome specimens. Associated with these were also the lovely *Cœlogyne Massangeana* with long, gracefully pendulous inflorescence, well furnished with flowers; a very fine form of *Vanda cærulea*, and an extremely dark one of *V. insignis*; also an unusually large and well-coloured form of *Masdevallia Chimæra*, and a beautiful specimen of *Epidendrum xanthinum* bearing six heads of rich yellow flowers of surprising duration. These complete the list of choice and valuable Orchids now in flower in this select and truly grand collection.

### THE ELSTEAD ORCHIDS.

SITUATED in a naturally favoured position on high warm ground, Mr. Ingram's garden at Elstead, near Godalming, seems specially well adapted for tropical plant culture. For some years past a collection of Orchids has been in course of formation here, and it is now an extensive one, and certainly they flourish at Elstead better than in many places. We measured *Cattleya* sheaths and bulbs, the former 2 inches in diameter and the latter 6 inches in circumference—large dimensions. Rarely have we seen such an evenly made up fine lot of bulbs and sheaths. The *Cattleya* house is about 65 feet by 25 feet, and has a very low pitched roof. *C. Mendeli*, *Lawrenceana*, *Mossiiæ*, *Percivaliana*, *Skinneri*, and *Trianae* have many hundreds of sheaths. The roof is partly covered

by a large quantity of *C. aurea*, *Dowiana*, and *gigas*, associated with *imperialis* and *Sanderiana*, all having a kind, healthy appearance. Mr. Ingram is about to commence hybridising largely. The *Cattleyas* bear, perhaps, a hundred large seed-pods. *C. Percivaliana*, for instance, carries two big pods and a dozen sheaths on newly made bulbs. Already success has been attained, and we saw young *Calanthes* the result of a cross between *C. Veitchi* and *C. Regnieri*; the plants are 2 inches high, and have formed sturdy little bulbs. *Cypripedium Schlimi* succeeds unusually well; one specimen had four strong spikes. We also noticed *Lælia Schofieldiana*, the white variety of *Lælia anceps*, and a great variety of other desirable plants, some of which were in bloom. The *Odontoglossums* fill three good-sized houses; some ten fine varieties were open, and the whole were in fine health, the foliage being short and stiff and the bulbs large. Another house contains *Masdevallias* and other cool Orchids, too miscellaneous and numerous to mention. Extraordinary success has been attained with *Phalænopsids*; the house in which they grow is reached through a lobby, in which we saw a grand variety of *Cypripedium euryandrum* and many *Aerides* and warm Orchids. Eleven rows of 4-inch pipes are under open lath stages, and the *Phalænopsids* receive direct heat from the pipes. This is quite contrary to all practice hitherto followed, but the results are most satisfactory. Large, leathery, thick leaves and big spikes prove that the plants like their situation. The ventilators are left open night and day, Mr. Ingram being fond of seeing his spikes move to and fro in the house. The air, of course, has to pass over the pipes before it reaches the plants, which are kept very moist indeed; on fine days they receive a copious supply of water overhead.

## GARDEN FLORA.

### PLATE 520.

#### EARLY-FLOWERING GLADIOLI.\*

IT is singular, but not more singular than true, that many a brilliant plant is allowed from some cause or other to gradually fall out of cultivation. Of the truth of this assertion early-flowering *Gladioli* form a good illustration—not because they have ever been unpopular, but principally because the differences between them and the usual *Gladioli* of our gardens have not been understood. One obvious difference lies in the fact that kinds belonging to the early section are in a state of activity from October to the end of June; whereas the *G. gandavensis* class are satisfied if in the soil from March to October, the early varieties commencing growth just as the others are seeking rest. Therefore, it will be clear that the same culture as to time of planting cannot give satisfactory results in the case of both sections. My firm conviction is that nothing—not even climate or soil—has done so much to extinguish the cultivation of early *Gladioli*, *Ixias*, *Sparaxis*, and other closely-allied genera as the mistaken practice of keeping their bulbs in dry cupboards until spring; by that time they have generally so exhausted themselves by fruitless attempts at growth, that they are rendered unfit for the work which Nature has assigned them, but require rest, and rest they will have, but even then they will flower but poorly—the result of wrong treatment.

\* Drawn from flowers sent by Messrs. C. Smith & Sons, Caledonia Nursery, Guernsey.





GLADIOLUS COLVILLEI ALBA (THE BRIDE) AND G. CARDINALIS.







When well managed, few plants surpass early Gladioli as regards beauty; they make a striking display in any garden in which the necessary care to grow them well has been taken. In a cut state they are indispensable, *i.e.*, when once their value in that way has become known. They travel well, last well, and are most generous in the matter of opening unex-



G. Colvillei

panded buds. If a spike is cut when, say, three blooms are already open, it will continue to expand every bud on it to the very last. Hence, in the cut-flower trade they are great favourites. They should, therefore, readily find a place in every garden, from which cut blooms in quantity are required. A vaseful of their spikes, boldly arranged with some suitable foliage, is a lovely object, and is always welcome. In packing but little care is necessary beyond laying each spike side by side in such a manner that they can neither move about, nor be so tightly pressed as to crush each other. It is important that they should be placed in water for a few hours before they are packed. For this section of Gladioli, and also for *Ixias* and similar bulbs, Guernsey has for many years proved a very congenial home; in fact, it has been the birth-place of many of the best of such things. About thirty years ago early Gladioli were abundantly grown in this island, but through some unexplainable cause they have gradually disappeared, and many treasures have doubtless been lost.



G. cardinalis.

The late Mr. Luff paid much attention to this class of plants, and no doubt the best are to be found amongst his seedlings.

**VARIETIES.**—The following Gladioli are all early flowering, and I think will be found to be both good and distinct, *viz.*, G. *Ardens* (Fire King), bright crimson-red; on each of the three lower segments there is a white flake, which is

again edged with a deep blood colour, altogether a charming variety. This is one of Mr. Luff's seedlings—probably his last. It is the result of a cross between G. *cardinalis* and G. *insignis*, and is in every sense worthy of its parents. Credit is due to the Rev. T. Bell for having, during a period of about thirty years, preserved this gem, which otherwise would in all probability have become lost as many others have been. *Blushing Bride*, white ground with bright claret markings; habit strong, and free-branching; one of the best. *Cardinalis*, finest cardinal-red, with distinct and bold pure white flakes. *Colvillei*, dull purplish red; very early, but not a general favourite. *Colvillei albus*, pure white, handsome, and quite indispensable. It is a strange fact that this remained long uncared for, but now it is both known and appreciated. *Colvillei roseus*, pink, very distinct and pretty in clumps, but not equal to many others for ordinary culture. *Delicatissimus*, white, delicately suffused with satin pink, very chaste; habit strong, spray-like, and most elegant. *Insignis*, bright red, with handsome maroon markings, huge in flower and spike; habit free-branching and very strong; an old favourite and deservedly so. *Prince of Wales*, intense crimson, habit strong and vigorous; a fine kind. *Prince Albert*, bright crim-



G. ramosus.

son-red, with white flake, very beautiful; much in the way of *cardinalis*, but more free blooming and very early. *Ramosus*, red changing to rose and pink, habit and spike strong. *Rosy Gem*, delicate rose, very free, constitution and habit good. *Salmon Queen*, clear salmon-pink, a bold and handsome variety. For pot culture the best are: *Ardens*, *Colvillei albus*, *ramosus*, *Blushing Bride*, *delicatissimus*, *Rosy Gem*, *Prince Albert*, and *insignis*.

**CULTURE.**—These early Gladioli should have a warm position, facing the west or south-west. They should be protected from east winds and shaded from the early morning sun. This last often does far more harm to the foliage of bulbous plants than frost. It is rapid thaws rather than frost that kill, and I believe that our success with many of our half-hardy plants would be considerably enhanced were we to more fully realise the injury effected by the morning sun shining on frozen plants. Moreover, many of these Cape plants, even when in bloom when facing the early sunlight, suffer from the dew or through rainy weather; the morning sun, acting upon the wet petals, destroys the enamel, so to speak, and thus tarnishes the bloom—in fact, destroys its beauty. I would, therefore, strongly urge on all growers of these and other allied plants the advisability of avoiding east and south-east, and even due south, aspects

unless shaded from the morning sun. Having decided on the position which they are to occupy, the next matter is soil. They delight in a light, friable soil containing a goodly proportion of sandy or gritty substance; for manure nothing is better than exhausted hotbed material. This answers the double purpose of providing plant food of the best quality and keeping the soil in such an open condition as to rapidly carry off moisture—a desideratum. An excellent plan, too, is placing of, say, an inch of sand on the top after the bulbs are planted, and the bed has been levelled or rather slightly rounded. Let the soil be well worked up and left light and open. Place the Gladiolus bulbs at a depth of about 3 inches below the surface, which together with the sand would make 4 inches—a safe and healthy depth. After planting, let a framework be roughly, but securely formed over the bed, so that, in the event of severe weather, bast mats or, better still, straw mats may be quickly used for protection against frost and wind.

Oiled canvas, too, affords good shelter, and should not cost much. It is, however, of vital importance that whatever is employed in the way of protection should be used with great discretion; by no means should any coddling or nursing be indulged in, as the effect of that would be ruinous. Therefore, let all shelter be removed on all possible opportunities, even though it be only for a few hours a day. Let the bulbs be lifted every two years. It is good practice to divide the stock of them into two parcels so as to be able to lift one lot every year. This will result in both lengthening the season of flowering, and also in keeping the bulbs in a healthy condition.

**POT CULTURE.**—For this purpose use warm, sandy loam, with a liberal mixture of decayed hotbed manure and sand, and 6-inch or 7-inch, or, better still, 9-inch pots, putting nine to twelve bulbs in each. Let the potting be done in September or October, and the pots should be placed outside in a warm position until early in November, when they should be placed in a sunny, well-aired frame. It is not well to keep the soil too dry; in fact, after root action has well commenced, a plentiful supply of water is necessary, and this being the case, the drainage must be efficient. As growth advances they may be placed in a greenhouse, but by no means should they receive artificial heat. A cool vinery is an excellent position in which to grow these plants, as the abundance of air which such houses usually receive during winter is quite what early Gladioli enjoy.

Guernsey.

H. C. SMITH.

**Martagon Lilies naturalised.**—In looking through some old numbers of the *Phytologist* I lately came across the following interesting notices of *Lilium Martagon* established in an almost wild state. In the *Phytologist* of August, 1841, Mr. E. Doubleday speaks of observing it near the village of Sampford, in Essex, on the road from Great Bardfield to Walden, on a high bank sprinkled with low bushes on the side of a lane. Mr. E. Newman saw it in 1826 in a little coppice to the right of a lane leading from Mickleham to Headley, in Surrey. The Editor of the *Phytologist* saw it in this latter place at the end of June, 1840, growing in the greatest profusion—"the plants so crowded together that the flowers produced a perfect blaze of the richest colour." Later contributions mention Ash, near Wrotham, in Kent, "where it grows plentifully in a very wild situation." If there is no mistake in these assertions, L. *Martagon* not only held its own, but flourished and increased during a period of 14 years under really wild conditions. Perhaps readers of this note living near any of the



above mentioned localities will tell us whether the plant still survives.—G. H. ENGLEHEART.

## FRUIT GARDEN.

### RENOVATING OLD TREES.

WE cannot make old trees young, but liberal top-dressing now will infuse new vigour into anything which is sound at heart. The past has been a fruitful season, and fruit crops all round have been good. It is generally admitted that in the case of young trees a good crop of fruit does more to bring them into general bearing than root-pruning, or any other expedient which cultivators are sometimes compelled to adopt to bring the refractory trees to a condition of usefulness. There are, unfortunately, too many old fruit trees in the country. I took a run through a famous fruit-growing district last summer, but even there I found signs of clinging too much to the past. Old trees in many orchards were long past their best, and but few young trees coming on. Of course in the aggregate there is a lot of good fruit grown, but I should like to be certain what proportion the good bears to the bad. There are too many gardens in which the trees are old, but it would be unwise to get rid of them all at once. This is work which should be spread over several years, gradually removing the old and worthless and substituting young trees. In fact, to keep right where many trees are grown, a sort of stocktaking should be gone through every autumn; the very old should be condemned, and those still useful should be aided by rich top-dressings. In this way decrepitude may often be staved off for years.

A CROP OF FRUIT such as the present year has given us must take a good deal out of the trees, and this should be met now by a good coat of rich manure put over the roots. Remove a few inches of the surface soil, distribute the manure, and return the soil. Though land under the culture of vegetables may be manured regularly, very often that under fruit culture, and especially about old trees, receives none. Where there is a liquid manure tank its contents may with advantage be emptied now over the roots of old fruit trees. A good way in which to apply it is to make holes with a crowbar, at short distances apart, a foot or so deep, and pour the liquid manure into them till all the soil around the tree is saturated. Such a soaking will do an immense amount of good. In some soils it is, perhaps, unnecessary to apply manure to wall trees, such as Apricots, Peaches, &c., and if a good supply of turfy loam can be had to work into the border where the roots can find it, that will generally supply the needs of the trees. But I have very often found an advantage in mulching them with manure in dry summers.

PLANTING YOUNG TREES.—I suppose scarcely any of us really plant so many young trees as we ought to do. If a few young trees were kept in training, whenever it was

necessary to remove old ones there would be young trees in a bearing state to take their place. Very often the presence of old useless trees is tolerated rather than have a blank space on wall or espalier, but if a young tree was waiting for that particular situation, there would be no compunction in doing away with it. Maiden trees are cheap enough, and a few shillings expended annually would keep up the stock of trees in a large garden; and not only so, but worthless or unsuitable varieties would be got rid of, and anything meritorious among new sorts could be introduced, and the garden could be thus kept abreast of the times. I suppose no one who really cared for forest or fruit trees would plant a young tree on the site from which an old tree had been removed without first changing the soil, or, at least, a good part of it. It may not all be done when the tree is planted, but a hole large enough should be opened to give room to lay out the roots, and into this hole new soil should be brought. In the course of a few years more could be put into connection with the feeding extremities of the roots, if such a course was thought expedient. Fruit culture, to be successful, is more a question of soil and shelter than pruning or training, though no sensible man ignores the aid which may be obtained by a careful use of the pruning knife, and so long as there are walls to be furnished or espaliers to be covered with fruit trees, the question as to which is the best system of training is worth some consideration.

SELECTING YOUNG TREES.—Before doing this the stock should be carefully examined to see that it is strong and healthy. In rearing young trees, no matter how much care and skill may be brought to bear, a certain proportion will be weakly, and never attain to old age. This appears to be common in all races of living things which have been evolved from something inferior, and this tendency to hark back can only be guarded against by rigid selection when young and careful culture afterwards.

E. HOBDAV.

### MARKETING FRUIT.

A GOOD deal of the heavy crop of Apples and Pears sent to London and other large markets this season has not returned any profit to the grower—barely enough, in fact, to clear railway charges and market salesmen's expenses; and, therefore, in a commercial sense, as far as growers are concerned, the bountiful yield which we have had has been the reverse of a blessing. Fruit crops throughout the kingdom have been good and prices comparatively low; nevertheless, in provincial towns where growers could sell their produce direct to the retailer, or better still to the consumer, even the present year's crop has brought a fair return for the labour expended on it. A heavy crop even at moderate prices is good for all parties; consumers are able to buy more largely, and producers to sell at lower rates than when the crop is limited and prices prohibitive. The London markets are those which fascinate growers; no matter how large the quantity, to London it must go. There fruits are sure to sell, and when

prices are good the deduction of 1s. per sieve on Apples is not so much noticed; but when Apples and Pears are so plentiful as to be sold in Covent Garden at a price that leaves nothing for the grower, the enquiry crops up, why are railway and salesmen's charges so high? Here, where the population is dense, we never get the wide disparity between what the grower receives and what the consumer gives that exists in London. When an abundant crop brings prices down the consumer reaps the benefit. He buys more largely than he otherwise would do, and the grower is enabled to dispose of his heavy crop at a profit. The grower distributes his goods by cart or van amongst his customers, and thus the intermediate expenses that press so heavily on those who supply the London markets are avoided.

There is, however, yet another plan that is rapidly spreading in other branches of trade, and I see no reason why it should not be made applicable to garden produce. The Direct Supply Association brings manufactured articles to the doors of the consumers, thus cheapening them; for it must be admitted that the more hands through which any article passes, even though the profit in each case be small, the more expensive it becomes. Garden produce sold on this plan would doubtless pay the grower, for thousands would be ready to pay a price for his goods which he would only be too glad to receive. I myself have had many years' experience of sending garden produce to London from more or less remote distances, and I am confident that growers have a real grievance in the matter of overcharge, but no amount of discontent will alter it. The only remedy is an earnest attempt to supply consumers direct from the gardens in which the produce is grown. In many districts, from which large consignments are sent to London at a loss, a ready market might be found at the very doors of the growers, if they would only undergo the trouble of retailing their goods in smaller quantities than they usually do, and in towns, even of second-rate size, a ready market can usually be found for fresh produce. That such a scheme is practicable I have proved to my own satisfaction. I now grow both forced and hardy fruits, and dispose of them direct to the consumer, and although I am aware that all growers do not reside in districts populous enough to provide a market for what they grow, yet a good deal might be done in this way to stop the glut of produce poured into large markets, to be in many cases sent back next day by London fruiterers to the next-door neighbours of the growers. It is an everyday expression in the country, "Oh, we must send to London for anything fit for dessert." We are compelled to put some fruit of each kind in our shop window to engage the attention of passers-by, but in nine cases out of ten, customers like it fresh from the tree, and I can confidently state that the average run of purchasers are willing to give at least 10 per cent. more for Grapes, or any other fruit, that they can have in perfect condition than for the same kinds, even if only cut an hour before; and it is only by letting our Grapes hang until sold that we can successfully compete with imported goods from the Channel Islands that are landed and sold at our doors at extraordinarily low rates. The same remark as to freshness applies to salads and many other garden productions. Every hour during which they remain on the retailer's hands they are losing value, and if he did not get 50 per cent. profit on the best samples, he could not continue their sale, as the losses by such perishable goods are heavy. Every endeavour should therefore be made to supply



goods direct to the consumer. Of course, time and patience are required to perfect such a system as that here merely suggested, but its importance can hardly be overrated. Old ways of procedure were all very well when fruit was a luxury only enjoyed by the few who had large gardens; but not now, when it is becoming a necessity of daily life. Those who expend their labour and capital on fruit production will, therefore, do well to bestow a little attention on the best manner of disposing of it to advantage.

Gosport.

J. GROOM.

### RASPBERRIES IN WINTER.

THERE are few more useful small fruits in our gardens than the Raspberry, and while some, such as the American Blackberries, may fail in the hands of many, Raspberries seldom or never fail to fruit freely, no matter where they are planted or by whom grown. I know of instances in which they grow thickly in woods, and bear heavy crops under the shade of large trees, and in gardens it is difficult to make a mistake in planting them. We have several corners filled up with them where we found other crops would not succeed, and they both grow and fruit freely. They grow in light or heavy soil, in sunshine or shade, and being surface-rooters, a great depth of soil is not required for them. From this it will be understood no special preparation is necessary for them, unless something very extra in the way of fruit is desired, and this, as a rule, is not the case, as ordinary sized juicy fruits are just as serviceable as larger ones for most purposes, especially for jam and vinegar making.

THE YOUNG PLANTS we obtain from the sides of the old ones; they are thrown up as suckers early in the season and attain a height of from 3 feet to 5 feet before the leaves drop. The main root of these is connected with that of the old plant, but there are numerous fibres besides, and, therefore, the main root may be cut without injury to the young plant. Now is a good time to dig up these young plants, which should always be taken up before the old plants are tied up or top-dressed. They must be removed whether new plantations are to be made or not, and they may be replanted at any time between this and March. Old plantations, if liberally treated, do not become exhausted in a hurry. I know of several from ten to thirty years old, but they die out sometimes, and it is generally better to make a fresh row or two than try to patch up old ones. The plants may be put in direct from the old stools, but if planting is delayed the roots must be covered up with soil until wanted. The soil in which they are planted should be quite free from weeds and rich on the surface or to the depth of a foot or so. The whole piece may be manured and dug over before any attempt is made to plant.

THE STYLE OF PLANTING must then be decided upon. Of all ways, we prefer them in rows about 5 feet apart, and 1 foot from plant to plant; posts 4 feet or 5 feet high are put in 8 feet apart along the rows, two rails are nailed to these, and the canes tied to them. This is a neat way of growing Raspberries, and convenient for gathering the fruit. Iron stakes are used in some of our rows, and will take the place of the rails, making a permanent support for them. Others are planted from 3 feet to 4 feet apart each way. These are allowed to form bushy plants, and are supported by a single stake. Some might probably prefer this way of treating them, and it is certainly a very good one. Another way is to grow them in a semi-wild state, and plant the canes rather closely in widths of 3 feet with a space between each lot

of 3 feet. No stakes or supports are used in this case; the growths are allowed to grow at will, and a large quantity of small fruit may be secured in this way. Strong canes planted now should not be cut down, as they will bear a good deal of fruit next year. Weak ones may, however, be shortened to a foot from the ground. They will all throw up suckers next season, and it is when these are of a fruiting size that a full crop will be gathered. For a year or two after planting, new plantations will not require any attention at the roots, but old ones should have a winter surface-dressing annually of rich manure. It is this which makes old Raspberries so fertile year after year.

MULCHING should now receive attention; see that the manure is good and juicy, and extends over the roots. Before doing this, however, all superfluous rods should be dug up from the sides. If required, use them as just suggested; if not, throw them away, but in all cases allow the strongest ones to remain as fruiting canes. Where they are on rails, they should be tied in from 4 inches to 5 inches apart. Where supported by stakes, about half a dozen canes may be tied together around the stake. Where growing in semi-wildness, cut out the short, weak rods, and allow all the strong ones to remain. Old canes will be dry and lifeless; their work is done, and they are of no further use. Therefore, cut them all out by the surface of the ground, and take them away. As a rule, 5 feet is not too high for strong young rods, and the tops may be cut off them at this height or a little higher. I have not as yet seen the cultivation of Raspberries advocated on waste land, but they are better suited for this than almost any kind of fruit, and those who possess many superfluous young plants might profitably plant them in waste corners.

J. MUIR.

**Select Pears.**—I must at once anticipate criticism by apologising for having omitted that grand Pear Doyenné du Comice from the list of twenty-four good kinds which I gave in THE GARDEN last week. It is a November ripener, and, when well grown, without exception one of the richest flavoured Pears in cultivation. Certainly our very best Pears as a rule ripen in October and November; hence, in giving a long season list of twenty-four kinds, some of the best flavoured sorts must be omitted. With respect to that remarkably fine kind, Pitmaston Duchess, it is interesting to find that whilst some growers, "Pyrus" for example, deprecates its culture as wanting flavour, the executive committee of the recent Pear Congress in selecting a list of kinds not hitherto largely known or grown should have included the Pitmaston in that list. This will be a surprise to many, as it is pretty well known amongst fruit growers, yet it was thought to be equally unknown amongst a large body of amateur growers of Pears, and its size, handsome form, and fairly good qualities, allied to good average cropping, place it in the front rank of useful kinds. That this Pear is highly esteemed is evidenced by the fact that it came to the front in a remarkable fashion at the recent show at Chiswick. Granted that it is far from being first-class in flavour, still it not only makes a grand dessert dish, but will always be welcomed by those who like to see a good showy dessert on the dinner table. Still further, this fine kind will give a crop often when the highest flavoured sorts are wanting; certainly in form the Pitmaston more nearly resembles Marie Louise than Duchesse d'Angoulême.

—A. D.

**Judging hardy fruits.**—During the holding of the now very numerous autumn shows in most cases prizes are offered for small collections of dessert Apples, kitchen Apples, and Pears. As a rule it seems to be the practice of judges to select in the dessert classes of the former, and almost invariably in the case of Pears, kinds for prizes which have colour and ripeness. That I consider to be bad

practice, because it puts aside the need for succession in ripening, and rather lays stress upon sorts which ripen simultaneously, but most fruit growers who have to provide dessert fruit through the winter, and are unaffected by exhibition prejudices, will admit that any six dishes of good dessert Apples or Pears which will give sorts ripening in succession for some three or four months are far more worthy of recognition than kinds ripening at once. Naturally ripe or ripening fruits have the most attractive appearance, but some stress should be laid upon prospective usefulness as well as upon present attractiveness. Even in the case of kitchen Apples, which are usually adjudicated upon by weight, we sometimes see colour and ripeness made prominent. It is too late this year to look for any change in these matters, but the attention of judges being directed to them, perhaps they may another year feel that successive ripening deserves recognition. The good keeping of fruits is worthy of all praise, and especially so the preservation of good sorts for dessert purposes of such kinds as exhibit good flavour and crisp pleasant-eating qualities, say so late as March. Hence, could some prizes be given during that spring month for the best kinds, then, the fruits being tasted, no doubt a competition of more than usual interest would result. Just now and up to Christmas the most favoured kinds of Apples are Blenheim, Cox's Orange, King, Fearn's, and Ribston Pippins, with Margil, Cornish Gilliflower, &c.—A. D.

### TREES AND SHRUBS.

#### WEeping BEECH.

OF this I have in mind two grand specimens which I saw some fifteen months ago in Greenwood Cemetery, Brooklyn. Pointing to them (as they grew not far apart), our garrulous car-driver remarked, "They are the Californy trees; they were fetched all the way from Frisco." Without critically examining them to make certain to which continental flora they belonged, I doubted and still doubt their American origin. I have since then seen a tree of similar port, but of smaller proportions, in a suitable position on the edge of the great lake, and adjacent to the artificial coal-measures escarpment, in the pleasure grounds of the Crystal Palace. The two Greenwood trees were little short of 50 feet in height, their lower branches covering an area of about 25 feet in diameter, and charmingly irregular in outline. The principal or primary branches were few and most irregularly disposed. On this side occurs a short, stiff one with an upward tendency, on that another, much longer and either horizontal or declining, and from these and others numerous long whip-branches seemed to pour in tufts and falls, cumulating here and there, from the broad and expansive base to the summit, in precipitous walls, and banks, and terraces of glossy foliage. As ornamental trees they were in excellent keeping with Greenwood as a cemetery, comporting well with their surroundings. That "comparisons are odious," is most true of trees; weeping-habited trees—Beech, Birch, Deodar, Ash, Elm, Cherry, Willow, &c., have each their own interesting individuality, if not, indeed, grace and beauty, more or less sharply pronounced by contrast with the objects, organised or otherwise, of their environment. Nevertheless, I should imagine that there are few who see much grace in the Ash (weeping) and Kilmarnock Willow type. The Weeping Beech does not belong to these, but must be compared rather with the Deodar in its best juvenescent form. It is, however, superior to it and more effective, but, of course, in summer only, in being less formal. The Weeping Beech is an ornamental tree of the first class, and one well calculated to adorn parks and pleasure grounds where these are in keeping with its growth-dimensions.

GEO. SYME.



**Nyssa multiflora.**—The Tupelo tree, as this is often called, is in America one of the most vivid in its autumn garb, which character is fully maintained in this country, as the decaying leaves are of a most brilliant scarlet colour, and as a rule they retain this bright hue for some time, unless in the case of unusually severe frosts. It forms a small or medium growing tree, and prefers a situation rather moist than dry, but is in no way very fastidious in this respect. Though common in some parts of North America, and introduced into this country many years ago, it is but rarely met with except in botanic gardens.—ALPHA.

**The Dutch Medlar.**—It is a mistake to neglect the planting of some of our varieties of fruit trees for their ornamental qualities alone, and among edible fruits few are more worthy among our ornamental trees than the Dutch Medlar. This is the one most commonly grown for its fruit, being the largest, though not the best flavoured variety. It forms large and handsome specimens, with a weeping tendency, and is one of the most desirable of trees for park, lawn, or pleasure ground. Other varieties and species have showy blossoms, and form very ornamental objects, but this is the only one with a tendency to be pendulous.—R.

**Cratægus punctata.**—This is a free-growing Thorn, forming a handsome tree at all times, and of course additionally so when in flower or fruit. The fruits vary in colour, red being the prevailing tint. There is, however, a variety (*brevispina*) that differs widely in its fruits from the ordinary form, being much larger in size and of a deep maroon tint. This variety grows as freely as the type, but the branches are arranged in more of a horizontal manner, while, as above stated, the fruit is widely different. A specimen here has already lost the whole of its leaves, but the tree is thickly studded with clusters of its large berries, which from their weight acquire a pendulous character, and remind one a good deal of bunches of small Plums.—T.

#### CONIFERS FOR SCOTLAND.

FOR avenue planting, no evergreen tree of recent introduction, so far as has yet been tested, seems better adapted to the climate of Scotland than the African Cedar (*Cedrus atlantica*), provided that it is carefully attended to during its early growth by stem-pruning, so as to secure straight stems and proper leaders. I have never seen it injured by judicious and timely pruning. Taxodium or Sequoia sempervirens is another Conifer which may be planted for avenue purposes for many sheltered situations in Scotland, but, like the African Cedar, it must be early stem-pruned and branch-pointed. It, however, is, perhaps, better adapted for the climate of England, where it grows well, but is frequently unshapely from want of pruning. The Douglas Fir in some districts of the country is beginning to prove itself a useful tree, but whether these trees were produced by cuttings from original specimens, or raised from imported seed remains to be proved. The first trees raised from British-ripened seed have certainly not turned out in every quarter as was expected. The Picea Nordmanniana may, in time, afford useful timber, but, like other trees I have mentioned, it must be prepared for this end at an early stage of its growth. As generally seen in nurseries, the spread of its branches is often considerably more than the height, and when they once get into this condition, it is difficult to get

them out of it without a very free use of the knife, which, at an advanced state of their growth, may do more harm than good. With early branch-pointing or pruning, the Picea Nordmanniana suffers no injury, and starts admirably into a free habit after the operation. I am also much impressed by the Lawson Cypress (*Cupressus Lawsoniana*). Judging from the time it has been in the country, and its appearance in certain soils and situations, I feel satisfied that it is a Conifer likely, some day or other, to become a useful timber tree, but not if left in a bush form, as it is generally seen in cultivation. If stem-pruned at an early stage of its growth, it takes on an upright habit; on

surface of the soil, which enables them to take on an upright habit immediately after being rooted. I also find that the Wellingtonia, in very exposed places, when early stem-pruned, say at three or four years old, assumes a compact tree form, stands the wind well, and is less liable to have dead or brown points than those specimens which have been planted in sheltered situations without any pruning whatever.

EDINA.

**Phillyrea Vilmoriniana.**—This handsome evergreen shrub appeared to be almost unknown till attention was called to it in THE GARDEN some time since. It quite bears out the high opinions of it expressed at that time, though we have certainly had no such severe winters as it is reported to have passed through uninjured at Kew in 1879-80 and 1880-1. It is a much larger growing kind than the common *P. media*, and instead of the small Myrtle-like foliage of most Phillyreas the sort under notice has dark green leathery leaves nearly as large as those of the Laurel, but perhaps more suggestive of some of the evergreen Japanese Oaks. Judging by a few young specimens here, it seems to be of quick growth.—H. P.

#### Colletia cruciata.

—This is one of the most curious of shrubs, being almost leafless, and the whole bush is a mass of large stout spines arranged in a cruciform manner on the branches. It is of compact bushy growth, reaching a height of 5 feet or 6 feet, and is evergreen in character from the colour of the bark and spines, which together constitute nearly the whole visible portion of the plant. The flowers are small and white, but produced very abundantly during the early summer months. Were it hardy enough, this shrub would make a most formidable hedge, as the great sharp spines render it almost unapproachable, but it is liable to injury during severe winters. This *Colletia* is a native of Chili and Peru, as is also an allied kind, *C. spinosa*, or *ferox*, which is as formidable an object as the last named. It is quite a mass of spines, which are like stout needles

instead of the triangular shape of *C. cruciata*. The flowers of *C. spinosa* much resemble those above noticed, and are borne freely on the young shoots. Both are very curious shrubs, and quite distinct from a third species which is occasionally met with, viz., *C. serratifolia*, a free, open-growing shrub, the branches of which are clothed with small serrated leaves, but at the same time studded somewhat thickly with sharp needle-like spines.—T.

**Berberis sinensis.**—This pretty little Barberry, so attractive in spring, is also conspicuous in autumn when studded with fruit; much more so, indeed, than any preceding years, the berries being mostly limited to a scattered few, while this season they droop thickly from the undersides of the branches. It forms a low-growing shrub with slender arching shoots and a profusion of blossoms, sulphur-yellow within, but tinged with red on the outside. The unexpanded buds are bright red. Altogether it is a



The Fernery at Leigham Court, Streatham (see p. 563).

this account many trees may be grown on a limited space. In its natural condition it attains to the height of 100 feet, and the timber is said to be good. An upright form of this Cypress, and one which originated in the Perth Nursery, is likely to become a useful tree if planted in suitable soil. It has naturally only one stem, instead of ten or twenty, which is not unusual in the ordinary unpruned bush-formed specimens. The Lawson Cypress is, without exception, one of the hardiest of the recent introduced Conifers, and will succeed in any soil or situation. It stands the smoke, and is, therefore, well adapted for town gardens. It can be increased to any extent by cuttings or seeds, of which many are now produced in Britain. When propagated by cuttings, a portion of the bare cutting stalk should be kept above the



desirable little shrub, especially for limited spaces, as it will not soon overgrow its weaker neighbours. The colour of the berries is a bright shining crimson. This Barberry is often met with under the name of *B. Thunbergi*.—H. P.

#### WORK DONE IN WEEK ENDING NOV. 24.

NOVEMBER 18.

The frost continues, and having come on us so suddenly and so severe—10° this morning—it found us somewhat unprepared, and to-day we have been busy getting up supplies of Parsnips, Horseradish, and Celery, and covering up Cauliflower and Lettuce plants that are being wintered on south borders. All Broccoli ready have been dug up and taken into a cool shed, and Globe Artichokes have been thickly mulched, particularly round the crowns of the stools, with long litter to protect them from frost. Cold frames containing *Calceolarias*, *Gnaphalium*, *Leucophyton*, and other nearly hardy bedding plants have been thickly covered with mats, and will remain covered till the frost has ended. It is just the right kind of weather for leaf-harvesting, and for raking them out of shrubberies and hedges, and this has been our principal work to-day. Work in the houses has been of the same description as for some days past, namely, tying Peaches, cleansing vineries from which the Grapes have been cut, and sponging plants, such as *Camellias*, *Gardenias* and *Dracenas*.

NOVEMBER 19.

Three hours' brilliant sunshine to-day and keen frost combined have proved to be the best of weather for our leaf-raking and burning up of brush-wood and rubbishy leaves that are not good enough to stack for hotbed purposes. Began to grub up Hazel and Chestnut stumps, with a view of forming a garden of spring flowers, such as Primroses, Wood Anemones, wild Hyacinths, Daffodils, Snowdrops, &c. The spot is already full of these kinds of flowers, and our purpose is to get rid of the underwood; group the flowers together and form narrow turf walks throughout the copse, the more conveniently to ramble about among the flowers. Work in the houses has again been tying Peaches. Began to prune Figs. The longest shoots that have the least number of eyes or buds are those that we cut away, the proportion or quantity removed being according to the space there is to be covered, and none of the shoots are nearer together than 3 inches; we endeavour to keep them 4 inches apart. The border in which our trees are growing is paved with bricks; consequently root-pruning is never required in order to obtain fruitfulness, and being well drained we can give them abundance of manure water just when it is most required, a practice that always rewards us with fine fruit, and plenty of it. Turned over leaf-bed in early vinery; the moist warmth arising therefrom saves fuel, and I think it is an aid to the more kindly swelling up of the buds; certainly at this dull season it is infinitely preferable to syringing the Vines. We make use of the bed for pushing on the growth of *Spiræas*, *Deutzias*, *Rhododendrons*, and other flowering plants for room decoration.

NOVEMBER 20.

Another fine day, and the same jobs as yesterday have been continued to-day, and in addition (the frost having gone) we have planted a few Roses, and root-pruned a couple of strong-growing Pear trees; one, a *Josephine de Malines*, and the other, *Huyshé's Victoria*; both are on the Pear stock, and fruit fairly well notwithstanding their luxuriant growth; but the fruit is not nearly so large and well coloured as the same varieties are that we have on the Quince stock, and that never require root-pruning to make them fruitful. For quantity of fruit, if root-pruned once in three years, the Pear stock is the best, but for regularity of bearing moderate crops of good handsome fruit without root-pruning, but with rich manurial mulchings, the Quince is the stock to select. Pruned Pears on walls and arched cordons. Uncovered cold frames, and picked off all damp foliage, fungus, and Moss-grown surface in *Calceolaria* and *Viola* frames, all of which help to produce mildew and damping off at base of plants. Put in the first batch of *Chrysanthemum* cuttings. We strike them

in a cold frame, the cutting pots being stood on slates to keep out worms; abundance of air is given in favourable weather right from the time of insertion. Cut and bottled all Hamburg and Golden Queen Grapes from a vinery in which there are four rods of Gros Colman, the fruit of which requires a little more ripening to make it palatable; hence the bottling of the Hamburgs and Golden Queen, which are dead ripe, that additional warmth may be turned on for a fortnight or so, to get up the Gros Colman, after which they will also be bottled and the house thrown open, as the wood of the Vines is already perfectly matured.

NOVEMBER 21.

Dull and very mild. No wonder the state of the weather is the British passport, or that we gardeners should sometimes growl about it upsetting our plans of work, as has certainly been the case this week. On Tuesday and Wednesday there was every indication of a long frost, and covering up, getting in vegetables, herbs, &c., was accordingly done, and to-day, Saturday, we have got back to midsummer, minus the sunshine. However, the frost has done us some good, as it has brought down the leaves, and thus we are able to begin a thorough clearance of shrubberies and pleasure grounds generally. The most conspicuous and most frequented parts we have done to-day, and rolled walks on which the gravel had been loosened by frost. Pruning Apples and Pears, and trenching ground for a fresh plantation of Gooseberries and Currants. Put a few Hyacinths and Tulips into heat and another lot of Tea Roses. Picked over and re-arranged flowering plants, *Carnations*, *Bouvardias*, *Primulas*, *Chrysanthemums*, in small pots, and *Pelargoniums*; the latter, particularly the double-flowered section, are simply invaluable for small vases and baskets in rooms; consequently they receive special care and attention, and are grown in quantity. Watered Pines. The plants in all stages of growth are now kept at the lowest point in respect of temperature—from 55° to 65°; a greater heat with such little daylight as we now get causes a weakly, elongated growth, and as a matter of course the fruit is not so fine as from stocky plants that have, as it were, been allowed rest proportionate to the darkness or long nights. Looked over Grapes still hanging on the Vines, to cut out every symptom of decay. The foliage is now nearly all off, so that there is nothing to engender damp except the moisture arising from inside borders, and these we cover up with dry straw, which keeps back or absorbs all moisture, and always looks tidy.

NOVEMBER 23.

Fine, dull, and mild. Our main work to-day has been leaf carting and clearing leaves out of shrubberies. Trenching ground for bush fruits, pruning Apples and Pears, adding a little fresh stable litter to the leaves and litter that were put on the outside border of early vinery at the beginning of October—not sufficient to heat, but simply to keep frost out of the border; heat is unnecessary, and, I am inclined to think, injurious; at any rate, our Vines have done better since it was discontinued, and that is some years since now. Potted roots of Mint and Tarragon and placed them in heat; sowed Mustard, Cress, and Chervil in boxes. Potted suckers of Smooth Cayenne Pines that have been produced by plants on which the fruit is now ripe; for the present they will be plunged between the fruiting plants, as the bottom-heat there is greater than in the sucker pit, but soon as roots have begun to work in the soil they will be moved to their proper quarters. Put in cuttings of Tomatoes and also sowed seeds of them.

NOVEMBER 24.

Rain all day long; no attempt at outside work. Root stores, Potatoes, Carrots, Beet, and Jerusalem Artichokes have all been overhauled, decayed roots thrown out, and Beet and Carrots stacked in dry sand. Pot-washing, tying mats, repairing netting, and making labels are some of the other jobs that we have done to-day. Pruned Figs, and brushed them over with Gishurst, soot and cow manure being added to make the composition adhere, and of about the same consistency as ordinary paint. Put in a few more cuttings of *Chrysanthemums*, sponged *Gardenias*,

*Eucharis*, *Crotons*, and *Palms*, and potted a few more roots of *Seakale* intended for forcing. HANTS.

#### HARDY FRUITS.

TAKE advantage of the bright frosty weather which now prevails for mulching newly planted fruit trees of all kinds, and see that they are securely staked to prevent wind-waving. Many fruit growers take time by the forelock in these matters, and get all finished sufficiently early for the roots to form new spongioles before the earth loses its summer warmth. Others, under the impression that the leaves must be off and the sap down before the trees are moved, defer the important operation until bad weather is upon them, when a portion of the work is left in arrear or put off till the following spring. This season from the beginning having been peculiar, if not extraordinary, it is more than probable that the very unfavourable planting weather we have lately had may have thrown many into this unenviable position, possibly with trees laid in by the heels and stations ready for their reception; but the soil being heavy and tenacious, the work has been delayed from day to day in the hope that a more suitable period may yet arrive. If this does not shortly set in, I would suggest making the trees secure in their temporary quarters, particularly on cold heavy soils, and allowing them to remain there until early in February, perhaps the best month in the season for the spring planting of deciduous trees. On light or sandy loams in warm districts these remarks do not apply, as the thrifty planter can always find favourable opportunities, but on cold stubborn clays which grow but second-rate fruit in good seasons, planting in dry, thoroughly pulverised soil is a very important item, while neglect of these conditions may affect a set of fruit trees for a lifetime. Fortunately, at this time of year we have an abundance of work ready to our hand.

Orchards can be thinned, pruned, and cleared of Moss and Lichen by scraping and scrubbing with hard brushes, and the application of brine, soap-suds, or lime water. Trees intended for grafting can be partially headed back, and suitable wood selected for making grafts in the spring. Draining, a very important, but much neglected operation, at least in Herefordshire, should now be pushed on with vigour for the two-fold purpose of letting out the water and raising the temperature of the soil by the admission of fresh air. To give instructions to the drainer of unseen land would be simply absurd, as no two plantations require precisely similar treatment, but the observance of two points applies to all; the drains must be kept well away from the stems of old deeply rooted trees, and they must be sufficiently deep to draw the water out of the subsoil. It is always well to err on the side of larger drain pipes than are actually wanted for the reception of the water; these should be ventilated by vertical pipes rising to the surface at short distances from each other, and a good layer of the trimmings and branches placed over them before the best of the soil is returned will leave the bottom spit of clay or marl at liberty for burning and mixing with manure for top-dressing. In the fruit garden we have the

#### PRUNING, TRAINING, AND DRESSING

of all kinds of trees, Peaches and Apricots excepted, awaiting attention whenever the weather is open and favourable. In our own management bush and trained Currants are taken in hand first, as they lose their leaves early, and requiring, as they do, liberal supplies of rotten manure as a surface dressing, the lines along the sides of walks and the quarters are ready for mulching when the weather becomes frosty and suitable for wheeling. Red and White Currants always produce the finest fruit when trained to single stems, and a number of young shoots are allowed to take the places of old branches that are cut out annually to make room for them. When pruned and mulched, we syringe the trees with strong soap-suds, and dust once or twice during the winter with a mixture of quicklime and soot for the double purpose of destroying Moss and the larvæ of the Currant moth, which under this treatment rarely puts in an appearance.

#### PLUMS AND CHERRIES

come next, and as these varieties have been badly



infested with black and green aphid, pruning and nailing was commenced early in November, and is now finished. All the old shreds are destroyed, and the nails are passed through the fire before they are again taken for use. The wash of strong soap-suds, to which a few handfuls of soot has this year been added, has been driven with great force against the trees and every part of the walls which are old and full of nail holes, and, aided by severe weather, now imminent, we are looking forward to a fair start next season.

#### PEARS

may be pruned at any time when the weather is mild, but it is not a good practice to prune in frosty weather. The trees may, however, be unnailed and well scrubbed with soap and water or Gishurst compound, and afterwards syringed with a mixture of paraffin oil and water to free Plum from scale, which is their most destructive enemy. This insect, being the exact colour of the wood or bark on which it breeds and feeds, often seriously checks and weakens the trees before it is noticed, but when detected, no pains should be spared in its destruction. Once loosened, it cannot again take hold of the tree which it has rendered rough and hide-bound, and it is really surprising to find how quickly its partial removal by scrubbing alone brings about a great improvement in the appearance of the wood and foliage. Scrubbing only will not, however, detach it from the spurs and intricate parts, neither will soap alone destroy it; therefore, an oil of some kind should be used. Paraffin is cheap, easily obtained, and can be applied as a wash to the walls and trees, half a pint to a gallon of water. The same quantity thoroughly incorporated with a peck of finely sifted loam, and reduced to the consistency of paint with warm water, answers equally well, if not better, as it can be applied to the old wood and spurs without touching the flower-buds. When a mixture of the oil and water is applied with the syringe, a second person, also with a syringe, should keep it in constant agitation to prevent the oil from floating.

#### THE FRUIT ROOM.

As the early kinds of Apples and Pears, of which we have had such an abundant crop this season, are cleared out of the fruit store, later varieties that have been too thickly packed may be laid in single or, at most, double layers on the shelves as they become vacant. If not already looked over, it will now be necessary to take this matter in hand, otherwise faulty fruits that escaped the eye at storing time will now be decaying, and as these soon affect others, one turn over will suffice for their removal and the rearrangement of the sound ones. Apples, it must be borne in mind, are not improved by disturbance after they are carefully stored; hence, the importance of placing them thinly at first, and in a position that will favour examination occasionally, but where space has been limited, and crowding could not be avoided, the lesser of two evils must be accepted. If well ventilated and not subject to fluctuations of temperature, the fruit room cannot be kept too cool, provided it does not fall much below 40°, and in order to avoid the necessity for fire-heat, the windows and shutters should be kept closed in frosty and damp weather. If this precaution does not suffice, the windows may be well packed with dry Fern, and a light layer of the same placed over the fruit will be infinitely preferable to the application of dry fire-heat. Fern or Bracken is an excellent non-conductor, and when properly dried, it can be placed in close contact with the fruit without imparting a disagreeable flavour. Straw should never be used in the fruit room or cellar, as confined moisture produces mouldiness which taints the fruits; neither should straw or chaff be employed for packing purposes. Extra fine samples of late-keeping Apples and Pears can be preserved for a considerable time if carefully folded in tissue paper, and placed in single layers in clean earthen pans or drawers which can be kept air-tight, or nearly so, as sudden changes of temperature in the store room always hasten decay.

#### THE GRAPE ROOM.

Up to the present date the Grape room in many places has been used as a general store for Apples and Pears, the latter especially, as their flavour is greatly

improved by being kept in a dry, warm atmosphere. But the time is now at hand for clearing out and making preparations for turning it to its legitimate use. If heated, as all Grape rooms should be, from a slow combustion boiler placed outside, not so much for raising the temperature as for driving out damp in wet or foggy weather, fires should be lighted for a short time every day for some time before the Grapes are introduced. It should also be cleansed and whitewashed, and fitted with the bottles or vessels carefully filled with water to save delay or the presence of moisture when a suitable day arrives for cutting and storing. Where the old-fashioned system of placing the ends of the pieces of wood in bottles of water is too tedious, the long earthenware pans invented by Mr. Ward, of Bishop's Stortford, and manufactured by Messrs. Doulton, will be found a cheap, simple, and excellent substitute. Lady Downes and other very late keeping Grapes are not, as a rule, cut before the end of the month or the first week in the new year, but there is no rule without an exception. Although I have always found them keep best when cut about the 1st of January, when thoroughly ripe, Muscats may be cut early in December, and as these and Gros Colman require a little more dry heat than would be good for Lady Downes and Mrs. Pince, our two best spring Grapes, it is a good plan to cut them a few weeks in advance. The great secret of keeping Grapes fresh and plump for any length of time after they are cut, however, entirely depends upon their ripeness, for, no matter how well every detail may be carried out, immature berries will shrink almost immediately after the leaves fall. When the bunches are detached from the Vines, the position of the berries should not be disturbed, provided they are all sound and perfect.

W. COLEMAN.  
*Eastnor Castle, Ledbury.*

#### RETIREMENT OF SIR J. D. HOOKER.

AFTER occupying for twenty years the position of director of the Royal Gardens, Kew, Sir Joseph Hooker now resigns that post. Though nearly seventy years of age, he seems as full of vigour and work as when, forty-five years ago, he joined Sir James Ross's Antarctic expedition in the *Erebus* and *Terror* as assistant surgeon. That voyage yielded substantial contributions to botanical science. Not only as a botanist, but as a lecturer, he stood in the highest rank. Those who were present twenty years ago at the Nottingham meeting of the British Association must still have a lively recollection of the famous lecture delivered by him on "Insular Floras," a lecture which held an audience of 2000 people enchained for two hours. His botanical work during his well-known wanderings in the Himalayas is of scarcely less scientific importance than that of the Antarctic regions, New Zealand, and Tasmania; while it is difficult to conceive that his "Himalayan Journals" can ever be out of date either for instruction or entertainment. Nor must the journey which he made in Morocco with Mr. John Ball be forgotten, and its substantial narrative, not to mention his run across America with that most genial of scientists, Prof. Asa Gray. Wherever his travels have led him, says the *Times*, to which we are indebted for much of the information here given, Sir Joseph Hooker has been able to discover some new aspects of Nature's most delicate handicraft, and been able to tell his story with surroundings of real human interest. No one probably did Darwin more service when working out his "Origin of Species;" as an eager fellow-worker and loyal assistant few probably know the services Sir Joseph has rendered to one who was the greatest of revolutionists, as well as the foremost of evolutionists. But it is as the director of Kew Gardens that Sir Joseph must be specially remembered at present. There he has held sway for thirty years—ten as his father's assistant

and twenty as chief. It is mainly due to the Hookers that this royal domain has become the largest and finest garden in the world. The crowd of Sunday visitors and Bank-holiday makers who flock to Kew to drink in sweetness and delight ought to be grateful to Sir Joseph Hooker for the earthly paradise which has been provided for them under his ever-watchful and intelligent directorship. Few could have discharged the duties of a really trying post with more efficiency, or done more to raise and maintain these gardens as a great national institution—the centre of botany for the British Empire. Few, indeed, know the services rendered to our great empire by Kew Gardens. Not a colony but has reaped advantage from the knowledge and experiments and advice of Sir Joseph Hooker and his able staff. The coffee plantations in Jamaica and the cinchona gardens in India, the forests of Canada and the cotton and wine plantations of Australia—all have found help of the highest value from Kew. The daily correspondence, indeed, between this great botanical centre and our colonies all over the world, not to mention foreign countries, is greater than that of many a Government department. The director of such an institution can have but little of that quiet and untroubled leisure which is absolutely necessary for the best work in science. And it is this consideration, and not any feeling of failing faculties, that, we believe, has determined Sir Joseph Hooker to resign his trying post at the end of the present month. He will still have work, for many years we hope, to do at Kew; his "Flora of India," at which he has only been able to work spasmodically for years, is a colossal undertaking, which, if ever it is to be efficiently completed, must absorb all his energies. Sir Joseph, indeed, has made up his mind to resign the sweets of office for a laborious task, which, after all, may probably be to him still sweeter.

#### LATE NOTES.

**Central Asian plants.**—Semenoff's list of the above is given at the end of Mr. Landsell's new book, "Russian Central Asia," and Atkinson's list is in his work on "The Upper and Lower Amoor," published in 1860. I shall be glad to give any other information required.—M. P. F.

**Books (Medicus).**—If the book you want is one on hardy plants, the "English Flower Garden" will answer your purpose. If on indoor plants, Baines' "Greenhouse and Stove Plants" is the latest and best.

**5478.—Rabbits and rats.**—Messrs. Cogswell and Harrison have a very good trap for catching and killing rabbits and rats at once.—H. M. L.

**The Apple and Pear Conference** opened at Edinburgh on Wednesday last is, we hear, a complete success, 11,500 dishes being exhibited. For a few particulars respecting it we hope soon to find room.

**Names of plants.**—*W. R.*—1, *Begonia knowsleyensis*; 3, *Davallia canariensis*; 4, *Begonia insignis*.—*A. B.*—*Cymbidium Mastersi*.—*Devon*.—*Helleborus altifolius*.—*J. Williams*.—*Barkeria Lindleyana*.

**Naming fruit.**—*Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.*

**Names of fruits.**—*A. H.*—1, *Catillac*; 2, *Beurre Rance*; 3, *Beurre Diel*; 4, *Easter Beurre*.—*P. Bosanquet*.—*Beurre de Capiaumont*.—*A. P. Thornley*.—1, *Vicar of Winkfield*; 2, *Beurre de Capiaumont*; 3, *Louise Bonne de Jersey*; 4, *Vicar of Winkfield*.—*Miss L. Pasley*.—*Pomme de Neige* we believe, but not so highly coloured as usual.—*W. W. (Bristol)*.—1, *Doyenné Gris*; 2, *Comte de Lamy*.—*E. W. (Preston)*.—1, *Tibbet's Pearmain*; 2, *Plum Apple*.—*S. K. T.*—1, *Cox's Pomona*; 3, *Duchesse d'Angoulême*; 4, *Beauty of Kent*.—*A. Gibb*.—*Apple 2 Gravenstein*.—*Culford*.—Unfit for naming—rotten.—*E. Rush*.—*Braddick's Nonpareil*.—*W. D. S.*—*Beurre Bosc*.

*Other names will be given next week. We have received numerous parcels of fruits to name containing only one example of each sort, and often in a bad condition. We must, therefore, decline to name fruits unless our rules as stated above are complied with.*



## WOODS &amp; FORESTS.

## FORESTRY NOTES.

**TREE PLANTING IN THE PAST.**—In discussing this topic it seems necessary for "T. B." to explain what he means by the "distant past." His remarks generally seem to show that he confounds two very distinct periods in the history of British forests. Between the "grand old Oaks," as represented by such as those at Hatfield, and the Elms and other trees planted in groups and straight rows on many estates, and denoting the hand of man, there is a wide gulf. The one may be said to represent the period when there was no such a thing as "forestry," in the right sense of the word, practised in this country, and the other to represent the beginning of the time when tree planting began to interest the nation, but which cannot be said to belong to the "distant past." The old Oak trees at Hatfield and elsewhere do not, if I remember rightly, stand in rows or distinct groups, but appear to be the remains of natural forests that once abounded there, while the groups and straight avenues referred to by "T. B." denote a very characteristic period of English landscape garden style, which seems to have been copied from the old formal "Dutch" flower gardens of the past. The fact of the matter is, British forestry has no "distant past," such as "T. B." supposes. The facilities for planting did not exist, nor did the knowledge either; consequently the "sound judgment" of planters of the past and their work are both myths. According to the authorities we possess, the era of planting did not begin till after Evelyn's time, and the majority of our older planted forests originated at a much later period even than that. Nurseries for the rearing of forest trees are comparatively modern institutions, because planting being neither practised nor understood, there was no need for them. Most planting was done in the eighteenth century, it is recorded, and in the nineteenth century commenced the "more scientific" mode of planting and management that has been practised since with but little alteration. Practically, the "distant past" of planting goes no further back than the time of our grandfathers and great-grandfathers, and the grand old trees of Hatfield and the like are Dame Nature's productions. The judgment of planters at either of the periods referred to by "T. B." was much restricted by circumstances, and they could not make many mistakes of selection when their choice was limited to so very few subjects.

**FENCING WOOD FOR ESTATES.**—There is no kind of timber that commends itself to the farmer and forester so favourably as the Oak and Larch—the Oak for posts and the Larch for rails. For mending worn-out hedges, riven or sawn Oak stakes are very generally used in Yorkshire. The stakes are driven in straight or obliquely about 1 foot asunder, and the straggling limbs of the hedge are slashed and bent among them. A rail or old colliery wire-rope (which can be had cheap in colliery districts) is nailed on the top to hold the stakes fast, and the work is finished. This makes a strong, durable, and rustic-looking fence. The farmers buy the Oak timber cheap from their landlord and rive it themselves, getting eight or ten good stout stakes to the cubic foot. The timber is riven by wedges driven by the hammer, and one man will rive a lot in a day. Stouter paling fences are made with heavier posts and rails. Where the Quick fence has entirely failed, bindings consisting of Hazel, Willow, or

any other suitable underwood are used for lacing the stakes together. Neat fences are more elaborately constructed, but I am here speaking of cheap fences for protecting crops and woods.

**PROSPECTS OF THE PLANTER.**—While the supply of foreign timber lasts and has an open market in this country, planters need not delude themselves with the idea of high prices or great profits in the future. Prices at present are about as low as they well can be, and it is certain there will be no sudden revival. If prices improve, the improvement will be gradual; but unless some revolution in our industries favourable to the consumption of home-grown timber can be reckoned on, I would advise intending planters to estimate future profits by present prices, and avoid disappointment. One thing is certain: it will not pay to plant cheap timber in inaccessible places, or far from the highways of communication—good roads and railways. Facilities of transport make a difference of fifty per cent. and more in many cases, while in some instances the timber will not pay the owner for the felling and other expenses. I hear of a large quantity of Larch and Scotch being sold lately, in which the first was disposed of for about 4d. per foot, and the latter for 1d., distance from the railway and the market being the sole cause of the low prices. These are facts for the advocates of expensive management, scientific thinning and pruning, and the like. Practically, the most that proprietors can afford to do at the present time is to plant and let their young plantations alone as much as possible. I inspected a plantation the other day that had not been thinned since it was planted twenty years ago and was much struck by the numerous fine straight young trees of all kinds which it contained, and the gradual natural thinning that was going on by the smothering of the weakest and the evidence of the inability of certain species to hold their own in a mixed plantation.

**CORSICAN FIR.**—In the controversy on this subject between "Glendye" and myself there is one point of difference between us that probably your readers have noted before this, and that is that whereas my persons and places have a habitation and a name, he has neither. That does not seem to strike "Glendye," however, nor does the fact that while he insists on proof being furnished on every particular by those who differ from him, he has none to give himself, but continues to shroud himself and his doings in mystery. I am told there is a forlorn corner in the Scotch Highlands that answers to the name of "Glendye," but I begin to think the inhabitants there must be like *Punch's* inhabitant of the remote Scottish island who, when condoled with upon his island not having any post or communication with London and the mainland for weeks at a time, replied, "Oh, it's nae waur for us than for the folk in Lunnon wha dinna hear frae us." The only points in dispute are these—first, the quality of the Corsican Fir, which, so far as anyone can say, is superior to the Scotch; second, its hardness in various soils and situations, and which in England has been proved beyond a doubt; third, its greater bulk of timber in a given time as compared to the Scotch Fir, which is also indisputable. Against this "Glendye" has nothing but his own assertions to plead, and they are not worth much. "Glendye" dwells on the plantations I named of from five to seven years old as the only example that could be shown; whereas I have told him I referred to trees also twenty years old or thereabout, and offered to show him them. I mentioned the young trees as thriving and beating the Scotch Fir in one of the most exposed positions in England, and

he can see them if he desires to do so. Will he show me his failures in return? It is high time him and his practice were examined at close quarters, and I throw down the challenge. I cannot tell him what an acre of Corsicans would actually bring if sold, because we have sold none yet, but I have no doubt whatever that if I could, they would bring as much as Larch at least.

**TIMBER TRADE VAGARIES.**—It does seem strange that a "Wiltshire Forester" should have to depend on second-hand information for his statements on this head. I am myself perfectly familiar with the state of the timber market in Yorkshire, and why should he not be also in his own county? I tell him that neither himself nor any other Wiltshire forester can send Oak into Yorkshire felled or sawn unless they let the purchaser have it at a price sufficiently low to defray carriage and other expenses all that distance, and that price would be so low that it would not pay the grower to sell it, although some may be compelled to sell their trees for less than that to find cash. The only Oak timber that there is a fair or moderately fair price going for at the present time is sound Oak of large size; and although the price does not afford a wide margin, it is just possible that Yorkshire buyers for wagon works, &c., may go to Wilts occasionally, but, as I have said, the price will have to be very low. The fact that the wharves at the railways are in Yorkshire crowded with Oak, and hundreds of thousands of feet standing over in the woods, is a sufficient answer to "Wiltshire Forester," and I could vouch for this being the case. I beg your correspondent to furnish prices, quantities, and qualities, &c., if he expects me or any other Yorkshireman to put the least faith in his statements.

YORKSHIREMAN.

## WHAT TREES TO PLANT.

FEW trees, when planted for profit, have stronger claims on planters than the Poplars, which are of numerous kinds, and may be grown with great success as timber trees. They are all perfectly hardy, of rapid growth, easily propagated, and attain large dimensions in a short space of time on a great variety of soils and situations, including damp, boggy ground inimical to the healthy development of many other species, all of which are merits of a high order. The Poplars that attain the largest size and give the quickest return in a short space of time are the Italian Poplar (*P. monilifera*), Black Poplar (*P. nigra*), White Poplar (*P. alba*), Grey Poplar (*P. canescens*), Lombardy Poplar (*P. fastigiata*), Aspen Poplar (*P. tremula*), Balsam Poplar (*P. balsamifera*), Ontario Poplar (*P. canadensis*), and the Athenian Poplar (*P. græca*). These are all of rapid growth, and although they will grow in isolated positions on exposed situations, yet, when utility is the object in view, they should be grown in groups by themselves, and the thinning and culture conducted in such a way that the side branches lose their vitality and fall to the ground without the aid of pruning, which is injurious to this tribe of trees, further than cutting off rival leader shoots at the top when the trees are young, and when the shoot is of such a size as can be removed with a pruning-knife. When grown in this way the stems present fine, clean, straight shafts, and when cut up are capable of being used with advantage for a variety of purposes, and even preferred for some uses before any other class of timber.

**USES OF THE TIMBER.**—The carpenter and cabinet-maker use large quantities of the



timber for making packing-boxes, soap-boxes, lining for carts and wagons, joists, rafters, breaks, beams for floors, staves for casks, erection of sheds, linings of stalls for cattle, folding-doors on sheds and other houses, water-troughs and feeding-troughs for cattle, lining furniture for veneering, turners' work of various kinds, field-gates, fencing-rails, and a variety of other purposes. The species which are best worthy of planting as timber trees are the Black Italian Poplar (*P. monilifera*), Black Poplar (*P. nigra*), White Poplar (*P. alba*), Grey Poplar (*P. canescens*), and the Aspen (*P. tremula*).

**PROPAGATION.**—The last three named species are generally propagated by layers, as they do not strike readily by cuttings. These are generally prepared from the roots in place of the branches. The others root freely from cuttings prepared from wood of one and two-year-old twigs, cut into sizes of about 1 foot in length, and inserted in ground of a light sandy texture in spring or during winter if found convenient. The cuttings may be planted about 9 inches in depth, 8 inches apart, and 18 inches between the rows which will give space for cleaning and weeding the ground during summer. When they commence to vegetate and grow the buds should be rubbed off by the hand, leaving one of the strongest and best at the top for the leader. Most of the species and varieties, however, produce seed, which is generally ripe about the end of May, and when desirable to raise plants from such, the seed should be sown when at maturity upon beds of smooth friable soil, the surface of which should be slightly raked, which is all the covering necessary for the seed. The work should then be finished by passing a roller over the ground and spreading a few Fir branches over the surface as a shade. When the plants appear above ground, this covering should be withdrawn to admit air and prevent the plants from being drawn up in a weakly state of growth.

J. B. W.

#### THE HOME TIMBER-YARD.

THE marks of a tidy or untidy foreman or workman are always apparent, but scarcely anywhere more so than in the timber-yard. From the necessities of the case the piles of wood in such places are always more or less in a state of transition, but a little notion of order or arrangement in the individual in charge makes a vast difference in its general aspect, and not only in this, but in saving of time, and the prevention of waste of, or damage to, material. One great point in the care of sawn timber is to see that the yard is not a mud hole. When the wet season comes, and there is much moving to and fro with heavy weights upon anything but a metalled bottom, a certain amount of mud must be the result, but it is marvellous to see how some men will go on day after day working through a perfect slough when five minutes with a pick and shovel would have made an outlet for much of the superfluous water. A yard knee deep in mud, where the boots of the men are covered with it and the splash of the horses and the wheels of vehicles help to bespatter the stacks, will not go hand in hand with making the most of the materials. To superficial observers there may not appear to be much in this, but to those who in their every-day duties have the opportunities of carefully watching and noting the results it must be well known that a slovenly wood-yard means a serious waste of material. As has been seen at some of our agricultural shows of late years, especially at Kilburn in 1879, a plank is a very useful

means of locomotion through a sea of mud, and when it once finds its way into such a location it never emerges to be of any use for anything but the commonest of purposes. We therefore repeat that one great essential towards the careful keeping of sawn timber is to see that the ground on which it is stacked, and also that in its immediate neighbourhood, is as free from water and mud as is possible under the circumstances. With the greatest precaution, however, there is sure to be more present than is desirable; therefore, the next thought is how best to overcome the inconvenience. An important step towards this is to keep, in some otherwise unoccupied spots about the yard, a stock of inferior blocks and planks of wood. Of these, if carefully put on one side for the purpose, there is sure to be plenty—material which, from the presence of dead knots, shakes, or other imperfections, was of no use for other work, and which, if lifted when the stacks are taken away and stored in its place, will last for many years. This class of wood, we say, is a great help towards preserving the sawn timber of good quality, as it can be placed upon the ground to take the wet and dirt, and form a stage slightly elevated enough to give a current of air underneath the stack which has to be erected. This, of course, refers to piling horizontally, and this is the method by which a large proportion of sawn wood is stored. In arranging these stages, which in most cases need not be more than 4 inches to 6 inches above the ground, care must be taken that they are perfectly level, or if not level, that they incline at the same angle, as if the stage at one end of the intended stack is level, but at the other appreciably deviates from it, the result will be that if the boards, planks, or scantlings which are laid on it remain for any length of time, they will become twisted and unfit for purposes where accuracy is necessary. When the stage has been placed so that the first board of the stack lies firm and level, all is plain sailing, so far as piling is concerned, providing the obvious course of laying the boards upon each other in the order in which they were cut from the tree is followed. When all are squared to one width, this is not so essential as whether the order is preserved or no; the fact of the boards being all of one size will secure uniformity; but when the tree has been merely cut through with parallel cuts and the boards come off haphazard widths, it need hardly be pointed out that unless they are arranged in the same order in which they are cut, anything like a tidy appearance will never be gained, and, what is of more importance, the wood will not be so safe against the effects of the weather.

In some cases it will happen that it is well to stack timber for a time perfectly close together in this way, but as a general rule air must be admitted into and allowed to pass through the stacks. It is the practice of some when piling to collect a store of thick pieces of bark an inch or two square, and to place four, six, or eight pieces upon each board, according to length, as the stack ascends. When carefully done with pieces of uniform thickness this answers very well, but as it is rather tedious it is better to have a supply of thin strips or laths to use in a similar manner. Whether bark is used, or whether laths are preferred, it is important that the supports should range directly over each other, and that those at the ends should be either quite level with the end or not more than an inch from it. The number of laths along the length of the stack will, of course, depend on the thickness of the boards or planks, as well as on their length, as with

thick pieces the tendency to sink between the bearings is not sufficient to cause damage. When the space is available, it is well to have enough room to allow of walking between each two of the stacks, as this will facilitate both seasoning and inspection.

In the winter time too much air cannot be admitted, but in the spring and summer judgment in this respect is necessary, as more damage is likely to be occasioned by injudicious exposure than would be the case if it was kept too closely together. In the spring time the harsh drying winds have to be calculated upon, and with woods like the Ash every precaution must be taken. Perhaps at this season of the year the best plan is to fasten strips of wood to the end of each plank in the way described a few weeks ago, but with thin boards where this cannot be done, it should be as carefully covered as can be with rough matting, inferior boards, or any like material which would tend to lessen the effect of the wind. In summer something of the same process must be gone through, but as at this season it is more the sun that has to be guarded against, a little foresight in stacking under the shadow of a tree, or on the shady side of a building, will be well repaid. At this time of the year Nettles and similar rough herbage are abundant, and this can be very usefully employed in covering up sawn timber. The actual arrangement of stacks in a yard must, of course, depend much upon circumstances, but the primary things beyond those upon which we have touched should be access to, that labour in unnecessary removal may be saved. In some places it is very common to see all kinds and sizes of sawn wood stacked together pell-mell, but to one who takes a pride—and a well-arranged timber-yard is something to be proud of—in his charge, such a state of things is insufferable. A place for everything and everything in its place is as important a motto in a wood-yard as elsewhere.

D. J. YEO.

#### VALUE OF THE SYCAMORE.

IT is not a very pleasing thing when one has cut down a tree, gone to the expense of hauling it to the sawmill, cutting it into planks, and paying the carriage for a hundred miles or so, to find on arrival at its destination that it is of no use for the purpose for which it was intended. Such a thing as this, however, we have known occur with the Sycamore, not through any inferiority in the wood itself when felled, but on account of improper treatment afterwards. For most purposes for which this tree is used the peculiar whiteness of its wood is the quality of the greatest importance, and in proportion to this delicacy of colour is its liability to stain.

To those who have been accustomed to deal with such woods as the Oak, or even the Ash, it would seem almost incredible that the Sycamore will deteriorate so rapidly as it does. In a very short time after it is felled, if left lying upon the ground, it begins to go to the bad. It is essential, therefore, that it should be removed to the saw yard when freshly cut, but this precaution is not in itself sufficient, as, rapidly as the tree damages before it is sawn into planks, it is nothing to the small space of time it takes to reduce its value by one-half after it has been sawn. It is hard to mention a time in which the wood would be likely to be virtually spoiled, as the conditions under which it was placed would vary; but in many cases it takes but a very few days, if it is cut and stacked in the damp in the open air with



the planks closely together, before it will become so stained or tainted, that the use to which it can be put must be entirely changed. We have also known Sycamore planks after they have been carefully attended to before sending away become almost spoiled in the course of a long railway journey in an uncovered truck. On such, therefore, as have occasion to handle sawn Sycamore wood for a transit of some days by rail or other kind of carriage we would urge the importance of seeing that it either goes in a covered vehicle, or is properly sheeted to keep off the rain and moisture. We have dwelt rather at length upon this, as the necessity of great care in dealing with this tree cannot be over-rated. The most of our common deciduous trees stand so much neglect in the shape of lying about, that it comes almost as a revelation to some that we have a species growing up round us which really requires care in manipulating.

Planters and cultivators are in the habit of giving their views as to propagation and growth pretty copiously, and rightly enough, too, but it must not be overlooked that whatever care may be expended on its growth, if it is not rightly managed when matured and felled, it will only be labour lost. It is more common to find a few Sycamores for offer with a quantity of other woods than to find it in the market by itself; but when the latter method of selling is adopted it will be well to make sure of a customer before the trees are felled. If an objection exists to negotiating as they stand for a lump sum, then they may be sold at a price per foot, the seller undertaking the responsibility of their falling unsound or inferior. If they fall unsatisfactorily, the bargain would, of course, drop through, but if sound and good the cubic contents are readily found, and the risk of subsequent damage falls on the merchant.

The tree to which we have been referring throughout is, of course, *Acer Pseudo-platanus*, and not the Plane proper, although the nomenclature amongst dealers sometimes gets mixed, and the Sycamore or great Maple is spoken of as the Plane tree. We have been so much occupied with urging the importance of taking precautions to preserve the colour of the wood of the tree under notice, that we have said nothing of the uses to which it is generally put. These naturally are such where either as a matter of necessity or appearance the colour is a great factor. It is true that for rollers of domestic apparatus, such as washing-machines and mangles, the closeness of its grain, without any considerable degree of hardness, is greatly taken into account, yet its colour and the absence of any quality likely to prove detrimental to the material operated on are quite as much regarded as the other.

Of the proportion of this timber used for these purposes we have no idea, but for the best class of machines, so far as we know, little else is used. Cabinet-makers, for many purposes, affect the Sycamore, and, contrasted with a dark wood, the work is very striking. We have seen panels of the former surrounded with a narrow border of Yew which looked extremely well, as both woods are capable of a high degree of finish. Pianoforte-action makers and manufacturers of other musical instruments are considerable consumers of Sycamore, and of course, for their purposes, require the very best. Unlike some woods, this is one which is at its best as regards colour when comparatively young, as when left standing for too great a length of time it becomes somewhat yellow, or goes dark in spots, and therefore is of less value. Although in cottage homes the willow-pattern

plate has superseded the wooden trencher, and in homes higher in the social scale the more pretentious wares dominate, wooden plates and utensils are not entirely a thing of the past, and for such purposes there is scarcely a wood which suits the turner and answers the purpose for which it has to be used better than the Sycamore. Opinions certainly may differ, but to us for a bread-plate there is nothing more appropriate than a nicely turned and carved Sycamore trencher. Another purpose for which this tree is now and again used is the manufacture of the framework or shells of pulley blocks. The pulleys themselves are made of harder material. For boards for leather-cutters this is also a very suitable wood, but on account of its comparative scarceness and high price cheaper woods such as Poplar are often pressed into service. It is also, we believe, used occasionally for gunstocks and cleft for various purposes, but of these uses we cannot speak from personal knowledge. We know, however, that the smaller portions are used for making bobbins, brush backs, and the like, and that a very considerable quantity is cut up into the better class of toys and small ornaments. Indeed, if the wood is really white and sound, scarcely an atom need be wasted. The observant eye can scarcely fail to notice in the innumerable small articles exhibited in shop windows in sea-side and other towns that the Sycamore is much used.

Essentially a fancy wood, it is, nevertheless, one of great utility, and the belief has been expressed elsewhere in these columns that when its place and uses are properly reckoned upon, it is a tree which may be grown with very fair chance of profit. Whatever is good whether large or small, as we have said, can be used in various manufactures, but with the Sycamore, as with the Ash, rough and inferior wood is of very little value. It, however, makes capital firewood, and to this purpose it will pay better to put it than to keep it lying about for a customer who will never come.

**The two Elms.**—What a very superior tree the common English Elm is to the one often substituted for it, and of which one often finds ancient examples in parks. I mean the Dutch Elm, said by some to be only a variety of the English Elm, but the two are most distinct in habit and general appearance. The English Elm is, as a rule, clean-barked, even when old, tall and spreading; whereas the Dutch variety is of much stiffer outline, has a corky bark and gnarled trunk, and is shorter lived. These characteristics grow more apparent as the tree grows older. The Dutch Elm is the variety most addicted to casting its limbs in that sudden manner which renders the tree such an undesirable subject for avenue planting, for which it was formerly so much used.—Y.

#### TREE-PLANTING IN THE PAST.

In "J.'s" first communication on this subject he discredits old Elms that exist in such quantities throughout the country having been planted, and tries to make out that they have come into existence through Nature's agency—an assumption that is so far opposed to facts, that it is strange "J." should not have seen the inconsistency of it. If, as he now says, he knew before my reminder that the common Elm (*Ulmus campestris*) does not ripen its seed in this country, how were they to have come naturally? By admitting that this Elm does not ripen its seed here, "J." cuts away the ground on which he takes his stand. The old Elms not having come into existence from seed, will "J." tell us how they have come? He says he objects to the assumption that a tithe of the old Elms growing in this country ever were

planted. My answer is this: it is not an assumption, but a certainty that they have. Within a radius of twenty miles round London there are probably ten times as many old examples of this tree as can be found in a like space anywhere else in England. Not having come from seed, if not planted they must be from the stools, or from suckers of others that were there before them—a supposition which the trees themselves show to be as visionary as it would be to suppose that Cedars of Lebanon, standing in places here and there amongst them, had sprung up naturally. T. B.

#### THE ALDER.

(*ALNUS GLUTINOSA*.)

THIS, one of the commonest of the trees indigenous to Britain, is more localised to certain parts of England than most of the native species, and if we take into account its partiality for moisture this is only what might be looked for, as where the soil is damp enough to suit it there are few trees that reproduce themselves naturally from seed so freely. Before a better system of cultivating the land by thorough drainage came about it was no unusual thing in some of the wettest parts of the northern counties to see acres upon acres of rough pasture with a growth of seedling Alders springing up that would soon have taken possession of the whole surface if not cleared off. In those parts where the rainfall is double that which occurs in the south of England, Alder grows proportionately faster and attains a much greater size. The character of the wood is too well known to require anything saying about it, further than that it soon perishes if exposed to the weather, or if used where under the influence of damp. Its greatest merit lays in its not splitting easily; on that account it can be used for many purposes where lengthened endurance is not required, and where better and more lasting kinds of wood are not so well adapted; one in particular—"clogs." A resident from the southern or eastern parts of England, who for the first time finds himself domiciled in one of the cotton manufacturing towns, is tolerably sure to have his slumbers disturbed early in the morning by the sharp rattle of thousands of clog-shod feet that for the half-hour preceding the mills beginning to run keep up an incessant clatter that sounds strange to unaccustomed ears. Alder, with a small percentage of Birch, is the wood used for the many millions of clog soles that are annually worn in the cotton, coal, and iron districts. The tops, consisting of about half the length of the best trees, come in for the clogger's use, whilst the smaller logs all fall to his share. The work of breaking up the sole wood is almost invariably carried out where the timber has been grown, and whilst it is yet green, the usual course being to break it up during the summer following its being felled. The obvious reason for carrying out this first operation of preparing the soles where the wood has been grown is to accelerate the requisite drying and to save carriage, as there is much waste in outside pieces and thick chips, unavoidable from the shape which the soles require to be fashioned into. Much of the Alder used for the purpose under notice in times past was obtained from the hedgerows, which, in the parts in question, were then more numerous than they now are, in addition to which there has been a great reduction of the trees allowed to stand in the hedges that have been retained, consequent on which the cloggers have to go further for their supplies. North Wales, I understand, now furnishes a good deal of the sole wood required in the cotton manufacturing



and the hardware districts. There is one fact connected with clogs—that they seem to have been in a great measure confined to the cotton manufacturing districts, not having been worn to near the same extent by the operatives engaged in the woollen trade of the adjoining county, Yorkshire.

Alder is a good deal employed in the localities where it thrives best by the cart-wrights who use it in the shape of boards for repairs. The packing-case makers also use it, whilst the smaller growth comes in for the bobbin-turners, and there is little doubt that it would answer for railway carriage and wagon breaks, like others of the soft, tough, native woods. But as I have already attempted to show, it is the cloggers that take the greater proportion of what is grown in the manufacturing districts. Considering the low price which the inferior kinds of timber now command, Alder is not likely to be an exception. What its exact value now is in the places where it is most used I am not in a position to speak to. It will thrive anywhere in wet land, like Willows. There are now so many purposes that soft, moderately tough wood is required for, and for which only such will answer, that it becomes a question if the demand in time to come will not be greater than the supply. At all events, Alder will thrive in places where timber of better quality would fail altogether.

T. B.

**Quality of timber.**—It seems to be admitted generally that climate and soil exercise a very decided effect on the quality of timber. Thus the Oak from one part of the country, and even from different plantations, not far separate, may, and often does, differ greatly in quality. In some situations where the soil is poor or thin and the climate perhaps cold, the trees grow slowly and the quality of their timber corresponds, being short-grained and hard; while on good soil and under better conditions, generally growth is quicker and the wood larger in the fibre as well as stronger in some ways. A very general impression exists that slow-grown timber is the strongest, but this opinion does not, it is said, stand the test of experiment. There is, somewhere in London, a Government establishment for testing the quality and strength of all woods and metals used for Government purposes, the chronicles of which are said to be very interesting. Among other things which have been proved there, is the fact that fast-grown timber—Oak, at least—is the strongest, bearing the greatest degree of tension. Samples from favourable localities and deep good soils surpassing those from the north and elsewhere, where the soil and climate are both inferior and the growth slower. This is opposed to the popular notion in favour of slow growth, and may probably be disputed by some, but I believe the Admiralty records will prove the correctness of what is stated. Still, it might be advanced with reason that one of the best of all woods, the Scotch Fir, deteriorates in the quality of its timber the farther south we find it, although it grows to a fine tree, the timber of the highlands equalling the best samples of red deal, and becoming worthless almost in the south.—Y.

**Trees for smoky localities.**—The Plane tree thrives best in towns, because it endures the smoke and other deleterious substances discharged from dwellings and factories, and so in the country does the Sycamore appear to thrive better than almost any other tree, unless it be the Spanish Chestnut, the Firs and Pines doing worst. Power in trees to withstand smoke and gases seems to depend entirely upon their vigour of constitution, and in this respect the Sycamore and Chestnut seem to have few equals. In some of the worst localities in the colliery and manufacturing districts both do wonderfully well, showing no ill effects in any way. The Sycamore is the best because it seeds so freely, seedlings coming up everywhere in the neighbourhood of old trees, in some places superseding the Oaks and other species that have succumbed to the climate. The Beech and

the Lime also do fairly well. I know of no place where trees are so unfortunately placed as the few Canadian Poplars—which I think they are—that have been growing for some years in the old parish churchyard in the very centre of Sheffield, where they are all but smothered with the sooty particles continually being deposited in that town. The bark is quite black, and after a shower, when the leaves get cleaned a little, their green aspect has a curiously artificial looking effect. It says much for the tree that it has been able to live there at all, and he must have been a sanguine man who planted them there after looking upon the gaunt spectres of other trees, near the town on the smoky side, and which now only denote where trees once grew and flourished.—Y.

#### A NEW MODE OF SEASONING WOOD.

If it is true there is nothing new under the sun, it is equally true that thinking men are from time to time devising means to hasten Nature in some of her slower processes, and amongst these may be reckoned one which closely concerns us, viz., the seasoning of timber after it is sawn. In the ordinary way, as is well known, it is sometimes years before wood is sufficiently deprived of its moisture to be fit for working up for the more particular class of purposes, and as a stock of dried timber is not always to be had, great inconvenience not infrequently results. As a case in point, at the time of the American Civil War, something over twenty years ago, the stock of dry Oak which was sufficient for the normal demand for gun carriages rapidly became exhausted. No more dry material was obtainable, and using green wood could not be countenanced. In this dilemma the plan of seasoning some wood by means of hot air or steam was decided upon, and, so far as appearance went, the result was successful, as the wood emerged from the furnace as bright as it went in. One peculiar feature, however, was observable, and that was that instead of the surface being somewhat convex, as in the case with wood dried in the open air, it was concave or shrunken in the middle. The pressure used was 250 pounds to the square inch, and, on opening the pieces, the interior was found to be completely charred. In this case better results were subsequently obtained by using a lower temperature, though rather longer about. Since then, doubtless many other processes have been tried, but so far as this country has been concerned, little has been done in the way of artificial seasoning.

In some manufactories, hot rooms are to be found where the finished portions of chairs and similar things are placed for a time as a final touch, but these instances are nothing compared to the great bulk of wood which is seasoned by exposure in the open air. That, however, the interest in the subject is by no means dead is proved by the statement in a daily contemporary that

A solution has now been found to this problem in the "Cool Dry-air Process." The name indicates the whole secret of its success. Materials to be dried are placed in a chamber through which a current of moderately warm dry air is passed continuously, and the test of experience shows that air so deprived of moisture acts as an absorbent in a manner that without such a test would have been deemed impossible. In the first instance, the current is drawn through a small furnace, in which it is heated to about 600° Fahr. At this temperature the atmosphere is, of course, without trace of vapour. After being thus heated, it is cooled by a vigorous circulation of external air, which lowers the temperature to between 80° and 90°, and in this condition is propelled by fans driven by steam through the drying chambers. Within these chambers the temperature is that of a hot summer's day, but the air is so "greedy" of

moisture, that everything within its wonderfully penetrative influence is desiccated. A machine erected on this principle is working at a sawmill in Pimlico, and there the practical operation of the system has shown some results that are equally remarkable from a scientific as from a commercial point of view. Timber, as is well known, takes years to season. It has a perfectly surprising power of absorbing and retaining moisture. Thus, 44 cwt. 2 qrs. of Birch were subjected to this process for ninety-four hours, and then examined, when it was found to be completely "seasoned, free from cheeking, rents, or warping," and it had given out in the operation 10 cwt. 2 qrs. 24 lbs. weight of water. Strange to say, wood so treated shows no evidence of any change beyond the dryness of its substance, and this appears to be uniform throughout. Tested even by the microscope, the fibre and cells seem to be unchanged; they are as close, but no closer, than before, and there is no perceptible shrinkage in dimension. Some lengths of Ash gave still more striking results. Out of 47 cwt. 3 qrs. no less than 21 cwt. 1 qr. of moisture was extracted. British Oak is a very stubborn wood to season. Some logs 2 inches thick were finished in nine days, which by natural drying would have required three or four years. These effects were accomplished with a current of 6200 cubic feet per minute; and the great lesson they teach is that all the mischiefs hitherto produced by drying systems accrued from the excessive heat. In this process the temperature never exceeds blood heat; and as a consequence, delicate fibres, fabrics, and chemicals are uninjured.

The process is the invention of an American, and as to its cost we know nothing, but if this is not too great, and the result is really as stated, it looks as though a discovery has been made capable of revolutionising the whole question of timber seasoning. It is well to be chary of pinning faith to a comparatively unknown thing, but we shall watch the development of the idea with interest.

**A profitable timber tree.**—The wild Cherry (*Prunus serotina*), says an American paper, is a healthy tree and a rapid grower, and its timber brings as high a price in many markets as Black Walnut. It is a much more profitable tree to plant than the Black Walnut, as it can be grown closer, that is to say, many more trees can be grown to the acre. It is not so detrimental to other vegetation as the Black Walnut, which will always be found to have ample room if of large size, having made everything else "stand from under," while the Cherry may be found close to other trees without apparently harming them. Another great advantage the Cherry has over the Black Walnut is that it is ripe for the cabinet-maker in less than half the time required for the Walnut, and to this may be added the advantage that it is easier grown, or, rather, more cheaply grown, for either of them are as easily grown as Peas or Beans. One bushel of Cherry seeds will grow as many seedlings as twenty-five bushels of Walnuts, and the Cherry is more easily dug up and transplanted. It is a very valuable tree, as is well known to everybody, but everybody does not use common sense enough to know (as they might, if they only stopped to think) that Black Walnut trees will not all make saw logs when planted 2 feet or 3 feet apart. The common-sense way would be to plant them at least 20 feet apart, and fill in with cheap, rapid-growing trees that could be cut out in time, leaving the whole space to the Walnuts; for it should be borne in mind that the Black Walnut sapling is of about as little use for any purpose as any common sapling. The Black Cherry is found from the Canadian lower provinces to Florida, and from the sea board to Kansas and Nebraska. The Black Walnut has about the same range, both apparently "running out" in Northern Wisconsin and Minnesota. It will make a rapid growth on much poorer land than will the Black Walnut. It grows well on a light, sandy, gravelly loam, and grows best on dry land. Where the land is naturally moist the Black Walnut will flourish, and should be preferred.



"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## INDOOR GARDEN.

### CARPETING BULB BEDS.

As in other departments of gardening, so in this will success or failure depend on knowledge and experience; but those who are capable of keenly enjoying the many lovely little garden pictures that may be made by assorting suitable bulbous and carpeting plants will certainly try to make more. It is not to be denied that there are close-growing plants so dense and discouraging, that they may spoil and even kill delicate bulbs; but, on the other hand, there are undoubtedly combinations where the plants grown together seem to nurse and cherish each other. The nature and habits of individual plants are so different, that one cannot generalise either way, or say that all bulbs are the better or the worse for all carpets; but I venture to say, from several years' experience, that many are none the worse, and are certainly infinitely more beautiful for the companionship. It may be regarded as one of the higher developments or refinements of gardening 'needing knowledge and careful thought in the making, and rewarding the good gardener by the sight of lovely jewels in appropriate settings. As examples that have certainly succeeded, I may quote the following: A spreading group of *Scilla sibirica* was planted in 1881 and carpeted with *Sedum Lydium*; neither have been replanted. The Squill yearly increases in strength; the Stonecrop is ragged, from blackbirds having been scratching among it, but will easily be put right. *Iris reticulata* was planted in 1882 at the junction of three carpets—of *Thymus lanuginosus*, *Potentilla dubia*, and mossy *Saxifrage* respectively. The *Iris* now wants division, and the *Saxifrage* needs replanting, having grown into thick, deep tufts. *Scilla bifolia taurica*, planted in 1882, comes up yearly under its covering of *Arenaria balearica*; neither as yet need alteration. The dwarf Daffodils of the Rush-leaved section increase and flourish under *Veronica repens*, *V. rupestris* and *V. saxatilis*, *Coronilla iberica*, and even the very close-growing *Antennaria tomentosa*. *Narcissus minor* and *N. nanus* are not daunted by their close, rather woody counterpane of *Dryas octopetala*. Some of the *Crocus* species are under a wide carpet of *Hypericum reptans*. Some do well, others have their tops yearly nibbled off by mice, so that one cannot judge of them fairly. *Hyacinthus amethystinus* and its white variety are happy among white *Thyme* and *Frankenia laevis*. None of the bulbs mentioned were planted later than 1882, and their carpeting plants have not been renewed except where stated. Later, a stretch of *Sedum glaucum* has been planted with *Chionodoxa Lucilæ* and Spring Snowflake, which are doing well. A grand failure was in the case of some imported unripened *Acis autumnalis*, planted under *Acæna Novæ-Zelandiæ*, but this was a case of gross ignorance in every way: first, the *Acæna* is a very close-rooting, ground-robbing plant, only suitable, if at all, for covering some very robust bulb, and then the *Acis*, one of the most dainty of bulbs, should have had at least a year's rest and the most encouraging treatment to regain strength.

The question may be in some cases one of soil

and situation. In the examples quoted above, the soil is peaty sand over rock, standing high in a southern county. Some bulbs are impatient of drought and would certainly in such soils be the better for a living protection. Some clumps of *Fritillaries*, nearly all dead, as I believe, from the heat and drought of the last two summers, I think might have escaped had they been comforted with a cool green covering. I do not quite apprehend what "Lex" means by "permanent" as applied to clumps or beds of bulbs and their plant carpets. To tell him how to "carpet bulb beds permanently with success" is a challenge that would need a boldness akin to rashness to accept, for it appears impossible. Let us suppose that he means moderately permanent, though the word is not one that admits of any such qualification. To venture on a generalisation, probably nine out of every ten kinds of bulbs and plants would be the better for transplanting once in four years, and a considerable proportion of these, excluding the bulbs, for yearly renewal. This, at any rate, is the experience taught by a very poor sandy soil, in which bulbs increase fast and ripen well, but which is wasteful of water and fertilising matters. Those who are planting bulb carpets should notice that there are many trailing plants that cover a large space without rooting as they trail, or rooting very slightly, so as to form only a feeble anchorage for the extending growths; these need not in any way rob the roots of the bulbs, and serve a useful purpose in summer as a living mulching to preserve moisture. As examples may be mentioned *Hypericum reptans*, the alpine *Gypsophila*, *Tunica Saxifraga*, *Aubrietia*, and the *Pinks* of the *cæsius*, *deltoides*, and *petræus* class, and their many hybrids. Also for the more delicate bulbs a carpeting plant should be chosen that has not a very strong root-hold, such as the Stonecrops named above, viz., *S. Lydium* and *S. glaucum*, thus keeping in mind, with due regard to appearance, the relative vigour of the bulb and its destined carpet.

In alpine gardening especially this association of bulbous-rooted and creeping plants is one of the most delightful of studies and pleasures. The failures and half-failures are only so many instructive steps to knowledge, and need not dishearten anyone, for, as says one of the ancient Fathers, I think St. Augustine: "By our sins" (repented of, of course, understood), "as by a ladder, we climb to Heaven." G. J.

### EUCHARISES AND TUBEROSES.

I DOUBT if we possess two more popular flowers than *Eucharis amazonica* and the *Tuberose*. I have grown the former for many years in large quantities, but in consequence of their occupying very large pots we could only make use of the flowers in a cut state; I therefore determined to re-pot a portion of our stock in pots. We looked out twenty large potfuls; on turning them out, we found the bulbs in the best possible condition, all being clear and free from black spot. These bulbs we put into clean 10-inch pots, nine bulbs in each, and here, I may mention, that they were not picked, but were put in just as they came to hand. The following compost was used at the rate of three barrowfuls of rich turfy loam to one barrowful of leaf soil and farmyard manure, the whole well mixed together, and about half a bushel of sand added. When all were duly potted, they were plunged in a bottom heat of from 75° to 85°; no water was given at the roots; they were but lightly syringed night and morning, and kept duly shaded. It must be remembered that these bulbs take along time to re-establish themselves, being potted in May last, and water was given at the root when they were

semi-established. After that they soon began to pick up their leaves and grow luxuriantly; in fact, I began to think they would be all leaves and no flowers. However, a fortnight ago we noticed a few spikes making their appearance, and since then they have come up rapidly. I have this day been over them, and each pot will average six spikes of bloom; some I counted had nine; therefore, I shall be the happy possessor of sixty potfuls of these charming plants for Christmas. Being in 10-inch pots, we can utilise them either in the way of cut bloom, or for the decoration of the conservatory. *Tuberose*s are to me nearly strangers, and I was very much perplexed a few years ago as how to have them in full bloom at Christmas, inasmuch as the bulbs could never be obtained before November. We therefore use last year's bulbs, that is to say, we receive the bulbs, in my case, in January oftener than in November. We keep them dormant until May, then pot them in 3-inch pots, and plunge them in coal ashes in a cold frame; about August we pot them again in 4½-inch and 6-inch pots; we then house them in a cool house until they begin to push up their spikes, when we transfer them to the stove. Our plants average about 3 feet in height, and are just opening their lovely sweet-scented blossoms. R. GILBERT.

Burghley.

### NOTES ON RECENT NUMBERS.

**Shelter** (p. 567).—The use of Beech hedges for shelter, especially near the sea coast, is well known in many parts of England and Scotland, and naturally, too, from the number of recommendations which they possess; and where they exist inland and are well kept, they gain praise from all who are unaccustomed to them for their appearance. A hedge must necessarily be a formal thing, for when allowed to grow freely and picturesquely it soon becomes thin in places and full of gaps, and loses its value as a division between two fields to keep the inhabitants of one from the unlawful enjoyment of the other. The shelter afforded by Beech hedges in exposed situations is worthy of note, owing to the dead leaves clinging to the twigs all through the winter, and the ease with which they can be "kept" at any height desirable is another great advantage. I have not yet come across the Copper Beech employed in this manner, but do not see why, for the sake of variety, it should not be mixed with the ordinary kind as well as Maples, Hornbeam, or anything else that will bear close trimming in cases where a formal hedge is absolutely necessary in a garden either as a screen or for shelter. A good Copper Beech hedge might be very effective as a background to throw up green-foliaged plants, such as Bamboos, &c., and there are a good many of our hardy flowers which should not disdain to be set off by or seen against them. Though the roots of a Beech tree are often a great nuisance in a garden from the distance they run and the way they get into the borders, in the form of a hedge it would not be much worse than Yew or anything else usually grown; and one would expect that after a time, from the constant trimming, there would be very little root development each season. It must not, however, be thought that it is not a lasting hedge, for it will keep in good condition for a great number of years.

**Martagon Lilies naturalised** (p. 567).—They seem to stand more rough treatment than almost any other Lily, and in some cases positively to rejoice in neglect, but what is more noticeable is the way they continue to grow even when smothered by Evergreens or other thick foliage. It does not seem to matter how thick the shade is overhead, and I have known them come up year after year in the middle of a big *Rhododendron* clump which had completely overgrown by some yards a border originally in the front of it. Try the common white Lily in one-tenth part the shade and see the result; it is most susceptible to any obstruction of light and air, and a big tree at a little distance off immediately handicaps it of half its blooms. There are many others of the genus which, though fond of some shade,



will not bear smothering like the Martagon, and this accommodating trait in its character makes it specially suitable for naturalisation or for fighting its battles for itself satisfactorily, and it often turns up in unexpected places, the sole survivor to tell the tale of where a garden has once been. Would that we had more plants equally long lived and enduring.

Susser.

C.R.S.D.

## NOTES OF THE WEEK.

**Cymbidium Mastersi.**—Of this lovely Orchid we have received from Mr. Fowler's garden at Ashgrove, Pontypool, a fine spike cut from a specimen bearing fifty flowers on three spikes. The spike sent bears twenty flowers, large, pure ivory-white, and delicately scented. This is without doubt one of the most valuable of all Orchids, being easily cultivated, evergreen, and of elegant growth.

**Oncidium Jonesianum.**—This new species, it is satisfactory to note, is becoming distributed widely, and is admired by all who see it in flower. We have a spike before us from Mr. H. M. Pollett's garden at Fernside, Bickley, and very charming it looks. It is different from all other *Oncids* both in growth and flowers. The leaves are round and fleshy, like those of some of the *Brassavolas*. The flower-spikes produced from their base bear from three to six flowers. The sepals are pale yellow, heavily spotted with cinnamon-red, while the lip is semi-circular and pure white, contrasting beautifully with the petals. Mr. Pollett grows it successfully on suspended blocks in an intermediate house.

**Eucharis subedentata.**—This plant, better known as a species of *Calliphuria*, does not possess such commendable qualities as a garden plant as are found in the large flowered kinds, such as *E. grandiflora*, *E. Sanderiana*, &c.; but it is, nevertheless, deserving of a place in large stoves, and particularly where it can be planted out in a moist and shaded position. Grown in pots in full sunshine it does not, as a rule, flower satisfactorily; at least, such has been the result of such treatment at Kew; but when planted out, and left to itself, in one of the most shaded corners of the beds in the Palm house, it has made a large tuft of bright green healthy, Funkia-like foliage, and is now flowering freely. That many of the evergreen, strong-growing bulbous stove plants will do well when treated, as has proved successful in the case of this *Eucharis*, is proved by their healthy growth and floriferousness in the Palm house at Kew, where, at different seasons, we have noted large flowering clumps of *Pancratium speciosum*, *P. caribæum*, *Hymenocallis macrostaphana*, *Crinum*, and *Eucharis grandiflora* (amazonica). It is only in very large houses where positions of the above kind can be afforded such plants; but certainly we should recommend the planting out of these in preference to pot cultivation, where means for the former method are obtainable.

**Hæmanthus Baueri.**—This is a new addition to the cultivated species of *Hæmanthus*, and is related to the white flowered *H. albiflos*, and its variety *albomaculatus*. In the shape of the short, broad bulb, the suddenly bent character of the large green leaves, and in the inflorescence of *H. Baueri* we have, however, good marks of distinction. The leaves are about 8 inches long and 4 inches wide, smooth and shining above, glaucous and hairy beneath; their bases pressed tightly together, so that the flower-scape seems as if growing from a slit in the leaf. The scape is short and upright, bearing a flower-head composed of large white overlapping bracts, which surround about a score of long, narrow, white flowers, through which the stamens project so as to display the bright yellow anthers. A plant of this species is now flowering in the Cape house at Kew and has figured for the *Botanical Magazine*. Judging by its present appearance this new species promises to be a useful and pretty addition to the cool-house kinds of *Hæmanthus*, of which *H. coccineus* (often known as *H. sanguineus*), *H. albiflos*, *H. natalensis* and *H. incarnatus* are familiar. In the same house at Kew there are also flowering a pale flowered variety of *H. coccineus*,

named *H. coarctatus*, and a hybrid, raised by Col. T. Clarke, from *H. albiflos coccineus*. This last has the habit of the latter parent, with dark crimson flower-heads.

## TREES AND SHRUBS.

### TRANSPLANTING EVERGREENS.

OPINIONS differ considerably as to the best time for moving evergreen trees and shrubs, some preferring spring, whilst others consider the autumn months to be the most favourable period of the year for doing so. The principal argument in favour of spring planting is that the fine weather is near at hand which stimulates root activity as soon as the planting is done, and so that there is not so much danger of death or injury as when the trees have to pass through the winter. I think that much depends upon the particular period in autumn which is chosen for the work, and, judging from my own experience and what I have seen, I should say that at no time of the year can perfect success be so well assured as in the first fortnight in September. I have long thought that at no time in the year is root action so lively as in the earliest weeks of autumn; not even in the full growing seasons do fibrous roots appear to be so freely made. The fact is the earth has not lost any of its summer warmth, and refreshing rains and cooler nights exercise their usual beneficial effect. It is otherwise when October is far advanced; the soil, by reason of cold drenching rains, has already declined in temperature; the natural consequence of which is that there is but little chance that Evergreens moved at that time can get sufficient hold of the ground to enable them to resist hard frosts and cold winds. It is more often easterly and northerly winds that destroy freshly planted trees than frosts; they draw the sap out of the foliage more quickly than it can be drawn up by the roots, which have naturally lost for the time their normal activity. In the case of deciduous trees there is, of course, not so much danger, and they do not often suffer if planted at any favourable time during the winter, that is, if care is taken to keep the roots from drying and if the work is well done in other respects. *Magnolia grandiflora* and *Hollies* should never be transplanted in winter, for unless it be a very favourable one they are sure to lose some and often all of their leaves. If they cannot be moved early in September, they should stand until quite the latter end of May. The French, who pay much attention to *Magnolias*, prefer August for transplanting them, and I know that if they are carefully moved and well watered in they are almost sure to do well.

**HOLLIES** may be planted in April with a good prospect of success. August is not the month that would be preferably chosen for transplanting a general stock of Evergreens in this country, but in Switzerland and in many parts of Germany this is considered to be the safest time for doing so. When in Switzerland I was much surprised to see that in the last week in July preparations were made for transplanting the Conifers. The summer was exceptionally hot and dry, the ground was parched, but scarcely a tree died, although some operated on were quite 8 feet high. Certain precautions were, however, observed, without which I doubt if transplanting Evergreens under such circumstances would prove satisfactory. The roots were sprinkled and covered with mats, and each tree was watered in when planting, filling with the dry soil. I have no doubt that root action recommenced in forty-eight hours after planting. The labour involved in transplanting under a hot summer sun would

alone deter planters from doing so in England, and, as a fact, we do not need to do so, and I only give the above details to show that no one need fear moving an Evergreen late in August or early in the following month. It is the severity of the winter that causes the Swiss and Germans to transplant in the full heat of summer, for Evergreens of the very hardiest kinds, even when thoroughly established, have sometimes a hard time of it, so that if moved in the autumn they would be sure to die for want of sufficient root-hold. Then, again, the weather in spring is so hot, and the wind is often so parching, that spring planting is an uncertain affair. March and April are the months often selected for transplanting Evergreens in this country, but the former is apt to be very trying, and I have often observed big gaps in plantations made at that time of year. In the case of anything choice a mulch should always be laid over the roots; it will often save a tree in a trying time. At whatever period of the year transplanting is done, every care should be taken to screen the roots from the drying air. If they are preserved intact, they soon grasp the new soil; but if they dry, they can no longer act.

THE VALUE OF THE SOIL should influence the time and manner of transplanting. In light soils there is naturally less danger in moving trees late in autumn than in those of a cold and moisture-holding character. In the case of a heavy loam, I should be sorry to transplant Evergreens later than the beginning of October, and I should be equally sorry to have much spring planting to do where the soil was of a very porous description. Light soils so rapidly lose their moisture, that spring-planted trees frequently suffer severely, although the evil effects of drought may in a great measure be averted by a good thick mulch. J. C. B.

**The deciduous Cypress in autumn.**—Among the great number of different tints to be found during the autumn in the decaying leaves of trees, the peculiar reddish brown hue of the deciduous Cypress stands out conspicuous from all others, and contrasts in a marked manner with light, golden tints if it happens to be placed in close proximity thereto. This autumn it has been, in common with most trees, unusually bright, and when seen during sunshine it was so showy, as to at once direct attention to its decaying beauties. Indeed, the deciduous Cypress, ornamental though it be at all times, may be said to have two especial phases of beauty each year: firstly, in the spring, just as the young, delicate, green foliage is unfolding in all its freshness; and, secondly, in the autumn, when the leaves decay.—ALPHA.

**Sciræa prunifolia in autumn.**—This *Spiræa*, which is in spring among the earliest of the genus to unfold its white rosette-like blossoms, has, especially this autumn, proved itself to be a most beautiful object when in its autumnal garb, for the foliage acquired a bright crimson tint far more vivid than any of its associates, and remained in full beauty till nearly all deciduous trees were devoid of leaves. Though the specimens here that have been this season so showy are old plants, they have never been so vividly coloured as this year. Altogether it is a *Spiræa* that must on no account be omitted from the planter's list, for besides the small, double, white blossoms which are produced so plentifully, the long, flexible shoots in the spring, when studded with their fresh, delicate green foliage, hang like living wreaths.—H. B.

**Cotoneaster Simonsi.**—Some of the larger *Cotoneasters* (*affinis* and *frigida*, for example) are among the finest berry-bearing trees or large shrubs, while of smaller growing kinds *C. Simonsi* is one of the best. It forms a much branched shrub of rather an upright tendency, the slender shoots being studded for the greater part of their length with orange-scarlet-coloured berries. It is a native of that home of *Cotoneasters* (the Himalayas), and beside the



above name is sometimes known as *C. himalayensis* and *C. acutifolia*. It is a plant that will thrive in a partially shaded position, but fruits best when in a light and sunny spot where there is a free circulation of air. When in a large mass or clump, unmixed with any other shrub, it is most beautiful at this season, besides which it is a good plant for covering low walls. Apart from such uses to which it may be put, young bushy little plants, when well berried and carefully lifted and potted, may be employed for various decorative purposes where more tender subjects would suffer. Plants of this character can be placed in passages, corridors, balconies, and similar places without injury, while greenhouse plants would be quickly disfigured.—H. P.

**Pyracantha not fruiting.**—I have a plant of *Pyracantha* on the north-west wall of my cottage, which was pruned annually—previous to my occupying it—and never had so much as a single berry on it. I have only thinned out the weak shoots, tying the stronger ones in, and this season it is the admiration of everyone, being covered with its bright scarlet berries. I have never seen a strictly trained plant satisfactorily berried, and to have them so “A. McK.” should imitate my plan of treatment.—H. L.

### QUERCUS DAIMYO AND MIRBECKI.

THE Japanese Oak (*Q. Daimyo*) has been in cultivation for some years in Italy. It is a handsome tree, but it has one drawback, and that is, it keeps its old leaves until spring when the new leaves appear intermingled with the old, and the mixture of the two is not agreeable. For this reason I have uprooted mine and thrown them away. As a shrub this oak thrives here well enough, but it has never shown a tendency to grow into a standard. Perhaps this arises from the practice too often followed in nurseries of grafting stunted side branches on unsuitable stocks. I may add that I have never observed the red-veined leaved form of this Oak as stated in THE GARDEN. *Q. Mirbecki*, an Algerian Oak, thrives well in my garden. It has large handsome leaves and is almost an evergreen.

Among other trees I have a Silver Lime (*Tilia argentea*) 65 feet in height, a magnificent one with wide spreading branches. It would, I think, delight tree lovers to see how well trees of all kinds thrive here on the lovely shores of Lake Como, and the climate is so favourable that plants, shrubs and trees which are, as a rule, grown in conservatories, flourish here in the open air. A warm welcome would be given to any one who cares to call on the gardener at the Villa Taverna, on the borders of Lake Como.

THE GARDENER.

\**Quercus Mirbecki* has not been cultivated long enough in this country for any large trees to have developed; as far as our experience has extended it is hardy and forms a sturdy, erect-growing, handsome specimen. In Algeria it grows to a considerable size and forms rather large forests; it is also found wild in South-Western Europe. There appear to be two forms in English nurseries, one with red and the other with green petioles; these differ slightly also in other respects. *Q. Daimyo* is a garden name for *Q. dentata* which is not so hardy as *Q. Mirbecki*; it is, however, interesting as being a food plant for one of the species of Chinese silkworms.—ED.

**Magnolia tripetala**—Though *Magnolias*, as a rule, are well known, a few of the summer flowering kinds are very rarely met with, though they are worthy of attention, such as *tripetala* (which is also known as *M. Umbrella*), and the Cucumber Tree of the United States (*M. acuminata*). *M. tripetala* forms a free growing tree of a somewhat open habit, the branches being furnished principally towards their extremities with magnificent foliage, which

impart to it a highly ornamental and distinct character. The large whitish fragrant blossoms are borne about midsummer on the tips of the branches, and very attractive they are when protruding from a ray-like arrangement of massive foliage. It is a native of North America, as well as the next kind, *M. acuminata*, a handsome free growing tree, the leaves of which are not so large as those of *M. tripetala*, neither are the flowers so showy. These two are not nearly so particular as some of the *Magnolias* with regard to soil and situation, for though they do best where not too dry, and in a loamy soil, yet they will often thrive in a light sandy spot. On the other hand, *M. auriculata* and *M. macrophylla* are rather fastidious in their requirements, and though the leaves, especially on young plants, are very large, a good specimen of either is rarely met with. All the *Magnolias* greatly dislike transplanting, for which reason they should when young be shifted every year in order to encourage, as far as possible, the formation of fibrous roots, and when finally planted care should be taken that sufficient space is allowed for their full development, as it is most unfortunate to have a fine specimen after the lapse of a few years become too large for the position assigned to it.—T.

**Populus canadensis aurea.**—This is a very ornamental variety of the Canadian Poplar, in which the foliage, instead of the normal tint, is of a pleasing golden hue, which colour is retained throughout the season. Just as the leaves make their appearance in the spring they are of a bright yellow tint, which becomes intensified as the season advances, where exposed to full sunshine, and then the leaf-stalks and bark of the young shoots become red. Before the leaves drop they change to a very deep, but bright, golden hue, and in that condition hold their own among the shiniest of autumn-tinted leaves. A specimen here was lately the admiration of everyone, being far more effective during the autumn than the golden Catalpa, a plant of which stands in close proximity, so that a comparison could easily be made. The golden Poplar is frequently met with under the name of Van Geerti. In a moist situation the growth is more rapid than where the soil is dryer; but the golden tint is not so fully developed. The ordinary green-leaved Canadian Poplar is especially, in damp spots, a quick growing, handsome tree, and one well worth the attention of planters.—ALPHA.

### CRATÆGUS CORDATA.

THIS handsome North American Thorn is especially noticeable at the present time, it being still in full leaf, while all or nearly all of the others are quite bare. It is valuable also because it is about the latest of the Thorns to expand its blossoms, which are freely borne in fair-sized clusters. The berries are small, but of a bright crimson colour, and retained for some considerable time after they are ripe. As a medium sized lawn tree it stands in the front rank, for it forms a free bold-looking specimen with a roundish head, clothed with bright green shining leaves, handsome at all times, and, as above mentioned, especially so from the lateness with which they are retained. The spines are not very numerous, but where present they are both long and sharp. According to Loudon, this Thorn was introduced in 1738, and he truly speaks of it as “a very distinct and handsome species.” In making a selection of the best small and medium growing trees several of the Thorns should be included, yet, somehow or other, except the varieties of the common Hawthorn, but few are ever seen. Some of those well worthy the attention of intending planters besides the above are *C. tanacetifolia*, valuable from its late flowering and large yellow berries; *C. punctata*, with conspicuous dark red fruits studded with tiny dots; *C. Aronia*, a distinct Thorn of a somewhat upright habit. A prominent feature of this kind is the large yellow fruits, which when ripe are very showy. The Cockspur Thorn and its varieties

are all highly ornamental in foliage, flower, and fruit, besides which, the autumnal tints of some are very bright. *C. Douglasi* is a small growing tree that produces its blossoms rather early in the season, and the fruits of which are deep blackish purple in colour. *C. Azarolus* is very showy in the autumn when studded with ripe berries. They are amongst the largest of the Thorns, and a cheerful red. *C. coccinea* is a strong, free growing kind, that is, next to the varieties of the Hawthorn, the most extensively planted in this country, and deservedly so, for it is a highly ornamental tree in all stages of growth. Besides these, a good many other distinct kinds are to be met with, but the above will serve to call attention to the great variety among Thorns. Lastly, a word or two must be spared for the *Pyracantha*, which is strictly an evergreen, and so well known as a wall plant from its winter crop of fruit. Of the *Pyracantha*, a variety (*Lelandi*) has lately come into prominence which is superior in its ornamental qualities to the common form. T.

## FRUIT GARDEN.

### BLACKBERRIES.

I WAS pleased to see a short time ago in THE GARDEN attention directed to this native fruit. It is doubtless news to many, who live in the densely populated and highly cultivated portions of the country, to hear that the fruit of our common Bramble is becoming valuable. If it produces such good results in its wild, uncared-for condition, what will it not produce under good culture? Being a native, and flowering after spring frosts are over, there can be no really blank years with this fruit. I have never known it to fail, although in some seasons there are better crops than in others. In this locality we have large tracts of common and Crown lands that are not inclosed, where Blackberry, Gorse, and Bracken have had undisputed possession for ages, and, being in pretty close proximity to Portsmouth and other large towns, there is a general scramble for the fruit as long as it lasts. Troops of women and children may be seen daily passing with baskets in the morning, and returning in the evening loaded; but so great is the demand here for Blackberries, that there is no need to consign them to northern markets; consequently the pickers get a better price for them than elsewhere, as they are sold here direct to the consumer; and, as all who have anything to do with market fruit culture know, this is a consummation devoutly to be wished. Generally it is neither the grower nor consumer that gets the best of fruit profits, but the middlemen, who have no risk or loss. These take their share, even when then there is nothing left for the consignee, as many know to their cost; and the sooner the direct supply system from grower to consumer can be put into practice the better. That such a system is not an impossibility—in some cases, at least—I have proved by personal experience; and in the case of Blackberries I feel sure that, with prices paid for them now, they will prove a by no means bad investment for anyone who takes up their cultivation on a systematic plan. The Bramble grows freely on almost any kind of soil, provided there is no stagnant moisture at the root. Here, where the Blackberry is plentiful, the land is too dry for many fruits to flourish, being light soil resting on gravel; but even on the top of raised banks that certainly never get thoroughly moistened by rain, the Bramble keeps healthy and prolific for any number of years, while in low-lying districts, where after heavy rains floods remain, one finds but few Brambles. Therefore, good drainage



would appear an important point in regard to its culture. In hedgerows the finest berries are found, thus proving that the Bramble, like many other fruits, although it bears the greatest quantity on the extension system, is nevertheless certainly improved by a certain amount of pruning, the hedgerows here being cut down close every ten or twelve years. Brambles, therefore, have to make entirely new canes, and on these they bear the finest fruits, while on the commons they never get any pruning whatever, though during some period of drought they may get set on fire amongst the Gorse, thus clearing off acres at a time. As to varieties, it would certainly be best for anyone starting the cultivation of Blackberries to try all the available sorts, especially the American kinds. By cultivating American varieties, I think we should certainly prolong the Blackberry season, as, where I have seen them in gardens, they have ripened earlier than our native sorts. But how would they behave if treated exactly alike, and will they pay for cultivation? is sure to be asked. Well, looking at the enormous development of the fruit-growing industry within the last ten years, one can hardly suppose that Blackberry culture would fail to yield a profit—at least, on light warm soils, very much of which yields but poor returns to either owner or occupier for growing grain. In fact, many other counties besides Kent might turn their fields into fruit gardens with good results. The supply of Blackberries from uncultivated plants, although large, is by no means equal to the requirements of the market; and as the ancient home of the Blackberry is being invaded for building and cultivation, the supply from this source must diminish. For small holdings I feel sure that a Blackberry fence would be not only a cheap divisional line, but a source of revenue to the owner; for on inclosed land, where they could hang until quite ripe, they would be worth more than when plucked, as they usually are, in various stages of colouring.

Gosport.

J. GROOM.

### GRAPES IN A NORTH ASPECT.

ALLOW me to direct attention to the above-named aspect for Vine culture, and to ask if Grape growers have had any experience of Grapes doing extra well in any aspect other than south. If not, from my experience, the question would naturally arise, Do we grow our Grapes in the best aspect? Having a house which was built expressly for Camellias and Azaleas, with a decidedly north aspect, I thought I would use the roof for Grapes. It is a lean-to house, but I should state that the back consists of glass set on about 4 feet of brickwork—the top of a wall about 16 feet high, the ground behind being low; the two sides are also of glass, so that, in fact, it is glass all round to a height of about 4 feet from the ground. With the border, which is outside and due north, I took great pains. At the bottom was laid a good substance of concrete; over that was put about 2 feet of drainage, which was covered with sods grass-side downwards; a good deep drain was also put in front. The compost consisted of strong fibrous loam, broken up roughly,  $\frac{3}{4}$ -inch bones, and lime rubbish. No manure whatever was used, except a heavy mulching on the top. I brought the border well up to the wall-plate. The depth at the back was about 2 feet, and that at front about 18 inches. This work was all done in the autumn of 1883, and when the border had settled down, the Vines were planted at once in November, instead of waiting till spring. They were cut back in February about one-third of their length. I allowed them to carry no fruit last

year, but this season they have borne a very satisfactory crop, say, on an average about ten bunches to a Vine finishing off well. The individual berries, which were well covered with bloom, were much larger than others of the same sort growing in a house with a south aspect and in an inside border. It is not, however, so much the crop which they have borne this year I would speak of as the extraordinary strength, not only of the laterals, but particularly of the leaders. They are fully 3 inches in circumference, and that strength is carried quite to the top of the house. The foliage, too, is correspondingly luxuriant. The varieties are principally Black Hamburg, Foster's White Seedling, Mrs. Pearson, Golden Queen, and Buckland Sweetwater. The Vines in a house with a south aspect planted about six years, although bearing good crops every year, cannot be compared with those in the north house as regards size of berry, strength of wood, or luxuriance of foliage. In the last-named house the border is outside; in the other it is inside; now it is a question of borders—outside *versus* inside. Inside borders never, as a rule, get too much water; but as I have an unlimited supply, both of hot and cold water, I can safely affirm that my inside border at all times got its share, and on the border was a heavy mulching to lessen the evaporation, which in the case of a north house border outside would be almost nil. Is the result, therefore, of Vines doing so much better in a north house than in a south one owing to the border in the former retaining more moisture than the latter? I may add that the wood in my north house is thoroughly ripened, short-jointed, and as hard as Oak. I had the border covered when the Grapes began to colour with shutters of corrugated iron.

Beech Hill, Cork.

ED. BARTON.

### FRUITS FOR SMALL GARDENS.

IN this locality the gardens attached to even large houses are but small, a house rented at £100 per annum not usually having so much garden belonging to it as is attached to many a farm labourer's cottage in agricultural districts; therefore, what is termed the kitchen garden is very limited indeed—in fact, quite unfit to supply fruits and vegetables on the mixed system of cropping usually practised. Gardens of limited extent are often on that account converted into permanent fruit plantations, and with very satisfactory results, from the fact that the work to be done in them is thus very much reduced, and the returns in the way of fruit are larger than ever were obtained from vegetables. Potatoes, for instance, have been for these last few years procurable at such a low price, and of such good quality from fields, as to render them one of the most unprofitable of garden crops. When the expense of the seed for planting and the cost of labour are taken into account, it will be found far cheaper to buy, say, the best sample at from 4s. to 5s. per cwt. than to grow them. Then, Cabbages and Broccoli are a perpetual worry as regards slugs and insect pests, and I feel sure that every head of Broccoli that reaches edible size in small contracted gardens costs the owner double what it would cost to purchase it. Moreover, even with a fair knowledge of kitchen garden work, it is not always possible to prevent a glut when one does not require such crops, and a scarcity when one does need them. As to salads, we have not to make many trials before we are convinced of the difficulties that beset the production of a regular supply without regular and constant supervision. Taking, therefore, all these things into account, it is not surprising that fruits of various kinds are coming to the front, and I pre-

dict will eventually be the generally accepted crop for small gardens in suburban districts. Such gardens are usually enclosed with moderately high walls, and therefore afford the necessary shelter for fruits; but in such enclosures vegetables draw to leaf, or top growth, out of all proportion to examples of the same kinds from the open field or neighbouring allotment gardens.

THE WALLS, in the first place, are certain to yield a good return for any outlay bestowed on them in the way of trees, *i.e.*, if a good selection is made of kinds that really do bear fruit regularly, and in this case "what to avoid" is of even more importance than "what to plant." I would certainly say, do not plant Peaches, Nectarines, or Apricots, for they will prove a source of trouble; plant the highest walls with Plums, such as Victoria, Golden Drop, Green Gage, or Prince of Wales; Cherries, such as May Duke and Bigarreau for dessert, and Morello for culinary uses; and Pears, such as Jargonelle, Souvenir du Congrès, Beurré d'Amanlis, Pitmaston Duchess, Josephine de Malines, and Marie Louise. Figs on south aspects may consist of Brown Turkey and White Marseilles, and Vines of Sweetwater and Black Cluster. On low walls, 5 feet or 6 feet high, plant Red and White Currants and Gooseberries of the best dessert kinds. These never fail to produce a crop, and, if covered with fish nets, may be preserved very late.

IN THE CENTRAL PARTS of the garden I would plant dwarf bush trees, being best and most easily managed. Apples on the Paradise stock come into bearing when very small, and their fruitfulness is the best preventive of over-luxuriance. The following kinds are especially good, *viz.*, kitchen—Keswick Codlin, Cellini, Lord Suffield, New Hawthornden, Loddington, Cox's Pomona, Stirling Castle, Echlinville, Warner's King, Grenadier, Northern Greening, and Wellington. Apples for dessert may be—King of the Pippins, Cox's Orange Pippin, Summer Golden Pippin, Worcester Pearmain, Kerry Pippin, Wyken Pippin, Court Pendu Plat, Sturmer. Of Pears on the Quince I would plant—Beurré Superfin, Louise Bonne of Jersey, Duchesse d'Angoulême, Durondeau, Fertility, Bishop's Thumb, Beurré de Capiaumont, Williams' Bon Chrétien, Doyenné Boussoch. Pears for culinary use may be Catillac, Bellissime d'Hiver. Plums—Rivers' Early Prolific, Gisborne, Goliath, Orleans, Belle de Septembre, Grand Duke, and Farleigh Prolific or Crittenden Damson. Gooseberries should consist of Lancashire Lad, Crown Bob, Rifleman, Early Sulphur, Whitesmith, and Warrington. Of Red Currants—Raby Castle and Scotch Red. White Currants—Transparent. Black Currants—Baldwin and Black Naples. Of Raspberries, choose Carter's Prolific and Fastolf. Of Strawberries, Vicomtesse Héricart de Thury, Keen's Seedling, Sir C. Napier, and Elton Pine.

THE SOIL should be well prepared by trenching and the addition of manure if required. Then proceed to plant such varieties as you may have space for; the trees should be from 10 feet to 12 feet apart, and the bushes 6 feet apart each way; the Strawberries may be planted in the spaces between the rows, and, beyond keeping the soil free from weeds, there will be little to do until pruning time comes round. This may be done soon after midsummer; the shoots of the current year's growth should be shortened to about half their length, except when required for leaders; in winter shorten the spurs and regulate the growth, and finish off with a mulching of half-decayed manure. Thus managed, even a small plot will yield a surprising quantity of fruit which may be gathered fresh as required, and thus one gets rid of the constant cultivation that is required for vegetables.

J. GROOM.

Hants.



## HARDY FRUIT CULTURE.

**PLUMS.**—These, on the whole, are very profitable and by no means difficult to cultivate. A cold, low-lying district with, perhaps, a heavy, badly-drained subsoil is unfavourable to the growth of Plums, as in such positions, if they do thrive for a time, they become liable to gum or canker, and good crops from such trees are rarely obtained. Any good loamy soil and almost any site suit Plum trees, and they may be grown either against walls or as bushes or standards. The choicest varieties only should be planted against garden walls or dwelling houses; the commoner sorts succeed quite as surely in the open as when sheltered, while the less prolific and most valuable varieties repay better treatment. For covering dwelling houses and out-buildings the Plum is very serviceable, and grand crops are frequently gathered from very tall trees trained against the gabled ends of old-fashioned farmhouses. Trees of this description, of which there are, or were at one time, a considerable number in Kent and Sussex, usually had one strong central stem and laterals extending obliquely and not very regularly, it must be admitted, on each side of it. This method of training, however, is suitable only for positions such as those just described; in most situations it is advisable to start with fan-shaped or ordinary "trained trees" supplied by most nurserymen, and if they are planted in fairly good loamy soil, they will cover a large space in a surprisingly short period. What also is equally satisfactory is the fact that they will bear good crops during the second or third year after they are planted, provided a too free use of the knife is avoided from the commencement.

**PRUNING AND TRAINING.**—No attempt should be made to secure particularly handsome trees, the aim being rather to thinly cover the wall space as quickly and evenly as possible. As a rule, trees are supplied furnished with eight or ten long, well-ripened branches. These should be carefully planted about from 16 feet to 18 feet apart, and the branches should be neatly fastened to the walls full length, and exactly as originally trained, the centre being kept open. The old-fashioned plan, and which still finds favour with some growers, is to freely shorten these shoots, the result most frequently being a very weakly break, and as this is necessarily accompanied by a correspondingly weakly root action, much valuable time is lost. The double check, in the shape of transplanting and severe pruning, not unfrequently completely ruins the trees; whereas laying in these strong branches full length frequently induces them to form fruiting spurs during the first season throughout their full length, as well as fairly strong leading and lateral growths. Sometimes these unpruned young trees will form few, if any, young shoots, this being usually the case with those planted late, or which have experienced very rough treatment. Even these will yet be considerably in advance of those pruned on the old lines, as they will have formed a number of fresh roots, and will break all the more strongly the following season. The treatment during the second and succeeding seasons is only a repetition of that just recorded, the leading and unpruned shoots being trained in the direction first given, an occasional well placed lateral being also laid in, and allowed to extend whenever the continually widening spread of the principal branches affords space for it. Crowding the branches ought to be guarded against, nothing being gained, and much lost by training the branches less than 5 inches apart. To illustrate how quickly walls may be furnished, I may mention having, early in 1883, planted several trained Plum trees against a

south-west wall in the garden of an amateur; the soil was fresh and good; winter and summer mulching was also resorted to, and each tree now occupies a space 10 feet high, and as much in width—all the available space in fact; and a root pruning this autumn in the case of the most vigorous will have the effect of making them equally floriferous. Trees which were planted at the same time in the garden under my charge, but on a site previously occupied by Plum trees, have not spread so rapidly, though they have already commenced to bear well. The best lot of Plum trees I have seen for a long time are growing against a large farmhouse on this estate; these, though only planted eleven years, have each for the past four years fully occupied a space 20 feet high and 15 feet wide, and remarkably heavy crops are generally obtained from them. They are not formally trained, but the growth is surprisingly even and well balanced.

**SUMMER TREATMENT.**—I am not an advocate of such frequent pinching or stopping the laterals of various kinds of fruit trees as many now-a-days seem to think necessary, but I would make an exception in favour of Plums. When trees are growing very luxuriantly, it often happens nothing short of root-pruning will cause them to be fruitful; but I have observed that when moderately strong growers have their laterals stopped early, or when it can easily be done with the finger and thumb at about the fifth joint, this frequently induces the formation of a tiny fruiting spur on the old spur, to which the young shoot is attached; while if the young laterals were pinched at the second or third joint, this is apt to induce the back buds to push out more strong wood, and no fruiting spurs are formed. The first proceeding should be to thin out the young laterals wherever crowded, reserving a few well placed when necessary for properly furnishing the wall, these, unless very strong, not being pinched back, while all the remainder should be stopped at about the fifth joint, as above described. No extra strong young shoot should be allowed to grow unheeded, and these ought to be removed entirely if another less vigorous can be had in its place, or else be pinched back slightly, or otherwise they will soon interfere with the well-doing of the surrounding branches. At the early winter pruning all that is necessary is to shorten back the stopped laterals to about the second joint, but all the tiny naturally fruiting spurs, including those which frequently form at nearly every joint of long, unpruned leading growths, should not be interfered with.

**BUSH AND STANDARD TREES** are largely planted by the growers for market, and during a moderately favourable season good prices are realised for both the green thinnings and the ripe or partially ripened fruit, for immense quantities of good jam are made from unripe fruit. Damsons, which I include with the Plums, invariably sell well, and these, in common with Black Currants, were about six years ago especially eagerly bought up and planted by thousands. For small gardens, the half-standard or bush form of tree is most suitable; some of the most profitable trees I can point to have clear stems from 3 feet to 4 feet high, and heads kept to about 6 feet through and as much in height; most of the varieties are of somewhat erect habit, and these thinly planted, neat, and very fruitful trees do not greatly interfere with the well-doing of either vegetables or fruit bushes that may be surrounding them. If a row of such trees be planted near the garden walks, they may be disposed about 12 feet apart, while standards should be fully 18 feet apart, or they may be planted at wider intervals in a quarter devoted to bush fruits. If half-standards cannot be procured, the

start may be made with strong maidens on dwarf stocks, these being topped at the height required; the lower laterals resulting should be kept shortened to within 6 inches of the stem, and their purpose being to swell or strengthen it, they should be cut clean away when this has been accomplished. In order to form a good head it is necessary to select the three uppermost breaks, allowing these to grow unstopped during the summer, cutting them back at the winter pruning to within 6 inches of their base. They will break strongly and the shoots may well be thinned out, and any in the centre removed so as to leave nine or more well placed shoots, a sufficient number in most cases to form a good foundation, and little or no severe pruning need subsequently be resorted to. At the winter prunings it will be necessary to thin out many of the laterals, leaving only those that are well placed and required to furnish the tree with a sufficiency of bearing wood. It is also advisable to keep the centre of the tree slightly hollowed out, in the same manner as Filberts and Red Currants are generally pruned. Both the dwarfs and standards should be kept properly staked up till such times as they are stout enough to be independent of such support, and the treatment of the latter in the way of pruning is much the same as recommended for the dwarfs, none of the young branches being severely shortened when once the requisite number is secured. When these trees are in full bearing they form but very little surplus growth, though in a few cases it is necessary to resort to an occasional thinning out of the branches. Restricted standards or bush-shaped trees should be foreshortened occasionally, that is to say, the young branches with an outward tendency must be spurred back to a well placed and more erect growing shoot, but this should not be practised where there is plenty of space, as the more naturally formed heads are usually the most fruitful.

**SELECTIONS OF VARIETIES.**—It may not be generally known that there are about 470 so-called varieties of Plums, and competent authorities can only reduce this formidable list to about 190 distinct varieties, the remainder being merely synonyms. Of this number not more than twenty varieties are to be recommended for general culture. For walls, the following will give satisfaction, these being arranged somewhat in their order of ripening: July, or Early Green Gage, a good early form of Green Gage, which ripens early in August. Denniston's Superb, a medium-sized, richly-flavoured sort. Green Gage, too well known to need any recommendation from me. Oullin's Golden, another and rather large form of Gage, one of the best. Purple Gage, a very delicious variety, and one which hangs well. Transparent Gage, a valuable sort, of good size and first-class quality. Jefferson, a very handsome high-class variety, good and profitable, one of the most popular. Kirke's, a prolific sort, fruit purple in colour and large and good. Victoria, a variety that will succeed under almost any conditions, and, when grown on wall trees, especially fit for dessert. Reine Claude de Bavay, of Green Gage form and flavour, paying well. Coe's Golden Drop, a useful late sort, of good quality. And Ickworth Impératrice, recommended on account of its long keeping quality. All the foregoing are dessert kinds, but are equally valuable and superior for preserving and culinary purposes. For bush trees and standards I can recommend Early or Rivers' Prolific, a small early sort, fit for cooking only; Early Orleans and Orleans, two well-known old sorts, sometimes good enough for dessert; Prince of Wales, a fine sort for the markets; Victoria; Mitchelson's, also a culinary kind, and much grown for the markets; Green Gage,



Purple Gage, and Reine Claude de Bavay are three valuable sorts, that succeed admirably in the more southern counties; Pond's Seedling or Fonthill, probably the largest sort in cultivation, but fit only for cooking; Coe's Golden Drop; Prince Engellbert, a large, showy sort, of fairly good quality, and possessing a good constitution; Winesour, a very distinct variety, that seems most at home in Kent; when allowed to grow unrestricted it bears abundantly, and is almost unequalled for preserving purposes. Crittenden's Prolific is the most profitable Damson in cultivation, and no other should be planted.

W. I. M.

### WRONGLY PRUNED PEACHES.

PEACH and Nectarine culture in the open air would be more likely to extend, if cultivators could be persuaded to alter their course of treatment as regards young plants to that which has been found advantageous in the case of those grown under glass. The system adopted by our forefathers of hard pruning young trees for the purpose of filling up the bottom of the wall with young wood was altogether wrong, as was also their advocacy of planting specially trained trees that took three or four years to bring them to a suitable size. It apparently never occurred to them that it would have been better to have selected strong maiden trees, and to a great extent to have ignored the system of hard pruning. It has been proved both under glass and in the open air that a Peach or Nectarine tree one year old, when it has been grown in a suitable soil, will, if skilfully managed, cover a wall more quickly than the most elaborately trained specimen. But to do so the cultivator must be prepared to work on quite new lines, and take home to himself the conviction that in the case of the Peach the dwarf trained tree so much in favour hitherto is no longer necessary. In a few years such trees will be looked upon as things of the past, and we shall all wonder why we have so long tolerated a form of tree which required such elaborate training in the nursery quarters, when it would have been easier and better grown in the position which it is permanently to occupy. Under the most favourable conditions, Peach cultivation in the open is much more precarious now than it was thirty-five years ago, and the trees do not live many years; or, if they do survive for twelve or fourteen years, they are generally bare of branches at the bottom of the wall, and altogether in so unsatisfactory a condition that they have to be removed. Under these circumstances, cultivators should alter their course of treatment so as to enable them to renew the trees in less time than formerly. There is not much difficulty in doing this. The first step to take is to select strong maiden trees and to plant them nearer together than usual. Formerly it was the practice to put the trees 20 feet and 30 feet apart, with a rider between them; but we would dispense with the riders altogether, and reduce the distance of the other trees to 10 feet apart.

IN SELECTING THE TREES preference should be given to those that have a stout stem, and about 4 feet in height with a fair number of side shoots. From such trees as these one foot of the top may be cut off early in March, and then the stem and side branches may be nailed to the wall, all the side growths being left their whole length. It will thus be seen that we start with a tree 3 feet up the wall; how fast it will fill up the remaining space depends a good deal upon the after-management. But it will be as well at this point to describe the principle upon which the management is to be conducted. In a great measure

winter or spring pruning must be ignored; in order to build up the tree quickly, we must depend principally on the judicious stopping of the strongest branches during the summer. The first season after planting, the tree will not commence to grow very fast until the middle of summer, but previous to that it will be necessary to narrowly watch it in order to remove all disfigured and blistered leaves, and to syringe with soapy water to destroy aphides. In regard to regulating the growth, the strongest shoots will in all probability start away from the top of the main stem. To balance the growth it will be necessary, as soon as each shoot has grown to a length of 1 foot, to pinch off half of it. This will be the means of checking the flow of sap in an upward direction, and directing it to the branches lower down; should any of the side shoots be growing much stronger than the others, they also must be stopped. On this plan the summer management must be conducted. By the timely stopping of any shoots that are growing stronger than the others, it will be found that no difficulty whatever will be experienced in furnishing all parts of the tree with wood of equal strength, and in the first few years of its existence but very little pruning need be done in the spring. It will not be until the third year after planting that the advantages of this system will be apparent; the tree will then be developing growth rapidly, and every inch of the wall from the bottom upwards may be furnished with fruit-bearing wood. The only point to guard against is not to indulge in a constant course of pinching off the tops of shoots that should be left alone. The principle necessary to be followed is, that where no undue luxuriance exists, and there is already a sufficient number of branches to fill up the space, no stopping of the leading shoots is necessary.

IN REGARD TO THE BORDERS, seeing that Peach trees do not live to a great age, it is quite clear that rich and deep borders are not required. A border from 4 feet to 6 feet wide will furnish the roots with ample space. With such a space there is greater likelihood that new soil can be obtained than a wide one. It is to be feared that in the case of old gardens the Peach borders are not renewed with fresh soil so often as they require, which to some extent accounts for weakly trees and indifferent crops. We would, therefore, recommend, in all cases where the trees have to be renewed, that the soil be also changed; and the best for the purpose is a mellow, sandy loam. This should be 18 inches deep, the whole width of the border, and nothing else should be allowed to grow on the border. If it is not possible to change the whole of the soil, the trees will be benefited if only a few barrow loads of fresh loam can be had in which to start the roots. Draining we do not think necessary, for if the position is so low and the soil so heavy as to require draining, there is not much hope of succeeding with Peach trees. Under such circumstances it would be better to plant more hardy subjects. As to walls for Peaches, I am satisfied that high walls are a mistake. In times gone by, when outdoor Peach trees lived and bore fruit in most gardens for a space of fifty years, high walls were necessary; but the conditions are so changed now, that we rarely see a Peach tree in perfect health reaching the top of a 14 feet wall. Under the changed conditions, by the time the trees have grown 8 feet high they begin to lose their lower branches. It, therefore, appears useless to expect them to grow higher, and there is a decided advantage in having walls of medium height, as they offer greater facilities for protecting the trees from spring frosts than higher ones. For Peaches and Nectarines a wall

8 feet high is sufficient. Aspect for Peaches and Nectarines is a subject which demands attention from all interested in their culture. My own conviction is that in a great many places they will fruit as freely on walls facing the east as on south aspects. I have seen quite as good fruit on east walls, as on trees growing on south aspects. There is another feature in their management which tends greatly to weaken the trees and to shorten their lives, and that is over-cropping. In seasons when there is plenty of fruit this practice is so common that it cannot be too severely condemned.

IN MAKING A SELECTION of Peaches there is no necessity for a long list. Our choice would be Rivers' Early Alfred, Early Beatrice, Early Grosse Mignonne, Stirling Castle, Dymond, Violette Hâtive, and Barrington. The best Nectarines are Elruge, Pine-apple, and Pitmaston Orange. The above are named in their order of ripening. S.

### APPLES IN SOMERSETSHIRE.

OF culinary sorts, Peasgood's Nonsuch is one of the newest and best, the trees being very prolific, even in a young state; the fruit, too, is large and handsome, of first-rate quality, and keeps sound till Christmas. Annie Elizabeth, though not a new variety, is by no means so well known as it deserves to be. It is a good grower, very prolific, and the fruits, which are of good size and very heavy, are of excellent quality—good enough for dessert purposes even, and keeps well. Frogmore Prolific, raised by the late Mr. Powell when fruit foreman at Frogmore, proves exceptionally fruitful, very small trees of it rarely failing to bear; the fruit is also fairly large in size, excellent for cooking, and not to be despised for dessert. Minier's Dumpling is another comparatively little grown variety, yet it is found to be a thoroughly reliable sort, its fruit being large and heavy, and keeping good till May. Golden Noble is a great favourite in the west of England, and this fine large Apple may well be added to every collection. Mère de Ménage is a general favourite, being a sure cropper; the fruit is large and handsome, and this variety is good for market culture, for exhibition, and for culinary work. Warner's King is equally well known, and very useful. Hollandbury is attractive in appearance, and well adapted for growing for market. It keeps good till Christmas. Beauty of Kent may be said to be one of the best, being of good habit, very prolific, and the fruit large, handsome, and excellent in quality, and in use from November till February. Lord Suffield is grown everywhere, and is a general favourite; and the same may be said of the long-keeping Dumelow's Seedling or Wellington. Cellini is a showy, free-bearing sort, and a great favourite with market growers; while Emperor Alexander, also a handsome apple, still keeps in favour. Tom Putt, a very showy, prolific sort, good either for culinary work or dessert, is largely grown in the western counties, and is being gradually spread through the home counties. It is in season during November and early in December. Alfriston, a well known sort, is vigorous and prolific, and the fruit large and heavy. It is fit for use from November till the end of March. Bridgewater Pippin possesses a good constitution, and produces good crops of fine fruit, which are available from November till January. Royal Somerset is very popular in this district, and deserves to be more generally cultivated than it is. It is a good grower, and very prolific, the fruit being large, handsome, and of good quality, keeping sound till March. Costard, a very old and rather ugly sort, is still worthy of culture; and the same may be said of Catshead, which it much resembles. New Hawthornden, a



handsome useful sort, completes the list of culinary varieties.

**DESSERT VARIETIES.**—Kerry Pippin, which is admitted to be one of the best early sorts, is sometimes in good condition about the middle of November, but is not often kept so late. Cox's Orange Pippin may be said to be the most popular dessert variety in cultivation; it possesses a good constitution, rarely fails to bear well, and the fruits, which are handsome in appearance, are of excellent quality. It is fit for use from November till February. King of the Pippins is also a most reliable sort, sometimes keeping good till late in November. Ribston Pippin, unfortunately, is much liable to canker; but where it can be grown it is certain to be appreciated. Cornish Gilliflower, though not a heavy cropper, is valuable on account of its high quality. It is in season during November and onwards till late in April. Adams' Pearmain is a very free-growing, prolific and handsome sort; available from November till late in January. Pitmaston Pine is a small sort, but excellent in quality, and fit for use from November till January. Allis' Seedling is also recommended for its good quality and free-bearing habit; and Byson Wood Russet, though not often heard of, is yet worthy of culture, and is available during December and January. Fearn's Pippin, a well-known sort, is one of the best, and very good in quality during November and January. Cornish Aromatic is very distinct, and good in quality from October till late in December, and the tree is a good grower. Five crowned, or London Pippin—an old and well-known good sort, and one which is frequently good from November till the end of March—is a free bearing sort, and the largest fruits are also available for culinary purposes. Wadhurst Pippin, also available for cooking, is recommended; and the better known Sam Young is an excellent small variety. Pitmaston Nonpareil proves to be a useful Apple, excellent in quality, and fit for use from November to January. Sturmer Pippin is one of the best keeping sorts in cultivation, and as the tree grows freely and rarely fails to bear well, it ought to be included in every collection. Stamford Pippin keeps good till March, and is a reliable sort; while Scarlet Pearmain, which is in season from October to January, is a free growing prolific variety. Pope's Apple, or Colham, is strongly recommended as being a good bearer, keeping well and fit for use from November to March. It is not unlike Blenheim Pippin, and is by some preferred to it. W. I.

**Outdoor Peach s.**—I am satisfied that high walls for Peaches are a mistake. In times gone by, when outdoor Peach trees lived and bore fruit in most gardens for a space of fifty years, high walls were necessary; but the conditions are so changed now, that we rarely see a Peach tree in perfect health reaching the top of a 14-foot wall. Under the changed conditions, by the time the trees have grown 8 feet high they begin to lose their lower branches. It therefore appears useless to expect them to grow higher, and there is a decided advantage in having walls of medium height, as they offer greater facilities for protecting the trees from spring frosts than higher ones. For Peaches and Nectarines a wall 8 feet high is sufficient. Aspect for Peaches and Nectarines is a subject which demands attention from all who are interested in their culture. My own conviction is that in a great many places they will fruit as freely on walls facing the east as on south aspects. I have seen quite as good fruit on east walls as on those growing on south aspects.—J. C. C.

**5424.—Late Grapes.**—To take the place of the Black Hamburgh in a house where plants are grown I should recommend the Alicante. There are other kinds which keep longer than this, notably, Gros Colman and Lady Downes, but they require a longer

season of growth and to be started earlier in the year, and such special treatment can scarcely be given when plants are grown with them. The Alicante, on the contrary, is more manageable, ripens more quickly, and it keeps up to February in good condition. It is an excellent kind for those who would like Grapes later in the year than the Hamburgs can furnish.—J. C. B.

### JUDGING FRUIT.

THERE can be no doubt that the exhibitions of garden produce, now become general in all parts of the kingdom, have a marked influence on the productions cultivated, not only by those who exhibit, but also by those who see the displays, yet who take no further part in them. The competitions in question act as guides, reliable or unreliable, according to the soundness, or otherwise, of the teaching which they afford. Plants and flowers are grown to be looked at, but with fruits and vegetables the case is different. Appearance, in their case, is so far a secondary consideration, that size and good looks alone give them no right to preference before others that have better edible qualities. So far is this in accord with the generally admitted principles that bear on such matters, that it might be supposed there would be little departure from it. Yet such is not the case, especially in respect to Grapes; in awarding the prizes to which there has been, of late, at some important exhibitions, a preference given by the judge to large examples of coarse inferior varieties, such as Black Alicante, Trebbiano, and Gros Guillaume, by placing them before the best sorts, including Madresfield Court, Black Hamburgh, Muscat Hamburgh, and Muscat of Alexandria, when these last named were as well finished and as large, proportionate to their kinds, as the former were. And this in August and September, a time when the late varieties named used to be looked on by Grape growers as out of season. Not only is undue weight now frequently given to these big late keeping sorts, when shown in the classes for collections of Grapes, but it is equally observable when they appear in collections of fruit in the months named. The variety that oftenest draws the scale in the wrong direction is Black Alicante, the easiest Grape in cultivation to bring out in its best form, a fact well known, and which, coupled with its admitted inferior quality, makes it difficult to understand how any one fairly conversant with Grape growing can allow it to count on the exhibition stage for more than it deserves. Either the principle hitherto admitted, that quality should carry more weight than size, has been altogether wrong, or some who act as Grape judges now-a-days have caught the idea held by the growers of big Gooseberries, who go on the principle that the biggest are the best.

With Peaches and Nectarines colour usually carries a deal of weight, and deservedly so, other essentials being equal. But there is one variety of Peach, Princess of Wales, a well-known large kind, generally all but devoid of colour, and in my estimation only about third-rate to eat, that is often placed before well-finished examples of some of the best sorts in cultivation, whilst Noblesse, similar in colour to Princess of Wales, but one of the best of all Peaches, if it happens to appear on the exhibition stage, has usually to stand aside in favour of some kind that has more colour. I have seen large and finely finished examples of this grand Peach put second to Princess of Wales, although a peck of Noblesse is worth a bushel of it, so far as their edible properties are concerned.

In judging Pears, especially when shown in collections, there seems to be a like growing dis-

position to favour size rather than flavour and texture, joint properties in the absence of which Pears are about as worthless as anything in the way of fruit, for, unlike Apples and Plums, they are in little demand for cooking.

These remarks are made with the reverse of any intention to undervalue skilful cultivation, of which size and appearance are evidences in Grapes especially. But size is a comparative term, and, apart from the superiority of the best varieties of Grapes, for the chief purpose they are grown, that is to be eaten, there is generally more cultural merit in well-finished, full-sized examples of the best varieties, although not half so big as others representing the large, coarse sorts. T. B.

### FLOWER GARDEN.

#### BOLD FLOWER GROUPS.

IN order to be bold and effective, a flower bed must be so placed as to stand out clearly from its surroundings, and these must of course be of a kind to assist in producing the effect. The bedding-out system, in whatever form it is adopted, does not present good opportunities of planting bold beds, because of the great extent and variety of colour which it permits; but the promiscuous style, if we may use the term, does, and by this style is meant that of placing beds of flowers singly here and there on a garden lawn against shrubs, or among the shrubs themselves—a style which permits great variety and freedom of arrangement without much trouble. Masses of one kind of flower, or even two or three kinds, can hardly ever be wrongly placed on grass or against shrubs or green verdure of any kind, so long as they are not so near each other as to show an attempt at harmony and contrast, or any purpose of that kind. Thus a good bed, of a size proportionate, of *Gladiolus* of one or more sorts may be planted here; another bed of single *Dahlias* there; a third of another plant in another place; whether within sight of each other or not does not matter, and all look well from any point of view; just as in planting ground with select shrubs, the same sorts appear at intervals without any apparent design, and look natural.

There is much to be said in favour of the plea that all flowers in the mass should be surrounded by a wealth of green foliage or verdure of some kind. One rule to be observed in the promiscuous style is to avoid planting the groups in formal patterns. When they are in shrubberies they should stand as a part of them, only filling up so much space well and fully, or occupying a piece of ground of an informal shape like the shrubs themselves. Beds of some shape or other would be required on the lawn, but these too must be informal, and all on the curvilinear principle. It is very easy to lay out such beds, as no measuring or geometrical design is at all necessary. Anyone with a moderately just perception of proportion may soon mark such beds out with a stake, and he can hardly go wrong as to shape, provided all the beds are large in proportion to the space and the curves easy and fairly well balanced. For planting beds of this description some of the most suitable subjects are *Hollyhocks*, single *Dahlias*, *Gladioli*, *Everlastings*, *Sunflowers*, *Delphiniums*, *Wallflowers*, *Phloxes*, *Tritomas*, *Potentillas*, *Christmas Roses*, *Carnations*, *Violas*, *Pansies*, *Antirrhinums*, *Daffodils*, *Irises* of sorts, *Columbines*; in fact, any plant will do that will grow out of doors in summer, but those named are amongst the best for the purpose. The new semi-double sunflowers, and also the single kinds with the broad petals, make magnificent groups planted alone; so do also *Everlastings*, either



mixed or in sorts, and the *Gladiolus*, *Tritoma*, single *Dahlia*, and *Daffodil* need no recommendation. They are typical subjects for the purpose.

The beds should be well drained, and care should be taken in making them to secure good drainage. If the soil be naturally deep and dry, no extra draining will be needed, but in grounds where the beds have to be made specially, they are very apt to become reservoirs of water in wet weather if simply scooped out in soil that is perhaps retentive in itself. The beds need not, however, be very deep if any danger of this exists, and draining is difficult, and we daresay, as a rule, no draining will be needed. All that is usually required is to mark out the bed, and dig, manure, and plant it. S. W.

### THE BACKHOUSE DAFFODILS.

A VALUED correspondent informs me, in reply to my note (p. 562), that I was correct in supposing that the Backhouse Daffodils were not raised in Yorkshire. William Backhouse was, he says, one of the best known Friends (*i.e.*, Quakers) in the north of England in the last generation. He was one of the partners of the banking firm of Backhouse & Co., of Darlington, Sunderland, &c. He lived at Darlington up to middle life. St. John's, near Walsingham, in Weardale, was his country seat, and he finally retired there altogether when he gave up business. Burbidge, in his "Narcissus," p. 12, speaks of the late W. Backhouse, of St. John's, Walsingham, and Mr. Barr repeats this error in his "Narcissus and Daffodils." Walsingham is in Norfolk, and Walsingham in Durham. I see by the large scale county map that St. John's Chapel is far up Weardale, near the point at which the mountain roads to Alston and Allendale branch off—a choice place indeed for a lover of Daffodils to follow their culture.

It is only a few weeks since I was talking to Thomas Glover, one of our noted Lancashire naturalists, who celebrated his golden wedding and passed his ninetieth birthday during the present year, and is still hale and hearty, amusing himself with his collection of shells, and reading without spectacles in his green old age. He said he was very intimate with Leeds, of Longford, and once a year they made a botanical excursion together for two or three weeks, and generally to the Teesdale district, which was in those days a paradise for the botanist. They used to find *Gentiana verna* in such plenty, that the whole valley was blue with it. In these excursions many were the plants they collected, both for the rockeries at Longford Bridge and for the herbarium, which ultimately found a resting-place at Kew.

Now, Mr. Baker informs me that Mr. Backhouse was an excellent British botanist, with whom he corresponded, and whose fine herbarium he consulted when he was writing his work on the flora of Northumberland. What, then, more likely than that Leeds and Backhouse should have been acquainted and have met during these annual excursions to this lovely neighbourhood, so dear to both of them as botanists? On reading over the account which Backhouse wrote (*Gardeners' Chronicle*, June 10, 1865) and which is quoted by Burbidge ("Narcissus," p. 12), I can almost fancy I hear the two worthy florists comparing notes, so similar were their methods and experiences.

Of the two, I think Backhouse produced by far the finer varieties, and probably in great measure because of the great advantages which he possessed in his fine mountain air and influences, as compared with the very unfavourable surroundings of the Longford Bridge garden. Backhouse's work, however, followed that of

Leeds, and was so very much after Dean Herbert's time, that it cannot be said to have been influenced by the dean personally. Herbert died in 1847, and Backhouse's note about his Daffodils was published in 1865. Mr. Leeds published his account in 1851, so it will be seen that there was a considerable interval between these dates. Herbert's seedlings were figured in 1843.—WM. BROCKBANK, *Brockhurst, Didsbury*.

—In my "Narcissus" I now find that Walsingham may possibly be a misprint for Wolsingham (? Durham), and this may have misled Mr. Brockbank, as Walsingham is in Norfolk. Mr. Barr knows more than anyone of Backhouse, and I believe has all his books of memoranda referring to these crosses, but if I remember rightly, Backhouse numbered his plants, and left no indices or explanation, so that these books are not very intelligible to strangers. The Daffodils Emperor and Empress are figured in the *Floral Magazine*.—F. W. BURBIDGE.

### A GOOD EDGING PLANT.

FOR a light-coloured, neutral-tinted edging nothing, in my opinion, equals *Euonymus radicans variegatus*. When once well established it will go on for years, and always looks dressy and well. It is easily propagated by cuttings put in a frame. I have struck this *Euonymus* by the thousand at this season, or a little earlier, by dibbling the cuttings thickly into a bed of light sandy loam in a frame. In preparing the frame, place a couple of inches of ashes in the bottom to keep down worms; then put in 4 inches or 5 inches of the compost. Make it firm. Scatter on the top a little silver sand, water and dibble in the cuttings thickly; water again, and cover with the lights. No fear need be entertained of the cuttings damping off; therefore, with the exception of an hour or two in the mornings of fine days, the frames may be kept closed. If severe frost comes, scatter some old hay or litter over the frame, not because this *Euonymus* is not perfectly hardy, but because the frost, if severe, may lift the cuttings out of the soil, and so delay or prevent their rooting. Most of them will root in spring, though they will not make much progress during the first year. Another way of increasing the stock of this *Euonymus* is to take up the old plants and divide them. This plan gives us large, well-rooted plants at once, but it is only suitable when one has a considerable stock to work upon. This *Euonymus* is also well adapted for making broad margins anywhere in the way in which Ivy is sometimes used. If planted thickly enough, and then pegged down close to the soil, it will soon make a dense carpet. I have often thought that it would make a good substitute for turf in small suburban gardens; it would require but little keeping, and when once established, the tramping of little feet would do no harm. It is also a good plant for covering naked places under trees and for furnishing naked walls, if not too lofty. Like most good things, its growth is slow at first, but those who can wait will not be disappointed. E. HOBDAV.

**Winter and spring bedding** is carried out at Browne's Hill, Carlisle, with much effect. As soon as the summer bedding is taken away the beds are filled again with great care. They may not be very bright at first, but they give quite a cheerful look during the dull winter months, and as the spring advances increase in beauty and interest. Some beds are filled with hardy plants and shrubs, small Conifers, &c.; others with the usual spring flowering plants, and the rest with carpet bedding. This winter carpet bedding which produces a very good effect and is much admired, being rather a speciality of this garden, I give

a list of the plants used. For edgings and divisions: Gold and Silver Thyme, *Saxifraga Cotyledon*, *Hostia*, and others; *Sedum virens*, *Cockscomb*, *Arabis*, Gold and Silver Golden Feather. For ground work: *Sedum acre*, *coriscum*, *glaucum album*, *Lyodium*, *rupestre*, *Saxifraga hypnoides*, *Herniaria glabra*, *Veronica repens*, *Ajuga reptans purpurea*, *Oxalis corniculata*, *Stellaria graminea aurea*, variegated Strawberry, *Vinca variegata*, Cotton Lavender; and there are, doubtless, many other plants which could be made use of in like manner.—WM. RIMMER.

**The Welsh Peerless Daffodil.**—It is clear to me that Mr. Engleheart has been in the right all through in giving credit to the great master, Dean Herbert, for this splendid flower. His experiment in the way of crossing pseudo-Narcissus with *incomparabilis* (and we may suppose he used the largest forms he could obtain) was clearly made with a view to raising this Daffodil. Dean Herbert lived at Manchester. We first hear of Sir Watkin at Manchester, where I suspect Mr. Pickstone bought it originally. Mr. Pickstone is no ordinary person, but a man of extreme originality and cleverness, and just the sort of person who would keep his weather eye open and know a good thing when he saw it. It may have passed through Mr. Leeds' hands, as we now know, what Mr. Brockbank was ignorant of, that Leeds had his original collection from the dean. Mr. Engleheart has clearly shown that much of the honour attached to the name of Leeds should belong to the great dean. Mr. Brockbank tries to show that this Daffodil grows wild on the Welsh hills, and that it is the same as a figure in 'Hale's Eden.' Again, Mr. Brockbank is proved wrong, for the expert, Mr. Burbidge, says that plate is copied from another plate of another book, and that it is not from Sir Watkin. If Mr. Brockbank will this spring trot out his hills covered with Sir Watkin growing wild I will eat his hat, my hat, or anyone else's hat.—FRANK MILES, *Struchampton, Bristol*.

P.S.—I agree with Mr. Engleheart in not thinking my namesake sufficiently distinct. I am just sending to Mr. Barr a Daffodil I have raised from *Narcissus triandrus*, crossed with pseudo-Narcissus. The result is an intermediate sized flower, colour of moschatel, with a reflexed perianth. I cannot see that because Leeds told no one he had received help from Herbert, that any imputation is put on his character, or the value of his work lessened by that inference being drawn from almost obvious facts. Mr. Engleheart is a novice in gardening compared to your valued contributor, Mr. Brockbank, but in a short time he has learned a great deal. Mr. Brockbank has rashly introduced an amount of acerbity in this discussion which has its parallel in the way in which he attacked a first-rate painting of *Hellesborus maximus* by Mrs. Duffield—a plate not completely typical to a botanist's eye, inasmuch as a dying flower was admitted, but most artistic, and absolutely truthful to the eye of a gardener and an artist.—F. M.

**Violets from cuttings.**—Though nothing new, it may be useful to know that violets can be increased by means of cuttings, and the practice is not so general as it deserves to be. It is not only an easy way in which to raise plants, but a far greater number can be obtained in this way from a limited stock than can be got by division; and what is equally important is, that plants raised from cuttings are more vigorous than those raised otherwise, and they give larger flowers, and yield them over a longer period, than plants raised in the usual way. Those who raise stock by dividing old plants make a practice of cutting off all the runners; but those who wish to raise plants from cuttings must allow a sufficient number of runners to remain on the old plants after the end of February. The runners will then get of sufficient length by the end of March to be made into cuttings; they should then be taken off and inserted in pots of sandy soil, which should be placed on a gentle bottom heat, on which they will strike root in about three weeks; after that they may be hardened off, and during the summer treated in the same manner as plants raised in any other way. I must confess that I am rather in favour of this way of increasing violets, as the plants in autumn are so strong and vigorous that they do not object to a little harsh treatment.—J. C. C.



## OUTDOOR CHRYSANTHEMUMS.

I HAVE read with much interest Mr. Engleheart's method of growing and blooming Chrysanthemums in the open air (p. 503), and while doing so it struck me that some of the readers of *THE GARDEN* might like to hear of a less troublesome, and probably more successful, method. We had 8° of frost (24° Fahr.) last night, but the Chrysanthemums seemed little the worse for it, as I luckily did not water the previous day. Not watering when frost threatens makes a wonderful difference. I went to-day to see a collection belonging to a grower for exhibition, who has a large number in three houses. About two hundred plants that he was retarding were caught outside last night—remember not even Dahlias had been injured by frost until then—and as they had been heavily watered (saturated, in fact), they seemed in most cases to be hopelessly ruined. But mine were comparatively dry, planted in a warm border, nailed with shreds, neither nails nor shreds being visible through the ample foliage, against a south wall, and thus escaped. To attain the best results, a south wall is desirable; if perfectly free from Ivy and all creepers so much the better; but smaller blooms and less ripened wood can be had east and west. Given a south wall, good plants, maiden loam or leaf-mould, and attentive, wisely-directed treatment, as in Mr. Engleheart's case, Chrysanthemum blooms can readily be had to bridge the winter's gloom and welcome the Snowdrops, Crocuses, and early Narcissi in the new year. A few words on particular points may be desirable.

## PLANTS FROM CUTTINGS.—

These observations have reference to any and every variety. I hope to bloom late ones like *Dainio* among the Japanese—as well as *Jardin des Plantes* among the incurved—here as I did last year, but it is as necessary to commence early as it would be if growing for exhibition the first week in November. If you want plants to bloom in September, October or November, any respectable grower will supply cuttings, or, later on, rooted ones to bloom in those months, either Pompons, hybrid Pompons, or reflexed. If a young grower, these three classes might be tried the first year, as they are more certain to bloom than the incurved, Anemones, or Japanese, with ordinary treatment. In any case, good healthy plants should alone be used, and they may be struck any time now.

**MAIDEN LOAM OR LEAF-MOULD.**—Unfortunately, these can be too seldom secured near towns, but I can have any quantity from the farm, and so change the soil every year. The roots of the Chrysanthemum will travel, as I found in a border, 10 feet from the stem in every direction in twelve months. No other plants are such voracious feeders, and I think that those who recommend using the same soil or potting material for

them a second year make a mistake. The soil may be rich enough in organic constituents, but not in those they have already been feeding on. When the border beside the wall is ready, that is, when the plants have done flowering, say in January or February, I clear all out, say 2 feet or 2½ feet deep, trample in a quantity of manure hard at the bottom, then over that compost sods, then a second layer of manure if plentiful enough, and then 1½ feet of soil. If not sour, or never grew a flower before, so much the better. I advisedly put the manure in such a way that the roots cannot reach it in a hurry. We want stiff, sturdy, short-jointed growths first. The thorough exposure to every ray of sunlight will go a long

vide pots, water, and watch them therein, as so graphically described, and, of course, shift from pot to pot, as would the exhibition grower, while with the finishing of my border, say, in February or March, as the weather permits—it is best to be early—except the tying or training of the shoots likely to be smashed by the winds, and seeing that the water from the clouds is supplemented when necessary, very little trouble is required until disbudding commences. Pompons and hybrid Pompons, especially the early ones, require none, but all the best produce more buds than they can perfect. The severity of the thinning will much depend on the size of blooms required. If large, as a rule, one will be sufficient

for each stem. They must never want moisture. I prefer giving no stimulant, except throwing a handful of soot around the stem until the buds are set and swelling; then they cannot get too much. Off about eight hundred plants thus treated I am cutting for two months for many who otherwise would never see a flower in those dull months. It gives me some trouble, but much pleasure, and I am sure the pleasure is not confined to myself alone. W. J. MURPHY.

*Clonmel.*



Part of *Aristolochia* on verandah and wall of Abney House.

way to do this. At this time a fine selection can be made from the old stools of rooted pieces that you may have found it difficult to strike cuttings of. Next year I shall grow in this way about two hundred seedlings of my own, some of which did not bloom or get fair play this year; many of them promise to be great curiosities, and I keep a number in pots for fear of losing them. This is an exceedingly convenient system for amateurs and business people, because the plants take care of themselves.

**WISELY-DIRECTED TREATMENT.**—This is the third point, but as it does not materially differ from that so often given in *THE GARDEN*, I need not go over the same ground. Here the grand point of departure commences between Mr. Engleheart's system and mine. He has to pro-

tastefully arranged and charmingly contrasted as regards colour.

## ARISTOLOCHIA-COVERED VERANDAH.

A SINGLE plant of Dutchman's Pipe (*Aristolochia Sipho*), of remarkable size and vigour, clothes the verandah and front walls of Abney House, Mr. Charles Hammersley's summer residence, on the Thames near Cookham. The character of the gnarled and twisted stem is accurately given in one of the accompanying engravings (p. 592), while the other shows the value of this fine creeper for covering large wall spaces, though not more than a third part of the actual space covered is shown. The house is not high, but the river front is of some length, and its appearance from



the river is that of being embowered in greenery, owing to the vigorous growth of this one fine climber, which, not content with having covered the wall, is now clambering over the roof.

### BOUVARDIA CULTURE FOR MARKET.

WITH the exception of the Cyclamen, I know of no flowering plant which has in a comparatively short time taken such a high position amongst plants grown for market as the Bouvardia. For one Bouvardia grown, let us say, ten years ago, a thousand are now brought into market, and in some of the market gardens around London they are cultivated in such quantities as to cause people to wonder where purchasers can be found for them. I know one grower who has 30,000, and another who has 50,000 flowering plants; these, however, are but small growers in comparison with those who dispose annually of 120,000 of them. What makes the Bouvardia so valuable as a market plant is the length of time over which the flowering season can be made to extend. In this respect it can truly be said to rival the Fuchsia and zonal Pelargonium, there being no great difficulty in obtaining plants full of bloom in any month of the year. As a fact, the Bouvardia season extends through the eight shortest months of the year; but it is from the beginning of November till April that its value is most recognised, and during that dull time of the year it fills a gap, and hundreds of thousands of plants, grown only as market growers, who make a speciality of them, seem able to do, are disposed of at good prices in Covent Garden. Not that Bouvardias fetch the money they did a few years ago, and when two or three growers seemed to hold the secret of their successful growth; but even now a well-grown Bouvardia will, in the dead winter season, realise more than any other flowering plant grown in quantity for market, and when a thorough mastery of its needs is obtained, there can be no doubt that Bouvardia culture is one of the most profitable of market gardening industries at the present time. Just now, in some of the market gardens near London, Bouvardias are a grand sight, house after house being filled to overflowing with grandly grown plants, forming dense level masses of the purest white, pink or bright red, in some cases verging on scarlet. Words can scarcely convey a true idea of the fine effect which Bouvardia plants so admirably cultivated produce, and which is much heightened when grouped according to colour, so that we pass from the 100-foot house, crowded with the snowy white candidissima, to another equally large and equally well stocked with Humboldti or Dazzler, or some similarly high-coloured variety. Under the leaden sky and gloomy atmosphere of a November day the effect of such masses of colour is inestimably charming.

**BOUVARDIA BLOOMS.**—It is not alone for sale in pots that Bouvardias are grown; the flowers are highly valued in a cut state, and many thousands of plants are grown every year for supplying blooms for this purpose. Indeed, there are times when the flowers cut from the plants will realise more than the plants themselves. In the choicest floral decorations Bouvardia flowers can fittingly find a place, and in the formation of hand-bouquets they hold an important position. It is therefore not much to be wondered at that Bouvardias should be in such high favour amongst market growers, and one can readily believe they are one of the most profitable things that can be grown. When market growers take a plant in hand with a view to its extensive culture, they generally depart from what has been considered the orthodox methods of propo-

gation and general treatment. Competition is so severe now-a-days, that the quickest as well as the best ways have to be found out if any profit is to be made. It was the market growers who first made the discovery that Cyclamen seed could, in something less than twelve months, be converted into handsome saleable specimens, carrying half a hundred blooms; and in the case of Bouvardias the usual method of propagation has been found far too slow and costly to maintain the large amount of plants required.

**CUTTINGS.**—It has often been stated in THE GARDEN and elsewhere that the only way to get a good "strike" of Bouvardias was to give the plants a complete rest for a couple of months or so by almost entirely withholding water, then placing them in warmth, and taking the young shoots as they appear. In no other way, it was said, could cuttings be depended on to make roots. But although this system of propagation is practised to a certain extent, it is supplemented by another, which is far less costly, and is quite or perhaps even more reliable. This consists in taking cuttings when they can be had, and not from old plants that have bloomed, but from the general stock which is being grown on to bloom in the coming autumn and winter. As soon as the first lots of cuttings have become established in small pots, they are made auxiliaries in the work of increase. They must be topped to lay the foundation of that compact, many-branched habit which culminates in the floriferousness indispensable in a market plant. These young growing tips are used as soon as they can be taken off, and strike with great freedom in cases in a house where a constantly high temperature is maintained. Some propagators seem to like to get them as minute as possible. They are scarcely shoots, but merely points cut out with a sharp knife, and when inserted they look like little rosettes of foliage lying on the soil. As the forwardest batch of plants comes into 4½-inch pots by May, and towards the end of that month form many-branched little bushes, any amount of cuttings are from that time procurable. The last lot of cuttings is generally inserted in June, and these grow into nice little specimens by the autumn.

**HEAT, LIGHT, AND SUNSHINE** are important factors in Bouvardia culture. The plants must not be allowed to remain stationary from the time the cutting is struck, which in a general way takes place in a month from insertion. Stagnation of growth means loss of time and waste of space, and this the market grower cannot afford; everything with him is subjected to the highest speed compatible with safety. The growing season consists of only so many days, and each one must be made the best use of; consequently a brisk growing heat is maintained through the spring, and is even prolonged into June, in order to push along the successive batches of young plants so that they only need the maturing high temperature of July and August to finish their growth. If one thing more than another demonstrates the perfection to which Bouvardia culture has been brought it is the really remarkable uniformity in quality which so many thousands of plants exhibit. I saw in the spring 17,000 young plants in one house. They were established in 2-inch pots, had been topped, and were in the very perfection of health and vigour. Amongst this great quantity I could not see one unhealthy plant; each one resembled his neighbour so closely as to appear but the counterpart of it; and the same even quality was exhibited in other houses by plants in a more advanced stage of growth, and when they come into flower they vary just as little. Such results can only be obtained by specialists having at command all necessary appliances; and it will, of course, be readily

understood that market growers only employ such men, many of whom have never grown more than two or three kinds of plants. It is the concentration of skill and attention over a considerable period that brings market plants to the perfection which astonishes all who see them for the first time.

**ARTIFICIAL MANURES.**—Bouvardias are gross feeders, and the supplying them with all the nourishment they are capable of taking forms one very important item in their culture. I know of one large grower who uses two 4½-potfuls of Clay's fertiliser to a barrowload of soil, and in addition to this they not only get constant applications of weak liquid manure, but get liberal top-dressings of the fertiliser as they seem to require it. The dimensions to which Bouvardias can be brought in 4½-in. and 6-in. pots by this high feeding is far beyond what is obtainable by the ordinary method of culture, and would surprise those who have only seen them as in gardens generally. During the summer and early autumn some growers put them in the open air, plunging the pots to the rims in Cocoa fibre. This is indispensable, for in no other way could the roots be kept sufficiently moist in hot weather. Even with the pots plunged every plant must be watered twice a day, otherwise the large heads of foliage would not keep in a fresh, vigorously growing condition. When the pots become filled with roots it is absolutely necessary to keep them constantly moist. By September growth is finished, and the energies of the plants concentrate themselves on the formation of the flower heads, which, as a natural sequence of such liberal treatment and aided by the maturing influence of September breezes, cool refreshing nights and sunshine, come of excellent quality. In light houses, in a constantly warm atmosphere, with plenty of air in fine weather, the final stage in the history of Bouvardias grown for market is attained.

BYFLEET.

### PETUNIAS, SINGLE AND DOUBLE.

TWENTY years ago double Petunias took a high place in the estimation of flower lovers; indeed, for a time few flowering plants were so popular. They now seem to be out of fashion, a circumstance to be regretted, inasmuch as they are certainly when well grown of considerable decorative value, and whoever can see beauty in a double flower will scarcely fail to admire double Petunias. In France, where they originated, and where almost all the best kinds were raised, they still are much cherished, not only for growing under glass, but for outdoor decoration. The difference between our summer and that of France will in a great measure account for the short-lived popularity enjoyed by double Petunias in this country. When they made their appearance, single Petunias were extremely popular as bedding plants, and the double varieties were immediately tried for the same purpose, but were found unsuitable, owing to the flowers requiring a larger amount of fine weather to perfect them than the average English summer affords.

**DOUBLE PETUNIAS** cannot bear cold and wet; a few days' rainy weather completely ruins them, and the individual flowers being so large are of course not very freely produced; consequently a week's wet weather will mar the effect of a bed of double Petunias for several weeks. This is a pity, for when well cared for and favoured with a continuance of fine, dry weather, a large bed of double Petunias is really very attractive. What these double varieties like is a well worked, rather light soil, with plenty of thoroughly decomposed manure, abundance of moisture at the roots,



and a dry atmosphere. The bed containing them should be raised above the level of the Grass, and then the beauty of the flower is better seen. French gardeners all grow them in this way, and mulch with short manure. If I had any extent of flower garden to embellish I should certainly include a bed of double Petunias in the arrangement, for all summers are not rainy, and in such a dry one as the past they do well. The small specimens generally seen grown in pots, though well enough in their way, do not afford a very high idea of the decorative value of double Petunias, and it is only when they are grown along in 8-inch and 10-inch pots, they ever realise how very effective they are. A plant 2 feet high and as much through, bearing a couple of dozen or more expanded flowers, is sure to be much admired.

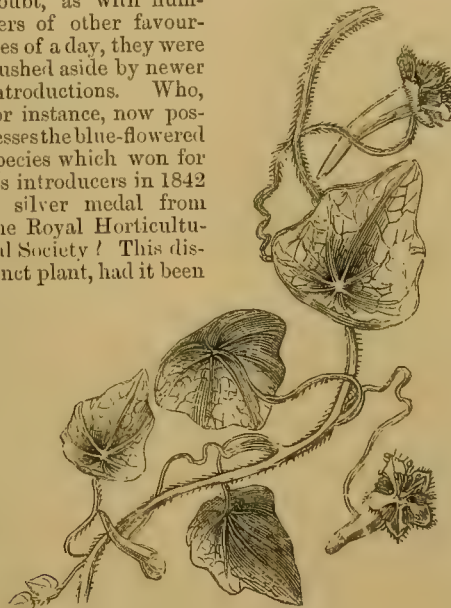
**SUCCULENT CUTTINGS** put in in February or early in March in a brisk temperature are required to form good specimens. Autumn cuttings are often used, but I fancy that they never grow away so freely as those struck in spring. There is, as a rule, a great tendency in double Petunias to become hard and woody towards the end of the summer, which is the time when cuttings are required, and fine juicy shoots are often difficult to obtain. The best way, if a number is required, is to keep over a few of the latest spring-struck plants in pots, which, having the pots full of roots and being placed in a temperature of 55°, in the end of December soon break away freely into growth. The one important point in the culture of these double varieties is to keep them moving along quickly in a rather moist warmth until June, but keeping them sturdy and vigorous by the judicious admission of air and according them a light position. They must never get pot-bound, for if they do they will never get away into free growth again; and they will need a little pinching back to make them bushy, and a few stakes as they advance in growth to regulate the shoots and keep them erect, otherwise the weight of the large double blooms will bring them down, and whole branches will split off. After the end of May no more fire heat will be necessary, and from that time a cool, airy, light house is the right place for them, shading a little during the hottest hours of the day to preserve the blooms longer in perfection.

**THE LAST SHIFT** will be given about the beginning of May, so that by the middle of June the specimens are quite formed and are coming into full bloom, affording welcome variety and having an excellent appearance where rather large flowering plants are required for conservatory decoration. From the time the roots touch the sides of the pots, frequent supplies of weak liquid manure must be given, as the bloom being so large, growth soon comes to an end, unless there is an abundance of food and moisture for the roots to utilise. Many of your readers will remember the advent of the single inimitabilis, and how much it was admired. It was shown and certificated at Regent's Park over twenty years ago, and although I much doubt if it now exists in cultivation, it gave birth to the beautiful striped varieties which I think are among the finest flowers grown at the present time. Formerly single Petunias were largely used for bedding out, and they were increased by means of cuttings; but now-a-days they are mostly raised from seeds, which, if sown early enough in the year, will give good blooming plants by June. Unlike the doubles, the single varieties must not be very liberally treated, as they run too much to leaf, especially in wet seasons. They like a free and rather light soil, well deepened, where the roots can get away from the heat and drought.

J. C. B.

### TROPÆOLUM DECKERIANUM.

It is singular that of the many beautiful and distinct species of Tropæolum that have been introduced into English gardens within the last half century, not more than two or three have retained a hold among popular garden plants: these are the well-known *T. majus*, or common Indian Cress, generally known as Nasturtium, *T. aduncum*, the bright flowered Canary Creeper, and *T. speciosum*, whose brilliant crimson flowers are frequent ornaments in cottagers' gardens, more especially in the north of England and in Scotland. It is true that others are here and there met with; but we are well within the mark in speaking of these latter as being practically unknown in gardens generally. About forty years ago Mr. Lobb, collector for Messrs. Veitch, sent home from the mountainous regions of the southern divisions of South America, and principally Chili, a good number of species of Tropæolum, whose flowers, when contrasted with the common Nasturtium, may be termed sensationally distinct and pretty. Many of these became widely distributed, and were in much favour, as the books and periodicals of that period testify; but no doubt, as with numbers of other favourites of a day, they were pushed aside by newer introductions. Who, for instance, now possesses the blue-flowered species which won for its introducers in 1842 a silver medal from the Royal Horticultural Society? This distinct plant, had it been



*Tropæolum Deckerianum*; flowers red and blue.

as carefully cultivated as the now common kinds are, would ere this probably have developed the same tendency to vary as these do. Other beautiful kinds, the fate of which appears to have been similar to that of the blue-flowered one, are *T. Smithi*, an annual with five-lobed leaves 3 inches across and large funnel-shaped flowers with long, green-tipped spurs and orange-coloured, fringed petals, the rest of the flower being a bright red. *T. Moritzianum* is another similar to this last. *T. pollyphyllum* has ten-lobed leaves and numerous pretty red and yellow flowers, in which the spur is large and the petals broad. *T. umbellatum* is a most remarkable plant, owing to its flowers being produced in umbels, instead of singly on axillary stalks, as in the others. It is also singular in its stems, being zig-zag and coloured purple.

**T. DECKERIANUM** is distinguished by its large peltate leaves, which are sometimes 6 inches across, and the long spur of its flowers, which are vermilion-red, except the small petals, which are blue and prettily fringed. It is a native of Venezuela, S. America, requires greenhouse treat-

ment, and is perennial by means of its fibrous roots.

The following list comprises the rest of the species of Tropæolum which have been or are still in a few gardens perhaps represented in this country. It may be noted here that for almost everyone of these pretty little greenhouse or hardy climbers we are indebted to the zeal of one of the most successful of plant collectors, namely, Mr. W. Lobb, who sent these along with many other beautiful South American plants to this country.

**T. MINUS**, the small Indian Cress.—A small form of *T. majus*, differs botanically in its petals, being sharp-pointed, and in the form of its leaves. It is a common South American plant.

**T. LOBBIANUM**.—A beautiful winter flowering plant for the greenhouse, has large peltate leaves and long trumpet-shaped flowers, with fringed petals, the whole a bright red colour. In this the stem, leaves and flowers are covered with short hairs.

**T. BRACHY CERAS**.—In this the general habit is that of *T. tricolorum* or *T. speciosum*, whilst the flowers are yellow, streaked with red, and in size about the same as a Violet.

**T. CRENATIFLORUM** has small leaves, which are five-lobed, the flowers coloured like the last.

**T. PENTAPHYLLUM**.—This is useful as a spring flowering plant, and should be grown along with *T. tricolorum*, or it may be grown out of doors if planted on a sunny border. It has rose-coloured stems, leaves 2 inches across, and divided into five separate leaflets; flowers trumpet-shaped, 1 inch long, nearly all spur, the calyx lobes and petals being short and unreflexed, whilst the colour is deep red in the tube, green in the petals, with small red secondary petals between each pair of larger ones.

**T. TRICOLORUM** is a pretty and graceful little greenhouse plant of easy culture, requiring to be rested during summer and started into growth in a cool greenhouse in September, when its hair-like stems, bearing small five-lobed leaves, push up, and in spring will develop an abundant crop of bottle-shaped flowers, about 1 inch long, the spur bright vermilion, the calyx segments purple, and the petals yellow.

**T. SPECIOSUM** does not appear to thrive with the same luxuriance in the southern counties as it does in the north. In the villages of Yorkshire, for instance, one often sees it completely hiding the whole of the front of cottages, clothing them in August in a perfect sheet of dazzling brightness, such as is not common in any southern garden known to us. It appears to prefer a strong, loamy soil, a moist, cool situation for its roots, whilst its stems should be exposed to full sunshine all day if possible. B.

### THE SCARLET MUSA.

I AM glad to know (p. 562) that the scarlet *Musa* (*M. coccinea*) can be induced, under ordinary stove treatment, to flower in this country. It only requires to be better known as an ornamental plant to ensure its extensive cultivation. In point of foliage and general port and beauty of floral organs it is one of the grandest of tropical plants. Compared with some of its better known congeners it is small, so that room might be found for it in many stoves not large enough for the cultivation of majestic species, like *M. sapientum*. A good feature belonging to this species, and one which is calculated to highly commend it to cultivators, is the length of time during which its flowers continue in good colour. I have seen its



brilliant floral heads, in the Tropics, last in good condition for quite two months. But then, it must be told, the plants grew, as many family relatives in a state of nature grow, in partial shade. We can better afford it shade in our plant houses than we can much bright sunshine. Good loam, with a large admixture of leaf mould, will best supply its wants in the way of soil. Where space is limited, the stools ought to be lifted and divided annually shortly after flowering, and only the stronger suckers selected and grown on. Where the space is ample, the stools may be left undisturbed with advantage for say two years. GEO. SYME.

**Begonias in flower.**—Though tuberous Begonias are all in winter quarters a great many of the more shrubby class yield a profusion of blossoms during this dull season of the year; indeed they form just now a very attractive feature in stove and intermediate houses. Foremost amongst those in bloom now may be mentioned *B. fuchsoides*, which, treated as a pillar plant, has been in flower for months, and likely to continue so for a long time yet to come. *B. insignis* is also now laden with its pretty pink blossoms, and *B. ascotensis*, with flowers of a deeper hue, is also in bloom. *B. Ingrami*, something like an enlarged *fuchsoides*, with blossoms of a paler hue than those of that kind, is also conspicuous; and *B. Lynchiana*, better known by the name of *B. Roezlii*, produces freely its large clusters of coral-red blossoms during the winter months. *B. Carrièrei* is a pretty, much-branched kind, and bears clusters of pure white flowers. It is well suited for culture in small pots, though there is sometimes a difficulty in getting the young plants to become bushy. If such is the case, a good way is to give the young plants a rest by keeping them rather short of water for a time, when, if cut down, they will often push out a number of shoots from the base, and thus form bushy plants. *B. semperflorens* is a well known common kind, varying in colour from white to deep rosy-pink. It will grow and flower freely under anything like favourable conditions, and can be raised in any quantity from seeds, as well as propagated by means of cuttings. *B. nitida*, an old and well known kind, is just commencing to bloom, and will, in all probability, continue in that condition till spring. The peculiar round-leaved *B. socotrana* that remains in a dormant state throughout the summer, starts into growth with the commencement of autumn, and flowers continuously during the winter, is a very beautiful plant, and one that bids fair to become popular. A ready means of form around the base of the stem. A great point in increasing this Begonia is planting small bulbils that favour of these Begonias is their almost total immunity from the attacks of insect pests. They are occasionally affected by aphides, but a fumigation or two soon settles them.—T.

**Luculia gratissima.**—Of this, which is one of our finest flowers just now, we have several plants blooming freely in 8-inch pots. They were obtained when quite small, and are now a good size. We always dry them off a little when their leaves fall after flowering; but last spring one of them, kept too dry, died. The general culture of this fine shrub is very simple. Our plants of it have been growing in a cool house all summer; when the flower-heads began to appear, about a month ago, they were placed in a temperate house, and there they have remained, developing their delicate pink Hydrangea-like heads of deliciously fragrant blossoms. These, unfortunately, do not remain long fresh in a cut state, but when left on the plant they retain their beauty for some weeks. We, therefore, never attempt to cut the blooms, but take plants and all into the house. At Brynglas, near Newport, this *Luculia* is used as a wall plant in the conservatory, and, at this season, its attractions overshadow everything else.—J. MURK, Margam, Glamorganshire.

**Double zonal Pelargoniums.**—I know of nothing better for furnishing a greenhouse with bloom in winter than double zonal Pelargoniums. Many of the varieties cannot be induced to bloom in winter, but with a little extra attention such sorts as *Won-*

*derful*, *Wilfred*, *Gullion Mangilli*, *Ernest Louth*, *Progress*, *Madame Thibaut*, *Leamington Lassie*, *Henri Burrier*, *Refinement*, and *Candidissimum plenum* can be had in full bloom in mid-winter. The sorts just named include all the variety of colour required in most private establishments. They should be propagated in May or June, and potted on into 6-inch pots, using a compost consisting of good fibrous loam and leaf soil, and, if obtainable, a 7-inch potful of pigeon manure, well sifted, and a 5-inch potful of soot, to every bushel of soil. They should be given good liquid manure as soon as they have become well established, and the blooms should be pinched off until the end of September. Up to this time a good brick pit will suit them, but after September they should be removed to a temperature ranging from 50° to 55°. Under this treatment there will be no difficulty in having them in bloom all the winter. Make a practice of looking over the trusses every morning, and picking out any decayed blossoms. By adopting this method, I find they last much longer than they otherwise would do. If possible, the truss should never be cut until the last bloom has expanded.—I. T. F.

## ROSE GARDEN.

### OWN-ROOT ROSES.

LIKE "J. C. C." (p. 540) we have also tried striking Hybrid Perpetual Roses so as to have them on their own roots. Our mode of procedure was very simple and successful. In the first week of November last year we made a quantity of cuttings, taking care to employ for the purpose well-ripened wood, and to make them about 9 inches long. We had at the time part of a border, facing the west, to spare; on this we formed with the spade a trench about 8 inches deep, and with a piece of wood made the bottom solid. Some prepared leaf soil and sand were then put into the trench, and the Rose cuttings were pushed hard on the bottom. We then filled in the trench and with the foot made all firm. Other trenches were then opened and dealt with in a similar way. Under this treatment we have now more than three hundred fine plants, some of them having six shoots from 2 feet to 3 feet long. I am quite sure that we did not lose twenty cuttings out of the lot put in. All the plants thus raised are good, and in the late summer months assisted us wonderfully to fill the flower basket.

Roses on the *Manetti* do not grow well with us; we have not a healthy vigorous plant in the place that has been budded on it. All of them look sickly and stunted. Own-root Roses, on the contrary, grow freely enough and yield us abundance of blooms, for which we have a great demand for house and table decoration. And right well a table looks thus decorated. I intend trying Tea Roses on their own roots to plant in beds; they will be struck under glass early in the year and planted out early in June. With protection in winter, I fancy they would be safe underground, and if the tops should happen to be killed down, the part under protection would doubtless shoot up again and give us late flowers after the first blooms of the Hybrid Perpetuals were over. It is useless planting Teas on the *Manetti* in beds, except in the most favoured localities, and why not even then on their own roots? Some of the more tender kinds of Teas that will not grow freely on their own roots out of doors do well in pots under the protection of a cool house. I should be glad if any of your readers who are rosarians would kindly furnish me with the names of such Teas as would be most suitable for planting out of doors.

T. A. T.

**Banksian Roses.**—Before the season for planting Roses is at an end, allow me to remind your readers of the value of the *Banksians* for covering walls. Both yellow and white are most useful for this purpose.—R.

## GARDEN FLORA.

### PLATE 521.

#### BRODIAEAS, MILLAS AND TRITELEIAS.\*

IN 1871 Mr. Baker, of Kew, revised the Liliaceae, dividing them into groups in such a way as to be easily understood; but just as his names were becoming generally adopted in gardens, new ones have been substituted. Mr. Sereno Watson, an American botanist, followed by the "Genera Plantarum," now the standard work on generic nomenclature, places two of Mr. Baker's *Brodiaeas* into separate genera. *B. coccinea* is now named *Brevortia coccinea*, and *B. volubilis*, *Stropholirion californicum*; while in *Milla* only one species is left, namely, *M. biflora*, all the others being transferred to *Brodiaea*. Therefore, our *Millas* and *Triteleias*, if we follow the latest, and what is now considered the best authorities, will be all *Brodiaeas*. The species represented in the annexed plate is a fairly typical example of this deservedly popular class of hardy bulbs. They range in colour from pure white, through all shades of blue and lilac, to deep purple and violet; they are too just as variable in their habit, though in



*Brodiaea peduncularis longipes.*

their requirements, with one or two exceptions, they are very similar. None of the species prefers shade, sunny exposed positions being those best adapted for their successful culture. In a semi-wild state they would have a charming effect, and the majority of them will hold their own amongst our natural herbage. One thing, however, is essential, and that is free drainage. They should also be planted tolerably deep, when they will be found to be most floriferous. The following is a list of kinds best known in gardens, together with their synonyms.

*B. aurea*, Benth. (*Milla aurea*, Baker), (*Triteleia aurea*, Lindl.).—A small bulbous plant, in general appearance not unlike *Allium striatum*, but without the two coloured segments. Though introduced nearly half a century ago from Monte Video, it is still extremely rare in gardens. It grows a few inches in height, and carries a small, loose-umbelled head of from three to six pretty, deep golden yellow flowers, pale green towards

\* Drawn in Captain Nelson's garden, Holme Lodge, Godalming in June.





TRITELEIA UNIFLORA.







the base, and opening about mid-day. Of leaves, several spring from each bulb; they are pale green and narrow, the mid-rib forming a keel on the back, and down the face they are deeply chamelled. This species is rather tender. If grown outside at all, it should be close to a wall in a south border. It may, however, be grown successfully in pots, planted or plunged out in summer, and wintered in a cool frame. It flowers early in spring.

**B. CAPITATA**, Benth. (*Milla capitata*, Baker), (*Hookera pulchella*, Salisb.), (*Dichelostemma capitatum*, Wood).—This, though one of the handsomest, rarely reaches perfection in gardens. It seems to require a warmer spot than the majority of them afford; with us it grows well, and flowers freely in a position facing the south. Backed up by shrubs or close to a wall, its dark violet flowers have a charming effect, borne gracefully, as they are, on long slender scapes, the beauty of which is entirely lost when tied to stakes. The scapes, of which each root produces two or three, are about 2 feet in length, and form compact heads of largish deep violet flowers. The leaves, which are linear, taper to a point, and generally two are produced by each bulb. They are dark green, and have a prominent midrib. It is a native of California, and flowers early in May.

**B. CONGESTA**, Sm. (*Dichelostemma congestum*, Kunth).—This is a most useful bulb, either for the open border or for rockwork. In well drained positions it flowers freely, and increases perceptibly if left undisturbed. In the rock garden it may be used with advantage in recesses carpeted with showy annuals in summer, or with *Veronica repens*, *Linaria hepaticæfolia*, &c., permanently, as the roots of these plants never reach far enough down to injure these bulbs. It is nearly allied to the foregoing, but differs in having three stamens, in the place of three perfect stamens. It grows about 2 feet in height, and bears dense capitate head of deep lavender flowers, which open flat, and are larger than a sixpence. The leaves, which are narrow, are slightly glaucous and ribbed. The variety *alba*, a charming companion to the above, and harmonising well with it, is not so plentiful as it deserves to be. Both flower early in May, and both are natives of California and British Columbia.

**B. GRANDIFLORA**, Sm. (*Hookera coronaria*, Salisb.).—This is a most interesting and showy bulb. It was first discovered by Menzies in New Georgia in 1792, and afterwards by Douglas in the Rocky Mountains. It flowered for the first time at Chiswick about sixty years ago. In order to show off to advantage its varied blue colour, it should be grown in large patches, and, seeing that it is so common, there is no reason why it may not be semi-naturalised. It is perfectly hardy, and some forms of it increase very fast. It also makes a useful pot plant for the conservatory, and if kept indoors it may be had in flower early in spring, when blossoms are most wanted. It withstands a little heat, and may be gently forced if required. It is

a dwarf grower, seldom attaining more than half a foot in height, and bears from two to eight, or more, flowers, in a loose umbel. They are bright blue, large in size, and last a considerable time in perfection. The leaves, which are narrow and grass like, are grooved on the inside. The variety *major* (*B. californica*, Ld.) is larger in all its parts than the type, and bears almost double the number of flowers in a head. Another variety, called *macropoda* (*B. Torreya*, Wood), (*B. terrestris*, Kellogg), which Sereno Watson keeps up as a species under the latter name, is no more than a variety of *grandiflora*. It bears from two to three

being largely grown in most gardens, and used effectively in mixed borders. They are natives of N. W. America, and flower in spring.

**B. IXIODES**, Wats. (*Milla ixioides*, Bkr.), (*Calliprora lutea*, Ldl.).—This is a Californian bulb of special merit, and well known in gardens. It is perfectly hardy in the open borders, flowers freely, and increases rapidly by means of offsets. A peaty border, shaded only from the mid-day sun, is what it prefers. Its flowers, which are deep yellow and very handsome, are produced from three to ten in loose umbels in July.

**B. LAXA**, Wats. (*Milla laxa*, Bkr.), (*Triteleia laxa*, Bth.), (*Seubertia laxa*, Kunth).—This is one of the most popular of hardy bulbous plants, and one of the easiest to cultivate. What holds true in the case of *B. uniflora* is also true of this; provided the position is open and sunny, it will flourish in almost any soil; its bulbs should never, however, be put less than 6 inches deep, for though quite hardy in ordinary seasons, bulbs of it too near the surface have been destroyed in very severe winters. The flower-stems, which are rarely ever more than a foot high, carry a loose head of large Tyrian purple flowers, a little larger than those of *grandiflora*. The leaves are narrow and pointed and light green. It has given rise to several varieties, the most notable being *Murrayana*, a kind that bears large lavender-blue flowers, deeply shaded inside. The variety *alba* is also a very desirable kind. Others there are, but unnamed. It is a native of California, and flowers in June and July.

**B. LEICHTLINI**, Bth. (*Milla Leichtlini*, Bkr.).—This comparatively new species was introduced to this country as late as 1873. It is extremely handsome, but, unfortunately, very dwarf. The leaves are larger than the flowers, and consequently the latter barely show themselves above ground until they are almost over; then the scape lengthens. It is, however, perfectly hardy, thrives well in the open border, and when protected from heavy rains by means of a hand-light, which thus serves the double purpose of keeping the flowers clean and drawing out the stem, its blossoms are a welcome sight in January, and they are very fragrant. The leaves, which are 3 in. or 4 in. long, are strap-shaped, distinctly channelled down the face, erect, and bright green. The flowers are an inch broad, pure white, with a bright green rib down the centre of each segment, and produced in a cluster among the leaves. It is a native of the Chilean Andes.

**B. MULTIFLORA**, Bth. (*B. parviflora*, Torr and Gr.).—This comparatively

rare plant in cultivation is very handsome and free-flowering, and well worth attention. The flowers, which are produced in umbels of from 15 to 20, are pale or deep purple, and do not open flat, but are surrounded by bracts of about the same colour. The leaves are all radical, rather shorter than the flower-stalk, smooth, and light green. It is nearly related to *grandiflora*, from which, however, it is readily distinguished. It is a native of California, Prevost's Fork of the Utah and Sacramento Valley, and

flowers in a head of a rich dark violet colour, and very handsome. Minor, a third variety, is smaller in all its parts than the type, but more lax in the heart. They flower early in spring, and are natives of Vancouver's Island, Sacramento Valley, California, Oregon Coast Range, &c.

**B. HYACINTHINA**, Bth. (*Milla hyacinthina*, Bkr.), (*Hespercordium hyacinthinum*, Ldl.), (*Triteleia crystallina*, Hort.), (*Brodiaea lactea*, Wats.).—The decorative value of this, together with its variety *lactea*, are too well known to need comment, both



*Brodiaea (Triteleia) uniflora*, showing habit of growth.



flowers in spring. It is quite hardy, and grows freely in an ordinary border.

**B. PEDUNCULARIS**, Watson (*Milla peduncularis*, Bkr.), (*Triteleia peduncularis*, Ldl.). This, except for variety, is not an acquisition. The plant known in gardens, however, as *Milla longipes*, and which is a variety of this species, is exceedingly pretty, and bears heads of between twenty and thirty white or claret-coloured flowers, sometimes striped. It is quite hardy, and flowers freely in the open border. In the type the flowers are very pale blue, and marked with purple lines along the back of each segment. Both are natives of California, and flower in May and June.

**B. UNIFLORA**, Bth. (*Triteleia uniflora*, Ldl.), (*Milla uniflora*, Grah.), (*Milla bonariensis*, Gill.), of which the accompanying plate represents the type (lilacina), and what is now known in gardens as the variety *alba*, has, as will here be seen, many synonyms, and although it may be desirable to have a standard name, and to abide in every case by it, we much doubt if the dear old name of *Triteleia*, by which it is almost exclusively known in gardens, will be lost or forgotten in our day. It is perhaps the easiest increased and handsomest of this class of bulbs. It is now sold by the thousand, and in many places is being extensively naturalised in woods, &c. We last year saw large patches of its pretty white and lilac star-like flowers peeping very effectively from amongst the grass in the wild garden at Kew treated in this way, and having, as it has, an advantage in height over Crocuses, Scillas, &c., it will not be hard to imagine the effect which a few thousand of it planted in a straggling manner in turf produces. It has been a favourite almost from its first introduction, and has been the subject of many experiments, not the least novel of which is that described in *THE GARDEN* for 1873. There it is recommended to be grown in saucers of damp Sphagnum Moss, the latter in a growing state, the result being most satisfactory, as it can in this way be used for table decoration with striking effect. It is also most useful for conservatory decoration, where it will often flower from autumn until spring; indeed, in mild winters, it is often in full bloom during December and January, but most generally in February and March. One thing in reference to it should, however, be borne in mind, and that is that it dislikes being disturbed in any way, whether in the open border or in pots. In planting in turf, a hole should be made much larger than the bulb, and plenty of rich light sandy soil put both above and below it, say to the depth of 6 inches, leaving it to settle down of its own accord. As a rule, this bulb is only one-flowered, as its name implies; but it sometimes happens, under good cultivation, that two flowers are produced on a scape, while others are inclined to double by increasing the number of segments, and, curiously enough, also increasing the number of stamens; so we may yet hope in time to have a double *Triteleia*. The variety *conspicua* (Bkr.), figured in the *Refugium Botanicum*, t. 43, is a very slight advance on the type. In colour it is just between the lilac and the white. It has, however, larger flowers, more oval-shaped segments, and longer stalks than that kind, and its leaves are also broader and paler coloured. The variety *Tweediana* (Bkr.) we have never seen alive. The type was first gathered by Dr. Gillies on banks near Buenos Ayres, about 1820, and flowered, we believe, for the first time, in 1832, at Canon Mills, Edinburgh. Other species are *B. Howelli*, *crocea*, *sessiliflora*, *Pappigiana*, &c.

D. K.

**Floral fans.**—I, for one, hope most sincerely that the floral fans mentioned by "A. D." in *THE GARDEN* lately (p. 531) will never come into fashion,

for a fan decorated in the manner described with flowers must be utterly useless as a fan, and to ornament anything in such a manner that it is rendered less useful by being ornamented is contrary to all notions of good taste. The flowers must be very tightly attached to the fan to prevent them falling off, which would give them a stiff, unnatural appearance. Probably real flowers for this purpose would soon be superseded by artificial ones, a result which no one but the makers and vendors of such materials could desire. There are, fortunately, however, two reasons more cogent with most persons than the fear of outraging good taste, which will probably prevent these fans from being commonly adopted—the difficulty there would be in re-dressing a fan every day at home, and the expense that having it done at a flower shop would entail. If made by a professional person the effect would probably be no better than the bouquets of which "A. D." speaks so slightly, and of which I do not for one moment wish to say a word in favour. A heavy fan carried in the hand would probably, from its form, be more troublesome than a bouquet.—G. S. S.

## ORCHIDS.

### ORCHIDS ABROAD AND AT HOME.\*

By F. W. BURBIDGE, F.L.S.,

CURATOR TRIN. COL. BOT. GARDENS, DUBLIN.

THE remarks made by the ordinary rank and file visitors to public gardens or floral exhibitions are sometimes very amusing. When I was employed in the Royal Gardens at Kew, years ago, a lady and little boy entered the large Fern house, and stopped to admire a group of *Gymnogrammas* on one of the side stages. The Gold Ferns of course took the little one's fancy. "Oh! mamma," cried he, "look! Look at the gold dust on the leaves." "Yes, my child," answered his mamma, "that is sulphur. The gardeners shake it over the plants to kill the insects that eat the foliage!" But if one remark is heard oftener than another when cultured beauty stands before the most beautiful of cultivated flowers, it is this: "Yes! they are indeed most lovely; but what a sight it must be to see them in the Tropics!" This desire to see tropical lands is most seductive, and it has overpowered some of the most distinguished men of our age. As an example, one need only mention Livingstone. We all know how earnestly the Rev. Charles Kingsley yearned for the sight of a winterless land; and in a book which all gardeners should read, called "At Last; or, a Christmas in the West Indies," Kingsley tells us how his lifelong wish was gratified. Then we have Banks, Darwin, and Hooker, who laid the foundation of their great knowledge by travel—men who were urged on through difficulties and dangers alike by the spirit of discovery, and an earnest desire to see under what conditions vegetation existed abroad. Let me therefore, as briefly as I can, state the conditions under which Orchids luxuriate in warmer lands than ours.

**ORCHIDS ABROAD.**—These may first be broadly divided into earth-loving, or terrestrial, and tree-loving, or epiphytal, kinds. Again, speaking broadly, one may say that all the most beautiful of epiphytal Orchids inhabit the region which lies between the two parallels of 30° on either side the equator, this region being practically bounded by the isothermal lines of 70° Fahrenheit. In a word, the epiphytal Orchids form a narrow belt or zone around the world. The most beautiful of the truly terrestrial Orchids lie outside this zone. By the truly terrestrial kinds I mean *Disa grandiflora* from the Cape of Good Hope, *Cypripedium spectabile* and its allies from N. America,

and *Orchis foliosa* from Madeira. Nature, however, is not fond of hard lines, and so she fills in her vacuum of extremes by species of a semi-epiphytal, or, if you like to put the same facts another way, we can say semi-terrestrial kinds, such as the *Sobralias* and *Cypripedia* of the west, and the *Spathoglottis* or *Arundinas* of the east. An Orchid map is simply a chart of the world's greatest heat and rainfall under another name, or, in other words, Orchids are focussed, as it were, near the equator, from which they radiate in a decreasing ratio to temperate and colder regions. One curious fact comes out when we follow up this radiating idea of Orchid distribution, which is this—when Orchids radiate from the line at or near sea level in a horizontal direction, they, broadly speaking, decrease in beauty as they recede from the equator. But some secure a cooler temperature on the mountains by vertical, rather than by lateral, distribution, and these mountain Orchids of the Tropics, as you know, are often quite as beautiful as those of the plains. Thus, the eastern lowland Orchids, such as *Phalænopsis*, *Vanda*, *Acridies*, and *Dendrobium*, are but little more beautiful than the higher growing *Pleiones*, *Calogynes*, or than the *Vandas* and *Dendrobes* of the mountains. So also in the west, the *Cattleyas* and *Lælias*, and *Odontogloss* of the lowlands of South America are not much, if anything, more beautiful than the *Odontogloss*, *Masdevalls*, and *Cattleyas*, &c., of the mountain chains. Even in Europe we find the alpine flowers often gain rather than lose in beauty by elevation, a fact which I have never seen clearly accounted for or explained.

It is by no means easy to give a clear idea of how Orchids exist naturally in the Tropics; but I will clear the way by pointing out the facts that all things are very much the same as here at home, if we except, 1st, the climate; and, 2ndly, the vegetation. The climate is as hot as that of our warmest glasshouses; but there is, in addition, an airy freshness not easy of attainment in hot-houses. The sun heats the earth far more than with us; hence, after rain, the whole country absolutely reeks like one large hotbed. In the forest, leaf-mould and other *débris* decay so rapidly that plant food, in the shape of aerial gases is liberated in large quantities; hence vegetation is rampant on all sides. Even in what is called the dry season, though rain may be, and often is, absent for weeks together, the nightly dews are so heavy, that in the early morning every leaf is drenched with dew. By the dry road-ways the Cocoa-nut Palm, or the Betel Nut-yielding *Areca* rear their slender stems. There are Pitcher Plants and *Gleichenias* in the wet ditches, and around every little Palm-thatched hut grow fruits and vegetables and what we call hot-house flowers apparently wild. Here, at home, we cultivate some of these, such as Bananas and Pine-apples, by a large expenditure in labour and artificial appliances; but in the Tropics, both east and west alike, these things are grown by the humblest natives around their houses in the open air, with far less trouble and care than we must often expend on half a dozen Apple trees, or a plot of Potatoes or Onions. The magic of tropical growth is simply great sun-heat and excessive rainfall. What we do here at home under a few thousand square feet of glass roofing Nature does over a hundred lands larger than our own, and in a much more complete manner.

### A TROPICAL FOREST

is rather puzzling to an explorer who sees it for the first time. Familiar as he may be with hot-house botany, he will scarcely recognise the few old friends he meets in their native wilds. Tree trunks tower around one like the pillars of a cathedral. Some of these trees will be 200 feet

\* A paper read before the Scottish Horticultural Association, St. Andrew Square, Edinburgh, on December 1, 1885.



in height, or even more, some perhaps less, but their tops meet far overhead, and their branches interlace and form a sort of leafy roof screen high above. In many places not even the light penetrates through the thickly woven tree tops, and in these virgin forests you may walk for miles without once seeing the sun overhead, so that in travelling a compass is used, just as if one were in a boat at sea. The rocks and earth at one's feet are carpeted with steel-blue Ferns and mossy growths, with leafy Begonias, and in wet places there will be colonies of *Alocasia* or other Aroids in profusion. These woods are filled with life of all kinds, bird and beast, gaudy insects, and gliding snakes, and, what to the explorer is still more annoying, with blood-sucking jungle leeches, and with those greatest of all pests in hot climates, mosquitoes. A native guide will tell you that such a locality in these forests is full of Orchids, and yet, until you know their habits and their peculiar conditions of growth, you might walk past them and not know they were there. I was surprised when I first got to Borneo because I saw no snakes; indeed, it was only with some difficulty that I could at first see them when quick-eyed guides pointed the creatures out to me. The fact is, one's eyes seem useless among so much of teeming variety until one has become accustomed to the colours and forms of things as seen under altered conditions and under sun-hine, which possesses even under partial shade somewhat of the brilliancy of limelight. Nothing surprises one more than the bright colours of some leaves and the general dullness or lack of flral effect as seen in a tropical forest. Of course, when your guides and carriers have brought you the Orchids down from the tree-tops, to which they must scramble like monkeys to get them, then, of course, if they chance to be in bloom, many are strikingly lovely. But what I wish to convey to you is that, speaking generally, epiphytal Orchids make no effect, so to speak, in a tropical landscape. That they often bloom far more profusely abroad than at home is shown by the quantity of flowers produced by even small newly-introduced plants. But abroad the wind, the rain, and the fertilising insects soon make short work of their beauty. Of course, one reason why Orchid flowers remain in freshness and beauty so long in our hothouses is owing to the above elements of injury being absent. Everybody knows that if by accident an Orchid flower is fertilised by a bee or a fly or by artificial aid, then the blossom soon shrivels and fades, while the same would have endured fresh for weeks if this fertilisation had not occurred. I have observed that in the morning after heavy dews, and at all times after showers, that the ground reeks with heat and moisture, and in the forests this uprising of moisture is always taking place from decaying leaves and other débris, and I believe the roots of epiphytal Orchids are especially fitted to absorb atmospheric plant food of this kind, and the safest plan of applying manurial stimulants or plant food to Orchids is by watering the floors or stages with volatile manures, and on no account do I advise the application of solid or liquid manures to the compost or roots of these plants. Nature is not an infallible guide, but she places a thin bed of rapidly decaying leaf mould under the trees on which Orchids grow, and the finest *Dendrobiums* I ever saw of their respective kinds were growing in a Pine pit, and I have no doubt whatever that their vigorous growth was in a great measure due to the exhalations of the rotten leaves and tanners' bark in which the Pine plants were plunged.

#### HOME CULTURE.

As regards practical cultivation, I need say but

little; one may do more good by suggestions than by definite advice. In visiting many nurseries and private gardens as I do in the course of a year, one fact must strike even the most general observer. It is this: you find all sorts of houses, span-roofed, lean-tos, raised, sunken, different roof pitches and aspects, while some are sheltered and others exposed, and yet with all this variety one finds Orchids cultivated in each and all of these, with results far nearer an average than one would expect to find them. In no two places are the houses, the composts, the temperatures, or even the water, alike, and this brings us to a great central fact in all good gardening, a fact exemplified in horticulture every day, viz., that "there is more than one way to Rome." We are told that "all ways lead to the Eternal City," and so it is in Orchid culture; there are many different, or apparently different, roads to success. This fact renders it most difficult to give definite and useful advice in print. The "good cultural practice" adopted under one set of conditions becomes wholly, or at least partially, wrong associated with other surroundings.

A juggler not unfrequently keeps four balls flying over his head with one hand, and the successful Orchid grower has to deal quite as cleverly with heat, air, light, and moisture. These are the main factors he must keep going with his head as well as with his hands. Heat, ventilation, and moisture are easy to manage; light is less under our control. True, we can limit its too ardent influence by shading; but what we want is a shading which, while intercepting the heat-rays, does not rob us of the actual light. Now-a-days good Orchid growers build lighter houses, and only break or diffuse the sun's rays, instead of totally obscuring them, as was formerly the rule. The old idea of growing tropical Orchids in hot, darkened glass-roofed tunnels is exploded for ever, and with it the old "bake and shrivel" system of resting also has departed. More air is now given, and it is given more carefully than formerly, and the temperatures are not raised at night as was formerly the rule. Altogether, not only are even amateur growers more successful than formerly, but that old "bogey" of the earlier orchidists, viz., "spot," has been well-nigh banished. If "spot" appears in an Orchid house to-day, it is not thought of as a zymotic disease, but the cultivator at once knows that some error of his own is the primary cause.

#### COMPOST FOR ORCHIDS.

As to this, four things are necessary: Good brown fibrous peat, fresh Sphagnum Moss, picked and partially dried, crocks, and clean charcoal. Now and then a little fibrous loam will be required for strong-growing plants, such as *Cymbidiums*, *Cypripediums*, *Calanthes*, *Phaius*, and *Pleiones*. Even the delicate little *Anaethochilus* grows best in clean loam-fibre and Sphagnum Moss. The difficulty is to obtain good peat, and whenever a sound sample of the right sort ("sods as tough and as fibrous as door-mats," was the description given to me by a famous old Orchid grower when he sent me as a boy to the peat-stack for a supply) is found, you can scarcely do wrong by obtaining too much of such a "good thing."

All sorts of dark coloured greasy kinds of peat are useless, indeed actually injurious to Orchid roots, since it soon washes down under the watering pot into black mud. Washing is after all a really good test for peat. Bad samples you can wash all away like so much soap, but of a good tough fibrous sample only the sand and small earthy particles in the interstices of the fibre will be dislodged by washing. The same is true to a certain extent of the best of loam; it should possess a large proportion of fibre, which

no washing can remove. This especially should be the case with the loam used for Orchids.

Sphagnum Moss is a grand aid to success in Orchid culture, and especially so when of good quality. The best I have ever seen is found near Stirling; indeed it seems stronger and tougher in the north than elsewhere. Of late years it has been extensively employed; indeed as a fact it is interesting to notice that Orchids generally, and especially the cooler growing of mountain Orchids, were never grown successfully until the use of Sphagnum or bog Moss became general, just as some other Orchids, as *Catasetum*, *Cycnoches*, *Gongora*, &c., have never been well grown since the old "bark stoves" heated by flues went out of use.

#### POTTING ORCHIDS.

This is really a simple method, and my golden rule is never to pot a plant until after it has commenced to grow, and the best time for the operation is as soon as ever the indications of new roots appear. If repotted just before the roots actually do appear from the new growths, the compost is fresh and sweet for them, and they seldom fail to take advantage of it. There is no special season for repotting Orchids, but the cultivator must watch his plants like babies and learn to feed them just in the nick of time. For small plants the shallow suspension pans are best, but all large-growing things such as *Cattleyas*, *Lælias*, *Lycastes*, *Vandas*, *Aerides*, &c., must be grown in pots. Some growers use perforated pots, others rough glazed ones for the sake of cleanliness, while many use common garden pots of the usual pattern, and in all three cases the practical results are pretty much the same. One main point is to secure plenty of drainage. This is a point amateurs are apt to overlook; but the fact is, the more water a plant requires the more drainage should be given, otherwise the compost soon becomes stagnant and sour. My own plan is to place large concave crocks over the hole at the bottom of the pot, taking care first to enlarge the drainage hole, which the potters always make too small. Then a deep layer of small crocks is added—a layer of very small ones being placed along the top. Over these a layer of dry Sphagnum is placed to prevent the compost from filtering through and blocking up the drainage spaces. Over this the roots of the plant are placed and surrounded by the compost, which, as a general rule, will be two parts of brown fibrous peat, one part of Sphagnum Moss, and one part of charcoal nodules and small crocks mixed together. The compost should be packed quite firmly around the roots. This is important, for if the compost is loose, two evils result from it. First, the plant is not firm, but shaky, in which case no Orchid thrives well; and, secondly, loose compost retains too much water, and so is not only wetter, but colder than if it were tightly packed. It is not the quantity of water poured on the roots of a plant which influences it for good or ill, but the quantity actually absorbed and retained by the compost, and my own experience is that those Orchids are most healthy which require watering most often, and in order to ensure this desirable state of things the compost must be firm and on a well-drained bottom. Then, no matter how much water is given, only a certain quantity, namely, that absorbed and retained by capillary attraction, can remain. I find in practice that for all hard-leaved, pseudo-bulbous Orchids, such as *Cattleyas* and *Lælias*, you can scarcely pot them in too little compost, and that little can scarcely be too firmly pressed into the pots. Some grow such plants as *Odontoglossums* and *Masdevallias* quite successfully in a compost of Sphagnum Moss and crocks; but if your atmospheric conditions of heat and moisture are all



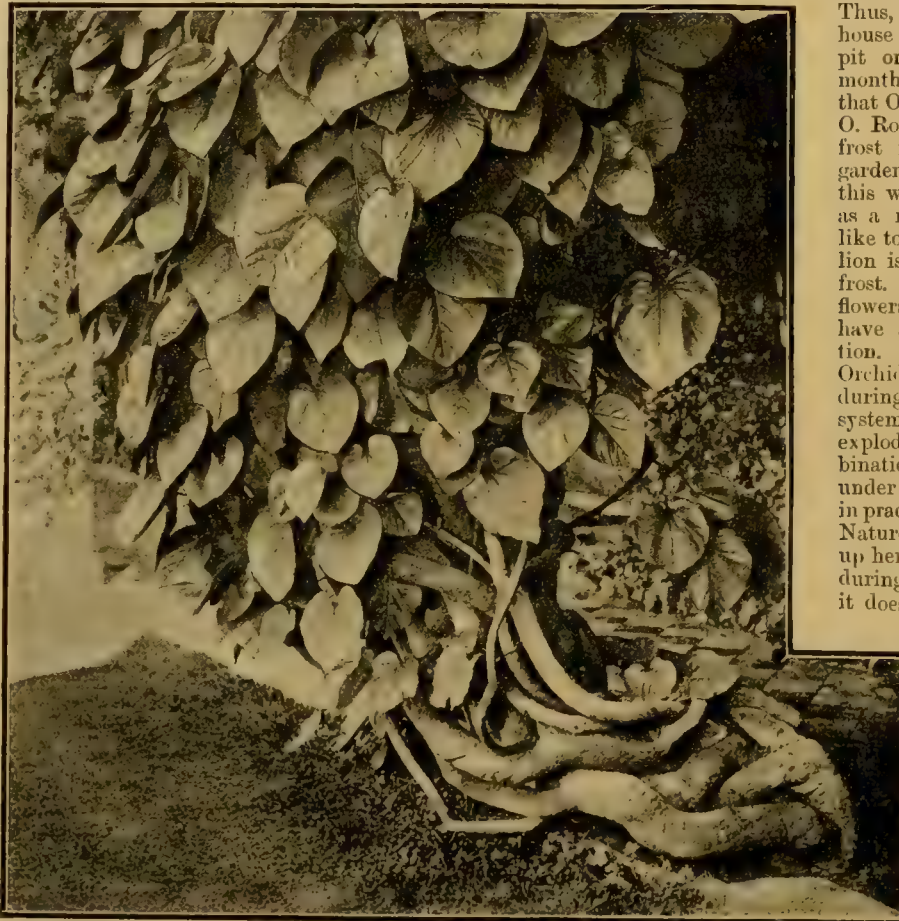
right, the compost is not so important a matter after all, provided, of course, that it be sweet and well drained; but even of the sweetest and best of composts, one had better have too little than too much.

As to the staging or arrangement of Orchids, there is a point to which I attach a good deal of importance. It is this, always stage your plants when you first receive them, so that their young growths point towards the light. It is, to many young gardeners, a simple matter; but, from experience, I know that it is a matter of great importance to the plants, and nothing checks the luxuriance of Orchid growths more than suddenly changing the plants round from the light, as is often, thoughtlessly, done after cleaning. This is especially so if the plant has been grown in a lean-to house, or in a partially shaded corner. It is particularly dangerous in the case of such stiff-leaved plants as Cattleyas, Lælias, &c., since, when once their leaves are formed towards the sunlight, and poised at the best angle to utilise its action in any one position, they cannot readily adapt their leaves to a new position. In the re-arrangement of Orchids in houses of the lean-to type this fact is often forgotten, especially when a walk goes down the centre of such houses, since those on one side face the light, while those on the side opposite are frequently arranged so as to look well from the path, and with their backs to the light. Every cottager who grows window plants, such as Fuchsias or Geraniums, is well aware that the "leaves draw to the light," so that the plants become one-sided. But it is not so well understood that when such plants are turned from the light, so as to make them grow bushy all round, that growth-energy is actually wasted in that way. The market-growers found it out, however, and there are now many acres of glass-houses near all our large towns without a single side sash or up-right pane, while to prevent this "drawing," which in plain language means "more light, if you please," they place their plants up near to the glass when small, and gradually lower them as growth goes on. It is impossible to give the majority of epiphytal Orchids too much light in our climate; and one great desideratum to-day is some kind of glass, or of shading material which should let through all the light rays, and neutralise the heat rays only of the spectrum. Certainly, in countries near the Equator the plants receive twelve hours of sunlight only, while in our northern gardens the light is of several hours longer duration during the summer months; but, after all, the quality of our light is inferior, and it is further neutralised by glass roofs, and often still further by defective shading materials. The flower-producing effects

of light are well known, and when the practical orchidist fails to bloom any particular Cattleya or Dendrobe under pot culture, he generally at last succeeds by transferring the plant to a teak basket, or by suspending the pot with wires to the roof.

#### SHADING ORCHIDS.

As to shading, whatever kind is necessary should be movable, easy to roll up or down on a light roller. Coarse hempen or woollen threads woven crosswise, the meshes a third to half an inch wide, are sufficient to break the hottest of sunshine if elevated from 4 in. to 6 in. above the glass of the roof. So arranged, each thread casts a glimmering shadow, and the result is a breaking or diffusion of light rather than



Stem of Aristolochia on pillar of verandah at Abney House. (See p. 585.)

an actual obstruction of the sunshine itself. In other words, a far larger proportion of heat rays are obstructed by open shading (thus elevated above the roof) than of light rays—a result most to be wished for during the hottest of sunshine on glass roofs. Especially is this to be wished for in the case of what are called "cool" Orchids, which suffer far more from excessive summer heat than from a moderately cold winter temperature. When shading canvas or tiffany is elevated a few inches above the glass, a current of cool air finds its way underneath and with the best effects. All kinds of permanent or fixed shading materials, whether coloured glass, white-wash, summer cloud, or tiffany tacked permanently to the rafters, are wrong, so far as they obstruct the light during dull or cloudy weather, when, of course, they are not needed. Of course

I know such shading is now and then very convenient; but, at the same time, their presence in dull weather renders them wrong in principle, however useful in emergencies.

#### RESTING ORCHIDS.

This is always a contested matter; but quite certain that Nature intended the pseudo-bulbous species to rest, or perhaps I had better say to be prepared to endure lack of moisture at some period in their yearly growth. In our garden practice we may "rest" our Orchids in various ways. Firstly, by allowing the compost to become comparatively dry (but not so much so as to induce shrivelling). This dryness is, of course, after the season's growth is fully made. Secondly, by removing such plants for a time to a cooler and more airy atmosphere. Thus, some few Orchids of the cool-house class might be rested in a cold pit or frame during the summer months, since Mr. Smee tells us that *Odontoglossum Alexandrae* and *O. Rossi* withstood 8° and 11° of frost respectively in his open-air garden at Wallington. Of course this was simply an experiment, for, as a matter of fact, I should not like to say that a Daisy or a Dandelion is improved by the action of frost. Thirdly, by cutting off the flowers as soon as, or soon after, they have attained to their full perfection. The old plan of growing Orchids in a hot and shady house during the day and the "firing-up" system at night is, I hope, now exploded, together with the combination of "roasting and baking," under the name of rest, alike wrong in practice and in principle. Because Nature herself does sometimes shrivel up her Orchids in exposed positions during an exceptionally dry monsoon, it does not follow that the plants

even there are really benefited by the vagaries of climate. Indeed, I am fully assured that they are not so benefited any more than are our most exposed meadows or fields during a dry hot summer, or than are our native Daisies and Buttercups by a frost below zero. Let us ask ourselves what is a pseudo-bulb after all? It is a storehouse, a savings bank, in fact, of acquired capital, no doubt in the first instance developed from swollen petioles or leaf-stalks especially for the purpose of enabling the plant to live under widely varying extremes of moisture and of drought. Here we find Nature herself supplying a compensation clause, or, in other words, she teaches thrift by enabling her Orchids and other plants to lay up stores of potential food, so that they may be prepared for "a rainy day," or, in other words, a bad time. Hence, as we have said, even if Nature actually does shrivel up her Orchids and other bulbs, such shrivelling is an actual loss for the time being of that stored-up food, or energy, or capital, call it what one may, which was originally intended to enable the plant to meet calls due on its energy at flowering or seeding time, or to live on through those occasional periods when climates and seasons get a little awry.



## SYRINGING ORCHIDS.

The question of syringing is one of those cases wherein "doctors agree to differ." Mr. O'Brien in his paper on "Orchid Culture," read before the Orchid Congress in May last, deprecates the use of the syringe. I do not, feeling sure that in the right place and on the right plants its use is most valuable. All the thin-leaved *Dendrobies* of the *D. Falconeri* and *Devonianum* types, *Disas*, *Pleiones*, *Cœlogynes*, *Cypripediums*, and most "cool Orchids" thoroughly enjoy careful syringing, and its due use is death to the red spider and banishment to thrips. Of course I should never syringe thick or hard-leaved plants such as *Cattleyas* or *Lælias*, and in the case of *Vandas*, *Aerides*, &c., one must be careful in its use; but all these plants are refreshed by a light dewing from a fine-rosed syringe after the hottest of summer days, and more especially in large, dry, and airy houses. In such houses syringing is a necessity if the lower leaves of *Vandas* are to be retained.

In a state of nature all Orchids are drenched with rains during the wet monsoon while their annual growth is being made, and it is worth while remembering that the bulk of tropical rainfall falls at night. After the hottest of hot days showers are the rule at night, and if not rain, then the heaviest of dews. An old South American collector long ago told me that in Bogota (where *Odontoglossum Alexandræ* and several *Masdevallias* are found) the warm moisture from the plains or from the sea comes up every night, and condenses in the cool atmosphere of Bogota (alt. 8000 feet), so that every morning a white mist hangs over everything until it is dispersed by the sunshine. Early in the morning every leaf-blade of Grass or mossy growths are not merely wet, but drenched by these heavy nightly dews. As a matter of fact, this state of things takes place on the mountains nearly everywhere throughout the world. It is so on Table Mountain, in Cape Colony, where *Disa grandiflora* grows wild. It is so in Borneo, where the finest of *Nepenthes* are found, and no doubt the same is true on the Andes and on the great chains and peaks of the Himalaya. This is a state of things not easily to be imitated in our Orchid houses at home, and consequently we fail to grow many mountain plants in our cool green-houses at home simply because we keep them too dry. At the same time the syringe should be used with discretion. It is like a rifle, or a spirited horse—most useful to those who best understand its use, and in good hands I am convinced that the syringe is one of the most useful of all the implements in the garden.

## COLOURS OF ORCHIDS.

Let us now say a few words about the prevailing colours of Orchid flowers. Why are so many species distinguished by having yellow flowers? After yellow, green and white blossomed kinds are about equal. Then comes a group in which red colouring steps in to compete with the yellow hue, the result being brown-shaded or brown-spotted flowers. Pure red-flowered kinds are very rare—scarlet or vermilion still more rare, and blue the rarest of all orchidæic colouring. Why is this? Why is the heavenly blue, so lavishly bestowed on the field Flax, the graceful Bluebell, or the mountain Gentian, denied to this royal family of Orchids? This question seems all the more puzzling because in *Iridacæ*, which resembles the Orchids more nearly than any other popular Natural Order of garden flowers, there is a very large proportion of blue or blue-tinted flowers. We have here a most interesting problem. Mr. Grant Allan, who has written an interesting little work

on the "Colours of Flowers as Applied to the British Flora," would no doubt tell us that it is a question connected with the evolutionary progress of a younger Natural Order—the gradual unfolding of Nature's laws in a way not at present fully understood. The word evolution reminds me that even botany itself as a study is subject to its sway. We had the Linnean system, which we may call the botany of eternal signs or numbers, then came the structural or anatomical period, then the functional or physiological, and some day no doubt the botanist will be able to tell us all the secrets of Nature's laboratory—how she so cunningly compounds her subtle flavour and aroma in fruits, her colours and perfume in flowers, until, as the ball of evolution rolls on through the coming ages, our great grandchildren will in the infant schools of the future be taught:—

What the Lilies say to the Roses,  
What the songs of the butterflies be.

In conclusion, I may add that there is "no royal road" to Orchid culture except the long and certain one of observation and practical experience. I have often heard it said after a man has grown some particular thing better than his neighbours that he never grew any Orchids before. Perhaps not; but if a born gardener grows good Grapes, or good *Pelargoniums* and *Crotons*, I think one might trust him with a few Orchids. If once such a man takes to any set of plants and really studies their wants, he is sure to succeed with them. But Orchids demand the greatest care—the most acute observation. There is no chance of a "short cut" unless, as now and then happens, wealth is added to intelligence and a deep-laid love for them. Some amateurs manage to get "over the garden wall" in this way, but, after all, Orchids of the really showy and most useful kinds are now sold so cheaply that there is a large measure of quiet enjoyment, and a more than moderate amount of success in their good culture to be enjoyed without the display of what one may call "purse rivalry," or, in other words, of extravagant competition.

## THE WOODLANDS ORCHIDS.

The neighbourhood of Sydenham with its moist clayey soil seems to be specially adapted for Orchid culture, and some of our best collections are located in that district. The collections of Mr. Dorman and others have become famous, and among the more recent additions to the ranks of Orchid patrons is Mr. R. H. Measures, of Streatham, who has taken up Orchids with enthusiasm. The houses are rising one after the other, and as soon as finished are filled with plants, which, owing to the skill of Mr. Howes, the gardener, are faultless as regards vigour and health. The collection is rich in large specimen plants; for instance, of *Cymbidium Lowianum* it contains probably the largest plants in existence, some measuring 5 feet or 6 feet across. These are throwing up dozens of spikes, and the spring show of this Orchid from King Theebaw's land will be grand. In a central hall filled with flowering plants we noticed the quaint and beautiful *Lycaste costata*, a great rarity. The flower is in shape and form similar to its less favoured sister, *L. lanipes*, and is milky white, with yellow crest, and fully 5 inches across. In flower also is *Odontoglossum mulus*, which in shape reminds one of *O. elegans*. Some fine forms of *Oncidium Forbesi*, including a yellow ground-coloured variety, much spotted in sepals and petals and certainly distinct, are attractive, and so are fine varieties of *Lycaste Skinneri*, consisting of the chaste and dark-coloured kinds. Other flowering plants consist of *Sophronis grandiflora*, specimens varying

from 8 inches to 18 inches across being grown in quantities, and the big bulbs and leaves and large well coloured flowers prove excellent culture. *Masdevallia towarensis*, the pretty *Oncidium ornithorhynchum*, and the rare and fine *O. adpersum*, a natural hybrid between *O. Rossi* and *maculatum*, are in bloom; but we must pass the multitude of flowering plants, and enter the adjoining house filled with *O. Alexandræ*. Here also vigour and health are apparent; several fine varieties are in bloom. *Oncidium Edwardi* is throwing up an enormous spike, and the specimen certainly promises to surpass in floriferousness all spikes seen previously. *Masdevallia Chelsoni* is also finely flowered. *Cattleyas* are made, of course, a great feature, and big bulbs and sheaths are abundant. A big specimen of *C. labiata Pescatorei* was in bloom, and a fine thing this is; it has a broader and shorter lip and a wider, lighter band than the ordinary old *labiata*. I wonder if ever we shall see the four varieties of the old *labiata* in flower together. If half a dozen of our largest growers would agree, we might see the old *labiata* ordinary form, *Pescatorei*, *picta* and *atropurpurea* at a Tuesday meeting at South Kensington. What a treat this would be! The candida variety, which is pure white, exists in one specimen only, and is on the Continent. At one time it was in English collections, but we have lost it. The *Cypripedium* house is gay with the old insignie, of which there are many varieties, including *Chantini*, *Maulei*, *punctatum violaceum*, and *albomarginatum*, quantities of *Spicerianum*, *Sedeni*, and *meirax*. In the *Phalænopsis* house are several fine specimens of the pretty little *Saccolabium Hendersonianum*, many of *S. Blumei* and its varieties, also a grand plant in superb health of *Cœlogyne hololeuca (cristata alba)*. B. R.

**Angræcum caudatum.**—This remarkable plant is in flower in the establishment of Mr. Alfred Wilson, Westbrook, Sheffield. It is rare and quaint, the foliage is thin and light green, and the plant reminds one of an *Aerides* of graceful drooping habit. The flower-spike, which is 2 feet long, bears five large flowers of a greenish yellow colour, shaded with chocolate; the lip is large, and of the colour of *A. sesquipedale*, the spur 8 inches long. We believe this is the first time this Orchid has flowered in England, at least during the present generation, and Mr. Wilson is to be congratulated on his success. *Angræcum caudatum* grows well in the *Cattleya* house from May and October, after which Mr. Pidsley, the gardener, gives it a slight increase of heat. It is a native of Sierra Leone.

**Two good Orchids.**—These are *Masdevallia towarensis* and *Sophronis grandiflora*. Both are invaluable for button-holes and bouquets. The bright scarlet *Sophronis* arranged with the white *Masdevallia towarensis* is exquisite, and lasts for several weeks in beauty. Both are cool house Orchids, and should be grown in baskets or pans, hung well up to the light; care should be taken never to allow the plants to become dry, and by removing them the first week in October to a few degrees warmer in the *Cattleya* house, the flowers develop themselves much larger and brighter.—B. R.

## KITCHEN GARDEN.

## CULTURE OF HORSERADISH.

THIS is grown in most gardens, both large and small. Any common garden soil will suit it, but the best crops are produced in a poor rather than in a too rich soil. In preparing the ground, open a trench 2 feet wide and 2 feet deep, wheeling the soil from this opening to the opposite side of the ground to fill up the last trench. Place 3 inches of rotten manure in the bottom of each trench, treading it firmly with the feet. Turn the second trench into the first, and so



proceed. If the ground is in fairly good heart, no manure should be added to the top soil, for by so doing the roots, when planted and in full growth, will produce a number of strong side roots, thus rendering the main stem forked, and materially deteriorating the crop. The trenching should be done early in autumn, and the soil should be thrown up in edges, so that there may be a larger surface exposed to the action of frost than would otherwise be the case. In the following February level down the trenches, when the ground may either be marked out in 4-foot beds, leaving 1-foot alleys between them, or the crop may be planted in one bed, according to circumstances. After the ground has been thus prepared, sets are obtained by taking about 3 inches in length off the top of each stick, rubbing off any growths which may be upon the sides of the sets to be planted. Planting may be performed from the beginning of February till the middle of March, either by means of a dibber or by opening trenches. I prefer the last, placing the sets in the bottom of the trench and covering with light soil. In planting, we must suppose the ground to be marked out in 4-foot beds; take 9 inches of the soil from the first bed and place it upon the second. Stretch the line upon the surface, cut a trench 15 inches deep, level the bottom, and upon this plant a row of sets 9 inches apart with their crowns upright. Then dig the next trench the same depth and width; turn the earth into the first trench over the row of sets and thus proceed until the beds are planted, returning the soil taken from the bed and raking it smooth. When planted by means of a dibber the sets must be prepared as before. Stretch the line and make holes 12 inches apart and 9 inches asunder in the row, and from 18 to 20 inches deep; drop the sets into the holes and fill them up with sifted cinder ashes, or some light soil. The beds may then be raked smooth in the usual way. It will be some time before the plants appear above ground, and weeding must be done by hand and not by the hoe till the crop is fairly visible. Nothing more will be required until the time for taking up the crop has arrived. The implement used for making the holes is like a Potto dibber, about an inch in diameter near the point and  $2\frac{1}{2}$  inches at the upper part, so that the top of the hole is somewhat larger than the bottom. WM. CHRISTISON.

**White Plume Celery.**—There are, I find, two varieties of this celery. The first I received about two years ago from Mr. Peter Henderson, New York, was upright in growth, and attained a height of from 20 inches to 2 feet. Last spring another American seedsman sent me a packet of seed named Improved White Plume, and this has a very spreading habit of growth, which does not exceed 1 foot in height, and although white is very inferior to that first named. It is certainly not an improved variety, and those who wish to grow this useful new Celery, and see it at its best, must secure the original type.—J. MUIR, *Marjani, Glamorganshire.*

#### WORK DONE IN WEEK ENDING DEC. 1.

NOVEMBER 25 AND 26.

RAIN continuously on both these dates, and outside work has been quite at a standstill. Fruit rooms have had a thorough clean out both as regards decaying fruit and dirt, and what few specky fruit—Pears in particular—there are have been wiped over with a dry cloth to destroy the germs of mildew that usually form on spotted fruit. All root stores have been again looked over, and Potatoes, some of the early varieties, that had began to sprout, the sprouts were rubbed off. With this kind of work, and matting, peg-cutting, label-making, pot-washing, and other jobs of a like nature, our out-door hands have had full employment. A couple of the handiest out-

side men have helped indoor hands to sponge fine-foliaged plants, and to wash inside glass and woodwork of plant houses and vineries at rest, and to tie Peaches to trellis. Put in more Chrysanthemum cuttings, also Rose cuttings, and cut dead points and foliage off bedding Pelargoniums, and arranged them to the best advantage—I mean as to appearance—in pits and on the Peach house borders. Grapes we have now to look over nearly every day, and fire-heat with ventilation is always on in such damp weather as we are now having.

NOVEMBER 27.

Fine, with a drying wind, which enabled us to recommence trenching in the kitchen garden, to put walks in order that had got a little washed with the heavy rains, and to roll the same—which is our usual practice after heavy rain; consequently, they are always firm and smooth to the tread, and we are rarely troubled with weeds or with discolouration of gravel, except in places under the shade of trees or in low-lying parts that are sheltered from wind and sun. In such spots Moss is apt to form, and this we destroy by a slight sprinkling of salt over it, unless fresh gravel is soon to be applied, in which case the Moss is brushed off with a hard broom, the old gravel is then forked up, again rolled, and the new gravel spread on the top. We have a good breadth of walks that are to be renovated in this fashion soon as opportunity offers. Pruning of Apples and Pears continued, and a start has been made on the Raspberry plot; the surplus suckers, or canes, have been dug up to form a new plantation, the ground for which has been trenched as deep as the gravelly subsoil would permit, and the soil being very poor, a couple of layers of well decayed manure was worked in as the ground was trenched, and a third layer will be added as a mulching over the roots of the canes soon as planting is done. Potted roots of Tarra- gon and Mint; sowed Mustard and Cress. Pinched out the points of the fruiting shoots of Tomatoes, and spread them out as thinly as possible on the trellis. Our plants are growing in pots that are stood on the old Melon beds, into which roots have pushed through the bottoms of the pots; a temperature of 65° and a rather dry atmosphere (they are never syringed) appear to suit them to perfection.

NOVEMBER 28.

It has again rained heavily all day, and dry as the summer was, our average rainfall to the end of this month has now been attained, and personally I shall be satisfied if we get no more till the new year, as the best time for extra work or alterations is fast slipping away, for the spring time ever brings a sufficiency of ordinary work without having extras to battle with. Our doings to day have been of the same description as on other wet days this week, besides which we have arranged plant stove and have intermixed Calanthes, Poinsettias, Euphorbia jacquiniiflora with Ferns, Palms, small Dracænas, and Crotons. Put another batch of Strawberry plants in frames to force, and also a few Hyacinths, Narcissi, and Tulips. Cut all bad flowers off Chrysanthemums, cut down such as had done flowering and put them in cold frames till cuttings can be taken from them, after which the plants will be destroyed, except a few that may be required for planting out in border.

NOVEMBER 30.

The rain has been almost incessant for the last three days and nights, and still it rains, and as the barometer reading is now 29° 19', there seems no immediate prospect of a change. Such an unusual rainfall is laying bare the weak parts of our drains, and the water puddles up on lawn, roads, and walks where the drains are blocked, and these we have marked, so as to remedy the defect when weather conditions become favourable. It is not necessary to give details of work done, for it has simply been the same as on other wet days—cleaned and re-tied Camellias to trellis in orangery; they are planted out in a border of good loam, and trained flat to trellis, and make a fine evergreen wall, and flower profusely. Variegated Cobæa and Abutilons are the roof climbers in the same house, and these have been cleaned, picked over, and re-tied to wires. The cleaning and sponging of the foliage of large Orange trees will afford work for another wet day.

DECEMBER 1.

The barometer has gone up with a bound, and we have had a splendid day. Trenching in kitchen garden. Pruning Apples, Pears, and Raspberries. Rolled walks and parts of lawn to get rid of worm casts, which are a great eyesore at any time, and particularly so at this season, when the trees are leafless and the turf or lawn the more conspicuous; hence the reason for keeping it in perfect order by rolling and sweeping as often as circumstances will allow. Pruned another vinery—Madresfield Court and Gros Maroc. The Vines were only planted in March last, but they have made fine fruiting canes, having grown to the full length of the house and part of the way down the back wall. The canes have now been shortened to from 8 feet to 10 feet, and we shall allow them to bear about four bunches each. As the canes are well ripened, they would, I think, fruit quite well throughout their entire length; but, having some regard to their future well-doing, I prefer not to cripple them by overcropping the first season. The Vines are now being painted over with Gishurst solution, and the inside border thickly mulched with straw on which to stand bedding plants, Chrysanthemums, and in fact any plants that do not need warmth, but simply protection from sharp frost. HANTS.

#### FRUITS UNDER GLASS.

PEACHES.

When the early house has been closed ten days or a fortnight the trees may be syringed once or twice a day during fine, bright weather, and a little fire heat turned on every morning with ventilation will favour the swelling of the buds without distressing the trees. If the roots, as the roots of all early forced Peach trees should be, are confined to inside borders, give them another supply of water at a temperature of 80° to 85° and keep the atmosphere moist by damping the paths and walls when external conditions will not permit direct syringing. The house must not, however, be constantly kept in a humid, sloppy state, for much as Peaches enjoy moisture when in full growth, it is a mistake for the buds to be continually saturated during the dark, dull month of December; neither is it necessary where the fermenting material is properly attended to and regularly replenished with fresh leaves from the reserve shed. Indeed, where this excellent aid to forcing is at command, general syringing through the early stages, if not dispensed with entirely, can certainly be considerably reduced and fire heat at the same time may be greatly economised. Peach houses are generally kept at a night temperature of 40° to 45° at first and 50° to 55° up to the flowering period with a rise of a few degrees on bright days. When in flower, the ventilation should be constant night and day, and the atmosphere may be kept somewhat drier through the night, but aridity at any time is not favourable to the setting of the fruit.

STRAWBERRIES.

If Strawberries are started with the Peaches, place them near the glass and in a convenient position for syringing without wetting the trees; let the pots be well washed and top-dressed, and, for the benefit of both, fumigate two or three times before they come into flower. Strawberries, it must be borne in mind, are very objectionable, but by no means uncommon companions of Peaches, as they are frequently infested with fungus and spider before they are housed in the autumn. These enemies may have apparently disappeared when the plants are taken in for forcing, but warmth and moisture often assist their development at a very early stage, and as many fine Peach trees are injured by one or other of these pests, it is a good plan to dip the Strawberries, tops and pots, in a vessel filled with strong sulphur water or the modern introduction, sulphide of potassium—a quarter to half an ounce to a gallon of water. As this insecticide does not injure the most tender leaf or root, while it destroys insects of all kinds, worms in the soil and fungoid growths, it is destined to become popular when better known. It is cheap, and any quantity of the solution can be prepared for use in a few minutes.



## EARLY VINERY.

If shut up early in November, at a temperature of 50° to 55° by night and 60° to 65° by day, aided by well-worked fermenting material and judicious use of the syringe, the buds will now be swelling, particularly on old Vines that have been forced for a number of years. When this stage has been reached, give the inside borders another good watering with diluted liquid at a temperature of 85° to 95°, and keep the stems well moistened with the syringe. If the roots have the run of external borders remove the dry Fern with which they have been covered, and replace it with a foot or more of moderately moist fermenting Oak leaves. Make them very firm by beating with the back of a fork to keep in the warmth, and return the corrugated iron covers or shutters, leaving an opening between them and the leaves to counteract the chilling effect of cold rain and snow. Like the Peach, the Vine resents constant moisture, especially through the night. The most genial atmosphere during the early stages of growth will therefore be produced by damping the paths and walls, and frequently turning the fermenting material on the inside borders. Of course, there are exceptions to every rule, and early vineries are not exempt. Young Vines, for instance, or extra long canes, may not break evenly towards the base, while the buds near the apex may push into active growth. To favour the first and check the second tendency, it will be necessary to draw the points down to the border, and perhaps to rub off some of the top buds, to form a segment of a circle, with the dormant or obstinate buds raised to form the crown of the arch. In cases of this kind the dormant buds should be syringed several times in the course of the day, when, assisted by the warm vapour from the fermenting material placed below them, the most obstinate rods, if taken in time, can be made to break every bud from base to point. When fairly on the move the rods should be raised to a horizontal position, otherwise the young shoots will push backwards and look awkward when tied out to the wires. When the Vines have properly broken, tie them up to the wires, rub off the weakest shoots where the buds break double and gradually raise the temperature to 55° by night, and 70° by day from fire heat, increasing it a few degrees when gleams of sunshine fall upon the house.

## SUCCESSION HOUSES

may now be pruned, even if they are not cleansed immediately afterwards; but the sooner this operation is completed the better, as the Vines always break best when allowed a good rest after pruning, and the houses are ready for the reception of plants during the interim which precedes starting in January. When old canes are pruned on the spur principle, they should be cut in very close, otherwise they will soon become unsightly and have to be cut down, or denuded of all their spurs, in either of which cases a season at least will be lost. Many pruners, afraid of cutting away the crop, leave two or three eyes every year; but this is a fallacy, as I have frequently pruned healthy Hamburgs and Muscats quite back to the old wood, the only difficulty experienced being the tendency to break out, as a ball might roll out of a cup, when the shoots from apparently incipient buds are tied down. When two buds even are left and both break, the bunch from that nearest the base is invariably selected to ripen, as it is always the most compact, if not the largest, and it is well known that compact bunches always swell their berries and finish best. In the well managed vineries at Sir Thomas Brassey's, Normanhurst, I observed the other day that Mr. Allen prunes equally close, and double-rodded Vines were carrying from seventy to eighty large berried, beautifully-finished bunches each—a fair proof that a skilful Grape grower cannot possibly prune his crop away. The Vines in all the houses were pruned upon the close principle, and, although twenty years old, the spurs were not more than 2 inches to 3 inches in length, and the Vines were as vigorous and healthy as the most fastidious could desire.

## LATE HOUSES.

Now the Vines are ripe, the remainder of the leaves will soon fall, if they have not already done so. Where they are still green and waiting for the chilling

effect of a sharp frost to ripen them, the preservation of bunches of Lady Downes and other late kinds in a fresh, plump condition is extremely problematical. But, started early with fire heat and well managed through the summer, the foliage, if any is left, will be a bright yellow, veined with crimson, proving that roots, wood, and fruit, are in good condition, and likely to answer the grower's expectations. Keep the houses dry, cool, and carefully ventilated on fine days, using as little fire heat as may be consistent with the safety of the Grapes. Close early in the day, as ground damp soon rises and finds its way through the front ventilators, which should never be opened at all in wet weather. As the time approaches for bottling, look frequently over the bunches and remove all faulty or imperfect berries, as these cannot be expected to keep, and they can be much better seen while they are hanging than after they are removed to the Grape room. The timely removal of defective berries also prevents the decay of others with which they may be in close, but unobserved, contact.

## POT VINES,

intended for planting or growing into fruiting canes next year, should now be stored away for the winter. If out of doors, a snug, well coped wall facing the west will be found suitable, or an open shed will answer equally well. In either case the canes should be secured to the wall and the pots well covered up with Fern or litter to protect the roots from snow and frost. If, on the other hand, they are wanted soon after Christmas, a cold vinery or Peach house will be the most suitable place, as they may require cutting down or shortening back before they are started into growth.

W. COLEMAN.

Easton Castle, Ledbury.

## GARDEN IN THE HOUSE.

## ARALIA SIEBOLDI.

THIS is one of the very best of ornamental foliaged plants in cultivation, as it requires no artificial heat to grow it to perfection, and it withstands the dust and the dry atmosphere of dwelling rooms remarkably well. It is in great request in this district for standing in entrance halls and under verandahs, and some of the most luxuriant plants I know have been grown in shops where they are subject to draughts and fumes of gas-burners that prove fatal to most plants in a very brief period. When this *Aralia* acquires a good size it flowers freely about this time of year, the blooms being a good deal like those of common Ivy, and if kept in a favourable position it ripens a good crop of berries, which, if sown in spring, make very pretty decorative plants after one year's growth. They may be pushed on in a genial moist temperature of from 50° to 60°. Any light, rich soil suits this plant, being vigorous both in root and top growth, and not at all liable to insect pests. If grown in rooms, a good sponging with soapy water about once a month will help to keep it in perfect health, and the foliage in that glossy, shining condition that is always so pleasing. There is a good variegated variety of this *Aralia*, but, as a rule, the plain green is most in request.

Gosport.

J. GROOM.

## FERNS.

## VIVIPAROUS FERNS.

THIS curious and interesting class of Ferns exclusively consists of plants which, for the sake of simplifying their nomenclature, it is advisable to divide, according to the different ways in which the characteristic bulbils or young plantules are disposed on them, into four classes as follows: 1st, species whose fronds bear one

solitary bulbil, situated at or near its extremity, and there only; 2nd, those with fronds having their surface wholly or partially covered with adventitious growth; 3rd, those which have the characteristic bulbils arranged on or along the stalk, and there only; and finally, those which are provided at the base of their stalks with either stolons or scales, each of these bearing one or more latent bulbs. Its proliferous character is not limited to special genera or to plants of any particular size, for while there are some such viviparous pigmies as *Asplenium elegantulum*, *A. flabellifolium*, *Fadyena prolifera*, and others, we have in the large-growing *Woodwardias*, *Phegopteris divergens*, *Asplenium bifforme*, *Polystichum vestium*, &c., examples of plants having the same tendency.

The first of these four classes, the one comprising Ferns whose fronds have a solitary bulbil at their end, contains, besides the greatest portion of the genus *Asplenium*, all the known proliferous *Adiantums*. These, four in number, are all natives of the East Indies and have all simply pinnate fronds. The best known of them is probably *A. lunulatum*, a very distinct and handsome species of particularly slender and pendulous habit; its fronds, which are of a bright green colour, are about 15 inches long, and from the end of each two, and even sometimes three, generations are produced in the course of one season. Unfortunately it is a deciduous species which must be carefully looked after during the winter, as then the crown is in danger of being kept too dry and thereby disappear altogether. *A. dolabriforme*, of comparatively recent introduction, is an evergreen form of this species, the proliferous character and pendulous habit of which it partakes to a very great degree; it is of equally free growth and possesses the great advantage of retaining its foliage all the year round. We have in *A. caudatum* an evergreen plant with pubescent fronds about a foot in length, and of a dull greyish green colour, which, however interesting, is surpassed in beauty by the lovely *A. Edgworthi* or *ciliatum*, whose fronds, which are much longer and broader, are also of a more pleasing green colour; the pinnules are also more deeply cut and the plant altogether possesses a much more robust constitution, and less liable to the ravages of thrips, which are rather partial to *A. caudatum*. These are well adapted for culture in baskets.

The same may be said of *Asplenium longissimum* and *A. caudatum*, both of which are natives of the East Indies. Both of these grand Ferns produce in great abundance simply pinnate fronds, which often reach from 3 feet to 4 feet in length, and are provided at their extremity with an adventitious bulbil, which by its development while still on the parent plant considerably adds to the length of the fronds. In *A. longissimum* the pinnæ are somewhat roundish and smooth at the edges; whereas those of *A. caudatum* are long, deeply cut when fertile, and attenuated towards their extremities, thus making the fronds of a much greater length than those of the above-named species, and measuring sometimes 7 inches to 8 inches in width. The truly magnificent, but, unfortunately, now very rare, *A. rachirhizon* might be classed with the above, but for the general appearance of its fronds, which are tripinnate, with pinnæ finely divided, and apex lengthened out into a tail, bearing a young plant at the end; it is an evergreen species from Venezuela, and well adapted for basket culture. *Phegopteris divergens*, a beautiful and highly ornamental species from the West Indies, with broad, decomposed, and finely divided fronds, from 2 feet to 3 feet long, and of a light green colour, completes the list of strong-growing species belonging to the first class and requiring



stove temperature. A few species requiring only greenhouse temperature, however, also attain very large dimensions. Foremost among these is the magnificent *Woodwardia radicans*, from Madeira, a plant unequalled as a basket Fern for a cool house. Then there are the several varieties of that species, all natives of St. Michaels and the Azores—*W. radicans* Browni, or *cristata*, the long fronds of which are furnished with pinnæ and pinnules extensively sub-divided, and finishing on the sides of the fronds with tufted crests, smaller than the terminal ones, which frequently measure from 4 inches to 6 inches in width. *W. radicans* *Burgessiana* is a most interesting form, with pinnæ and pinnules uniformly depauperated and beautifully serrated throughout. *W. radicans* *crispa* differs from the typical plant by having its pinnæ and pinnules crowded and crisped; in a young state it is scarcely pinnatifid, except on the lower pinnules. It is remarkable that these three distinct forms have all been introduced to cultivation by Messrs. Stansfield, of Tadmorden, who for years have made Ferns a speciality. *Polystichum venustum*, an evergreen and robust species from New Zealand, is perhaps one of the most striking of all the strong-growing kinds belonging to proliferous Ferns. Its bipinnate fronds, which are of a rich dark green colour and varying from 20 inches to 30 inches in length, are abundantly produced from a thick crown which, like the base of the fronds, is densely clothed with chaffy scales nearly half an inch long, black in colour, and bordered with brown; a peculiarity noticeable in those scales is that while they decrease in length they increase in breadth as they get towards the summit of the frond, and thus form a conspicuous thick imbricate band along the underside of the stalk.

#### MEDIUM-SIZED SPECIES

belonging to this class are *Polystichum viviparum*, an evergreen West Indian Fern with erect caudex, from which glossy green fronds of great substance and of a rather prickly character are produced with great regularity, forming a very handsome plant which seldom attains more than 15 inches high. *Asplenium alatum*, *A. attenuatum*, and several others may also be classed with it; but undoubtedly the most beautiful is *Gymnogramma schizophyllum*, a totally distinct West Indian species, and one whose fronds, which are produced in abundance, are borne on very slender stalks of a reddish brown colour and very glossy; the fronds themselves which arch gracefully on all sides are from 18 inches to 24 inches long, their leafy portion being about 2 inches broad and very finely cut, with the ultimate pinnules deltoid and very minute. A remarkable peculiarity in this *Gymnogramma* is the furation of the rachis at about two-thirds of its length where it is proliferous, every frond producing a young plant at the point of furation. With the exception of the extremely curious little *Fadyena prolifera*, which requires stove heat, being a native of Jamaica, it has two distinct kinds of fronds, the sterile ones being dark green, prostrate and proliferous, the fertile ones much larger, erect, and not proliferous. All the other dwarf kinds with solitary bulbils are simply greenhouse plants, the most remarkable among them being the rare and pretty *Asplenium brachypterum*, from Fernando Po, where it grows at a high elevation on the Cameroons Mountains; the equally pretty *A. Fernandezianum*, from Monte Video; the attractive little *A. obtusilobum*, a pretty dwarf trailing species from the Fiji Islands, with pinnate fronds from 4 inches to 6 inches long, proliferous at the apex and making a dense, compact mass; and the exceedingly interesting North America Walking Fern (*Camptosorus rhizophyllus*), a species with simple

fronds about 6 inches long, lanceolate and running out to a point which arches over and attaches itself firmly to the ground. The slender-growing little New Holland *Asplenium flabellifolium* must not, however, be omitted, as on account of its fan-shaped pinnæ with reddish brown sori covering the underside it is one of the most distinct of all the Ferns belonging to the viviparous section. The mode of increase employed for the propagation of all such kinds is of the simplest description, as by pegging down firmly the end of each of these fronds to the soil or Moss surrounding the plants, the bulbils thus made secure rapidly form perfectly independent little plants.

#### PROLIFEROUS FERNS.

This class, although not so numerous, contains some remarkable species. In this case either the whole or only a part of the limb or upper surface of the fronds is plentifully studded with young plants, all in different stages of formation, from the mere bulbil to the small plantule furnished with from four to five embryo fronds, as is often noticeable in some of the larger growing forms of *Aspleniums*. This adventitious growth is generally produced at irregular intervals and distributed sometimes over the surface of the frond, and at other times on the rachides, which are thus rendered extremely conspicuous, as in the case of *Lastrea prolifica*. With a few exceptions, the bulk of this group is composed of *Aspleniums*, amongst which the following are the most striking, viz.: *Asplenium bulbiferum*, an evergreen New Zealand species of rapid growth, and one whose fronds, which are of a light green colour, grow to about 18 inches long and are somewhat erect. *A. diversifolium*, from Norfolk Island, is probably the strongest growing species contained in this group. Its fronds, which, according to their barren or fertile characters, are bipinnate, with broad pinnæ in the former case, whereas the fertile parts are very finely divided, tripinnate and of a bright shining green colour; sometimes a portion of the frond is barren, while other portions are fertile. *A. compressum*, a rare species from St. Helena, is distinct from all others on account of its thick and simply pinnate fronds, which are of a very fleshy texture, and studded all over the upper surface with young plants. In the West Indian *A. Belangeri* and *Fabianum* we have also two very distinct representatives of the genus as well as two valuable members of this group; the former produces from an erect caudex elegant feather-like fronds, about 18 inches long, bipinnate and of a pleasing deep green colour. The latter, a fine ornamental species, is also known under the name of *A. feniculaceum*; its fronds, which are about 2 feet long and of a very rich dark green colour, are gracefully arched, and, through the weight of the young plants upon them, are rendered beautifully pendulous. Among the dwarfier forms of that remarkably proliferous genus we must first note the lovely *A. viviparum* from the Mauritius. Its fronds, which seldom exceed a foot in length, are tripinnate and very finely cut; their colour is of a particularly dark green, unknown in most other *Aspleniums*. *A. inaequalifolium* and *A. nobile*, equally from the Mauritius, appear to be simply varieties of the former; both have also very finely cut fronds, which, besides attaining larger dimensions, have a flatter appearance, their segments being longer and less crisp than those of *A. viviparum*. *A. Colensoi*, *A. laxum pumilum*, and *A. flaccidum* complete the list of the most remarkable proliferous species belonging to the genus; the former a compact and very regular grower of exceedingly good habit, whereas the latter, on account of its bipinnate, leathery fronds from 2 feet to 3 feet long, and of a pleasing

colour, is certainly one of the best Ferns to be used for growing in baskets. Foremost among the other plants belonging to this second group is the singular and interesting Japanese *Lastrea prolifica*, whose fronds, of a leathery texture and a triangular outline, are borne on stalks varying from 6 inches to 8 inches long; whereas their limb, or lamina, reaches over a foot, and is bipinnately divided. A remarkable peculiarity of this plant is that of producing leafy buds, either in the axils of the divisions of the frond, or on the margin of the limb, or even in the centre of the sorus. It is an easy growing Fern suitable for cool house culture. Then there is the fine, noble-growing *Woodwardia orientalis*, also a native of Japan, and whose bipinnatifid and very broad fronds attain from 3 feet to 4 feet in length, and bear on their upper surface a profusion of little bulbiform plants. Like those of the plant above described, the fronds of this species are, when in a young state, of a metallic and most attractive colour. The North American *Cystopteris bulbifera* is another striking illustration of the proliferous character possessed by certain Ferns, for its fronds, from 10 inches to 15 inches long, with segments of a light green colour and deeply cut, bear on their underside a quantity of small bulbils, which, as soon as they drop on the ground, very quickly germinate. Again, there are the two *Hemionitis*, *H. cordifolia* and *H. palmata*, the former of which produces young plants at the base of the limb of its heart-shaped fronds; whereas the latter, known generally under the popular name of Ivy-leaved Fern and having five-lobed fronds, is conspicuous by the quantity of young plantules which originate from the base of these lobes. It is indeed a very pretty and interesting stove plant. Of all the curious species above described, none, however, surpass in power of attraction the very singular *Ceratopteris thalictroides*, commonly called the Floating Stag's-horn Fern. It is essentially an aquatic, but requires stove heat, and may be propagated either from spores, as it is an annual plant, or from the proliferous buds with which the barren fronds are amply provided. These sterile fronds are bipinnatifid, about 18 inches long and prostrate; whereas the fertile are decompound, erect, and from 2 feet to 3 feet in height, and their segments are forked and linear.

#### THE PROPAGATION

of the plants belonging to this second group of Ferns is also very simple. In some cases, indeed, Nature seems to have unmistakably indicated the most rational mode of increase; for, if left entirely alone, it is found that these bulbils, when detached from the mother plant, and dropped on the ground, soon form young and independent subjects. This applies particularly to the majority of *Aspleniums*, especially to those contained in the *bulbiferum* section, such as *A. diversifolium*, *A. laxum pumilum*, and *A. Colensoi*, whose comparatively short fronds are at all times literally loaded with partly developed young fronds. The same treatment is also applicable to other *Aspleniums*, mostly from warmer habitats and of much dwarfier habit, and whose foliage is in all cases much more finely divided; these are here represented by *A. viviparum*, *inaequalifolium*, *nobile*, &c., all of which have at times their fronds covered with young plantules, bearing no resemblance whatever to the parent plants, and which, being picked off when provided with three or four fronds, and lightly put on damp, sandy soil, will, without even the help of a close atmosphere, emit roots in a comparatively short space of time, when they may with safety be put into single pots. In a similar way may the *Lastrea prolifica*, *Woodwardia orientalis*, and *Cystopteris bulbifera* be treated; but, as regards



the *Hemionitis cordifolia* and *H. palmata*, as well as the interesting *Ceratopteris thalictroides*, it should be borne in mind that their bulbils do not bear separation from the fronds, which must therefore be pegged bodily to the soil to allow the new adventive growth to develop itself.

#### FERNS BEARING BUDS ON THEIR STALKS.

Besides the Ferns belonging to the above two classes, which are by far the most extensive, we have a third class, composed exclusively of species and varieties bearing adventitious bulbils on the stipes and rachis, and there only. With the exception of *Nephrolepis Bausei*, which occasionally shows this character, and of the handsome South African *Asplenium monanthemum*, whose simply pinnate fronds, about 10 inches long, are provided at their base with a bulbil. that third form of proliferousness seems to be limited to our own British kinds exclusively, and although proliferation in Ferns is now treated as if it were a recent discovery, practical men have for a very long time been perfectly cognisant of it and aware of its advantages, as may be gathered from the fact that for many years past crested varieties of *Lastrea Filix-mas*, for instance, have been propagated by the means of an adventive bud, which, if not separated from the mother plant while in a latent state, becomes abortive. In *Polystichums*, again, there are several kinds which also partake of that proliferous character, notably, the *P. angulare proliferum* and its numerous and handsome varieties, *Footii*, *Wollastoni*, *Crawfordianum*, &c., all of which produce along the stipes and at the base of their fronds small bulbils, which in a remarkably short space of time develop into plants in all respects semblable to the parents.

#### STOLONIFEROUS FERNS.

The fourth and last class is a very small one indeed; besides the *Angiopteris* and the *Marattias* it only comprises the *Nephrolepis*, which are all provided with long, wiry stolons more or less proliferous, and which, when touching the ground or allowed to hang down in a damp atmosphere, produce at irregular intervals some bulbils which soon develop into young plants. Several kinds, such as *N. tuberosa*, *N. pluma*, *N. undulata*, and *N. Bausei*, form some perfect tubers by which they may also be propagated; but as with the exception of the first named of these species all the others are deciduous, care must be taken that even when deprived of their foliage the plants should have their tubers kept in a moderately moist state, otherwise they will have ceased to exist long before the time comes for them to start into growth again. As to the *Angiopteris* and *Marattias*, both of which genera are native of swampy places, the proliferation in their case is most peculiar. All of them have their fronds, which are of a very fleshy substance, surrounded at their base by succulent appendages forming scales, each of which is provided with two latent bulbils, which never fail to develop into plants if put into a compost of chopped *Sphagnum* and silver sand and kept in a warm and moist place. It is an experiment which I have repeatedly tried on all the species belonging to the genera, and in which I have always been successful. It will thus be seen from the above descriptions that although Ferns from many differing genera possess it to a more or less developed degree, the proliferous character is principally shared by the genus *Asplenium* of which no less than twenty-five sorts are recorded, by the *Woodwardias*, of which there are five, and by the *Adiantums*, which are represented by four different sorts. Most of the other genera, although having several varieties, such as the *Polystichums* and *Lastreas*,

have only one proliferous species unless the whole genus be proliferous, as is the case in those contained in the fourth and last class. But perhaps the most interesting of all is the instance of the *Trichomanes floribundum*, the only proliferous *Filix Fern* known at present. It is a native of the West Indies, with simply pinnate fronds from 12 inches to 18 inches long, and 4 inches to 6 inches broad, exquisitely transparent; the pinnae are beautifully fringed on the edges and the fronds are attenuated and rooting at their extremity. Unfortunately, it is a warm kind which, notwithstanding the many attempts to which it has been subjected, has constantly refused to be grown under the cool treatment so suitable to most other kinds. S.

## BOOKS.

### FLOWERS OF THE HAWAIIAN ISLANDS.\*

THIS is a large and handsome volume illustrating the native flora of the Sandwich Islands. These islands, the authoress tells us, have never been celebrated for the beauty of their wild flowers, but when one searches hill and plain there is an astonishing number to be found, particularly of flowering trees, shrubs and climbers; of these she has illustrated in a graceful way about forty, and described them in an intelligible manner, but scarcely, perhaps, exact enough for botanical readers. She, however, gives us what is often omitted in so called scientific descriptions, and that is the character of the plant as it grows, and all the little details which make the written history of a plant interesting. When the plant grows is given and whether in hill or plain, coast or inland. It is there stated whether it is a shade or sun-lover, and, lastly, the uses made of it by the islanders. Out of the forty odd plants illustrated there is not one that is known generally in European gardens, though a few of them may be found in the stoves at Kew. Some of the plants figured are uncommonly pretty, and would be acquisitions in our gardens; among them might be mentioned *Hibiscus Arnottianus*, a shrub with large white flowers; *H. tiliaceus*, with handsome yellow flowers with crimson centres; *H. Youngianus*, large, deep pink flowers; *Canavalia ensiformis*, a beautiful climber like a *Kennedya*; *Thespesia populnea*, a tree with large Abutilon-like flowers of a primrose-yellow colour; and *Capparis sandwicensis*, with large pure white Myrtle-like flowers. Besides these there are several species of *Ipomœa*, the showiest being *I. palmata*, *pes-caprae*, *Turpethum* and *insularis*. There is also a figure of *Argemone mexicana*, a strange plant to meet with in these out-of-the-way islands, seeing that it is also a native of Mexico. The native names of the plants are given, but they are for the most part unpronounceable; *Kolokolo-kua-hiwa*, for example, stands for a pretty *Lysimachia* with blue flowers like a *Gentian*. It is to be regretted that the botanical name was not put on each plate as well as the native name, as in that case one would have seen at once what the plant was. The work is dedicated to the Hawaiian chiefs and people, and, considering the difficulties that beset the way of an artist in the Tropics, the authoress deserves credit for the work she has done; rarely have we seen flowers portrayed so gracefully, so faithfully, and yet so unpretentiously. The drawings were lithographed in London and accord well with the get-up of the letterpress, which is all that could be desired. G.

**Arbutus berries.**—There are many trees of *A. Unedo* here, from 20 ft. to 30 ft. in height and as much through, and they are fruiting uncommonly freely this autumn. Like the Orange, they bloom and fruit at the same time, and the numerous drooping clusters of white bell-shaped flowers, mingled with

small bunches of beautiful scarlet berries, are most interesting. The fruits grow to about the size of a Black Prince Strawberry, and appear more like Strawberries than the fruit of any tree with which I am acquainted. In cold or frosty weather the birds devour large quantities of the berries, but there are generally some left until Christmas or later, and they have a charming effect in many kinds of indoor decoration.—J. Muir, *Margam, Glamorganshire*.

**Yellow-berried Holly.**—In many places Hollies seem to be this year unusually laden with berries, and when such is the case most other berry-bearing trees and shrubs are put in the shade by the superior display furnished by the Hollies. That the yellow-berried variety is not more often planted seems difficult to account for when a well-fruited specimen is met with, as it is a most handsome tree, and besides supplying a colour but little represented among hardy fruits, it forms such a good companion to the ordinary bright coloured Holly.—ALPHA.

## OBITUARY.

WE have to announce with regret the death of Mr. GEORGE LANE, senior partner of the firm of Messrs. G. & J. Lane, Nurserymen, of St. Mary's Cray, which took place at Cockmanning Nursery on Monday last. Mr. Lane has been connected with the nurseries at St. Mary's Cray during the whole of his lifetime, and was noted as an Apple grower. To his last exhibit, at the Crystal Palace in October, consisting of 126 dishes of Apples, a first prize was awarded. A few weeks ago he was attacked with paralysis, from which he did not recover. He was 75 years of age.

## QUESTIONS.

5430.—**Sagittaria latifolia.**—Will "J. M." Charmouth, kindly let Mr. Frank Miles know if he has been able to propagate the single form of this plant?—FRANK MILES, *Shirehampton, Bristol*.

5431.—**Garden plans.**—I am about to lay out a small formal garden on gravel below a terrace in front of my house, and I shall be much obliged if any of your readers can recommend any publication containing suitable designs or plans for such a purpose. The space I wish to occupy is about 48 feet in depth by 60 feet in length.—J. S. J.

5432.—**Magnolias.**—Will the correspondent who gave an interesting account of the flowering of *Magnolia macrophylla* kindly let the readers of THE GARDEN know in what soil, in what county, and under what conditions this superb plant grows and flowers so well? Is it certainly *macrophylla*? might it not be *tripetala*?—FRANK MILES, *Shirehampton, Bristol*.

## LATE NOTES.

**Moving Cherry trees (H. H.).**—These, and also Pears, Apples, and Plums, may all be moved now with perfect safety.

**Auricula and Carnation Societies.**—The annual general meeting of these societies will be held in the Conservatory, South Kensington, at noon, on Tuesday, December 8, 1885.

**Names of plants.**—R. G. Brown.—1, *Bignonia venusta*; 2, *Phlebodium aureum*; 3, *Gymnogramma tatarica*; 4, apparently *Impatiens Sultanii*.—T. T. Appleby.—Species of *Dendrobium*; cannot determine which.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruits.**—A. Gibb.—1, Emperor Alexander.—A. P., *Hants*.—1, Cox's Orange Pippin; 2, Blenheim Orange; 3, Pearson's Plate.—Kenley.—1, Beurré Hardy; 2, General Todleben; 3, Beurré Clairgeau; 4, (Apple), Duke of Devonshire.—C. H.—1, Autumn Bergamot; 2, Vicar of Winkfield; 3, Huyshe's Bergamot; 4, Knight's Monarch.—R. E. Batten.—1, Minchal Crab; 2, Waltham Abbey Seedling; 3, Winter Hawthornden; 4, Cox's Pomona.—D. Wallace.—Royal Pearmain; Brownlee's Russet.—A. Witchell.—Resembles Dog's Snout—a sort of no value.

Other names will be given next week. We have received numerous parcels of fruits to name containing only one example of each sort, and often in a bad condition. We must, therefore, decline to name fruits unless our rules as stated above are complied with.

\* "Indigenous Flowers of the Hawaiian Islands," illustrated in colour and described by Mrs. Francis Sinclair, jun. Sampson Low, Marston & Co., London. 1885.



## WOODS & FORESTS.

### THE FUTURE OF THE POPLAR.

It is a somewhat remarkable fact that although this wood is but little used in house-building in this country, in America, where there is abundance of other woods, it is rather extensively used for the purpose. Loudon enumerates fifteen species of Poplar, although some of these he is inclined to look upon as varieties. Some of these species are very little valued as timber, and probably will never get beyond the position of shelter or ornamental trees. The Lombardy, for instance, which some esteem so much as a feature in the landscape, is of very little use for timber purposes, partly from the character of its timber, and partly from the habit of its growth being furrowed and more or less twisted. When it is used at all, it can only be with considerable waste, so we place it outside of the list of Poplars which can best be grown with a prospect of return. With regard to the other species commonly grown here they are by wood merchants roughly classed into white and black Poplar, and are generally bought and sold and used indiscriminately. One great feature in the Poplar unquestionably is the rapidity with which it grows; therefore, when the long-predicted timber famine comes, there is at least one fast-growing tree outside the Conifers which can be resorted to. There is one point, however, with respect to it which may be noticed, and that is its unsuitability for fire-wood, as it is with difficulty ignited. This property, conjointly with its softness, has led to one of the principal uses to which it is, or has been, put, viz., for brakes to wheels. The behaviour of the wood under great friction is striking, as although sufficient heat is engendered to induce smoke, it is very unusual for it to break into flame. Now that continuous brakes are in use on passenger trains, the conditions of course are different, but when wooden brakes were employed it was a common thing, when they were suddenly applied, for the railway traveller to find a considerable volume of smoke arising from them. On goods trains, where the system now brought into use for passenger traffic would be impracticable, wood brakes are still used, but two or three years since were partly replaced by iron. Whether this experiment has answered expectations we do not know, but latterly we have been informed the railway companies have again been in the market for Poplar. Besides being used on railway wagons the Poplar is chosen for the brakes of road vehicles, and for brakes of various kinds in use in quarries and mines. As a matter of fact there is no other wood growing in this country equally suited for such purposes, so where wood is used at all, it must be the Poplar. Willow, it is true, has somewhat the same qualities, but as trees sufficiently large to cut the sizes required would be of more value for other purposes, it practically does not count.

As is well known, for a nation of shopkeepers a large number of packing cases have to be annually made, and as, in most instances, these cases are only used once, cheapness and lightness for carriage are great essentials, and these the Poplar possesses in an eminent degree. For cases in which very heavy weights have to be packed, such, for instance, as tin plates, where a cwt. of metal goes into a box about 20 inches by 14 inches and less than 2 inches deep, it is not so suitable as the Elm, as it lacks its strength and will not stand such hard knocks. When it is considered that the tops and bottoms of these cases go at three boards in thickness to the inch this will not be greatly wondered at. There are, however, vast numbers of cases wanted in

the drapery and grocery and similar trades, and for such purposes the Poplar seems peculiarly suited, as, in addition to the qualities of cheapness and lightness of which we have spoken, it is very white and clean in appearance, and has no properties in it likely to cause injury to the articles packed within it. For such uses there need not be an atom of waste, for when left to grow on naturally, and it is not attacked and lopped by the pruner's knife and saw, the Poplar produces sound timber and free from knots, and as there is no appreciable difference between the heart and sap wood, and the limbs are practically as good as the bole itself, it is a very economical tree to cut up. Besides being useful for the packing-case maker, it is suitable for the turner, not perhaps for the more elaborate or lasting work, but for rollers, so extensively used in what our American friends would term "dry goods stores." The same qualities which recommend it for packing cases would be equally applicable here, and no imported wood possesses them in the same degree. Another use to which it is occasionally put is for benches and tables for leather cutters. For this its softness is a great advantage, but in the matter of grain there are woods more suited; but as they are scarcer, and consequently dearer, they have to be dispensed with in favour of the Poplar.

Another thing for which the Poplar cuts up very well is into staves for dry casks these in a certain sense are of course packing cases, but not usually so denominated, and belong to a different branch of trade. It is not an unimportant one, however, as although these staves do not command a very high price, they are of such a variety of sizes and used in such considerable quantities as to consume a lot of wood. Beech is also largely used for the purpose, but Poplar as well as for staves can be used for hoops, a thing for which Beech would not be adapted. For certain kinds of temporary fencing and for some classes of hurdles, Poplar is turned to account. In some towns it is not uncommon to see the back gardens of the houses divided by pales cut from this wood. So far as we have gone, and for the purposes to which we have referred, it is practically immaterial which particular species is employed, but for some others it is not so.

### THE WHITE POPLAR.

For cabinet makers and coach builders, who work it in for panels, the white Poplar (*P. alba*) or Abele is the best. In the trade it is very commonly known as Abele. With respect to the derivation of this latter name, Loudon says the English name of Abele is derived from the Dutch name of the tree, Abeel; and that this name is supposed by some to be taken from that of the city of Arbela, in the plains of Nineveh, near which on the banks of the Tigris and Euphrates great numbers of these trees grew. Be this as it may, the Abele is a very useful wood and capable of a high finish. When used for panels to dog-carts and varnished or polished, it has a good effect, and for panels of certain kinds of furniture it is by no means to be despised, as if it is not desired to preserve its natural colour it takes stain very readily, and on account of its uniform whiteness it takes it well. We have ourselves seen this wood so treated that its appearance was very little, if any, inferior to many costly imported fancy woods. Now that tin plate is so extensively used for domestic pails and utensils, it is not often wood is seen worked up for the purpose; but Poplar, it is said, has been used occasionally, although we do not recollect seeing vessels manufactured from it. For such things as butchers' trays it is, however, very useful, and we believe it is sometimes used for cloths. These, however, are minor matters

which do not greatly influence the demand, and which will have no effect on the future position of this tree for timber purposes in these islands.

In sketching some of the uses to which it is adapted, and for many of which it has already been long employed, we trust we have shown that there is at present a considerable legitimate outlet for the Poplar, and one which is not altogether limited, more especially if its simplicity in house building could be established. This we have purposely left until the last, and it is here the question meets us. If the Poplar of America is chosen for housebuilding in preference to some other woods, why not here? It has been said that the Spruce, of which so much is used here, has not, or at any rate had not very recently, found its way to the great timber centre of Chicago. Upon the reasons of this we cannot dwell, beyond the fact that our neighbours across the water were apparently satisfied to use the Poplar.

It is generally understood that this wood will not stand exposure to the weather, and that damp in any form is very detrimental to it; this we do not attempt to gainsay, but it cannot be denied that for many purposes in housebuilding the property of resisting damp is not required. In the single item of flooring, for instance, an immense quantity of foreign wood is sent far inland, wood which the white Poplar not only equals, but excels. So far as damp goes in such a position the Poplar would be as suited as the Oak, as if there is sufficient damp to injure the most susceptible timber, there is certainly enough to injure the inmates, and such a state of things should not be tolerated for an hour. We therefore repeat that with respect to flooring the quality of decaying in damp situations has no weight, and this is really the only objection which can be urged, as who would not, even in appearance, if the wood is left of its natural colour, prefer an uncarpeted floor of a uniform and satin-like whiteness and elastic to the tread to one composed partly of hard resinous wood and partly of sap wood which, with constant use, soon becomes worn away, and leaves what should be a level floor full of inequalities to harbour dust and offend the eye. If a floor was carpeted the same would be true of it, but it is in the stained floor that the white Poplar has an immense advantage, as when properly seasoned and carefully laid, the uncovered portions of a stained floor of this kind produce an effect which cannot be obtained by many of the better classes of deal which would cost more money. For the panels of inside doors good and well-seasoned Abele would answer admirably, and even in such positions as rafters and joists it is an open question whether the wood commonly employed is any more durable. This, however, we would not wish to unduly press, but we do wish to emphasise the fact that for floors, and many of the purposes where it can be used in the dry, the Poplar is a valuable wood in house-building, that for packing-cases and many other of the uses we have enumerated it could legitimately be much more extensively used, and that from the rapidity of its growth, the positions in which it will grow, and the consequent cheapness with which it can be produced, that the Poplar—and the Abele especially—is quite as worthy of the attention of the planter and the user of timber as many of the trees which are now held in high esteem. It must not be overlooked that the merchant cannot create the demand; he only buys and sells wood for which there is an enquiry. This enquiry must be stimulated by those who have the power of deciding upon the use of materials; and if each individual who now employs imported wood carefully investigated the conditions bearing upon the different purposes for which it has to be applied, and on even claims



gave his vote for the home-produced timber, a demand for the Poplar as well as other home-grown woods would arise sufficient to enable the initial difficulties of sawing and preparing to be readily overcome.

Like every other tree, its value to the grower is greatly influenced by its accessibility, or the reverse, to rail or water, and on account of the comparative lowness of its price to many other woods it will not bear heavy carriage. It is, nevertheless, a tree which grows well by the water-side, and where such positions by the side of navigable rivers are unoccupied, a more suitable tree could hardly be selected.

Many well-nigh useless things find their way into public favour by the mere reiteration of some supposed merit; but here we have a tree which in many respects produces valuable wood, and in a short time, which is not used as it deserves. It may be said that "good wine needs no bush," but this is not always true; and if the Poplar is to be one of the trees of the future, its merits must be kept well to the front.

WILTSHIRE FORESTER.

### THE CORSICAN FIR.

"GLEDYIE" is evidently under the belief that we have not planted the above Pine at a greater altitude than 300 feet, but this is wrong, as eight years ago a 30-acre plantation was formed on the exposed hillside at 500 to 700 feet elevation above sea level, and amongst the crop *Pinus Laricio* was planted at 16 feet apart all through. Last week I paid a visit to the wood in question, and was certainly agreeably surprised to find how the Corsicans had thriven, these being on an average fully a foot higher than the Scotch and Austrian Pines planted at the same time.

All along the top boundary fence and where fully exposed to the south-west blasts, which at times sweep along the bare hillside with terrific fury, this Pine stands out bravely with not a branch shrinking from the storm, but rising up with stems straight as arrows, and that even where the Scotch Fir is bending over and inclining to leeward. Could "Glendye" but see the wood in question, he would no doubt feel inclined to alter his opinion regarding the utility of this tree, and join rank with those who consider it amongst the best of foreign importations. A warm climate and maritime situation may, as "Glendye" wisely remarks, go a long way in bringing the *Laricio* to perfection, but it will certainly thrive equally well under what would be considered very adverse circumstances. Here it has done well and attained large dimensions at varying altitudes up to 400 feet; indeed, in one plantation at the latter height and of fully 30 years' growth *Pinus Laricio* may be seen for a couple of miles towering for nearly 10 feet above the other trees of which the wood is composed. In and around the park are many fine specimens of from 60 feet to fully 70 feet in height with clean, straight stems, girthing from 5 feet to 7 feet at a yard from the ground. One specimen, perhaps the finest in Britain, is 73 feet in height, and girths at 3 feet and 5 feet 9 feet 6 inches and 9 feet 5 inches respectively. The famous *Laricio* growing near the entrance to Kew Gardens is 15 feet taller than the one at Penrhyn, but is inferior in point of girth by fully 7 inches. The wood of the Corsican Fir is also of great value, but of course I am well aware that it is yet premature to speak of it with any amount of certainty, few trees in this country having arrived at an age when the timber could be considered mature.

From the appearance of the wood of 30 years' growth we have, however, formed a very favourable opinion, it being clean, close grained, and susceptible of a fine polish. It also works well under the tools of the carpenter, and several of the largest logs have been converted into various outdoor requisites by way of experiment, so that later on we will be enabled to speak with a certain amount of assurance regarding its lasting qualities, and that also as compared with the Scotch and Austrian of the same age.—A. D. WEBSTER.

—The question now before us, that of a tree planter's, is the utility of the Scotch Fir as compared with the utility of the Corsican Fir for general culture. The unparalleled merits of the Scotch Fir as a first-rate subject for planting is not confined to any area, but is universally evident. The thousands of acres of Scotch Fir growing in all parts of Britain, compared with the half dozens or dozens of acres of Corsican Fir growing here and there in selected places, are proofs sufficient and evident of the utility of the Scotch Fir. But all this is as nothing compared with the ideal productiveness of the Corsican Fir in Yorkshire. "Yorkshireman" says, "I cannot tell 'Glendye' what an acre of Corsicans would actually bring if sold because we have sold none yet." This is a sorry confession to have to make after such presumptuous statements. Seeing that "Yorkshireman" has failed to give any information regarding the soil in which the Corsican Fir is thriving so well, perhaps he will state what the conditions are in which the Scotch Fir has failed to grow.—GLEDYIE.

**Removal of tree stumps.**—I have often heard of the following plan, but have not seen it tried: In the autumn or winter bore holes, 1 in. in diameter and about 6 inches from each other, in the stumps, and fill with saltpetre. On a dry day in the following summer set fire to them. I presume the moisture dissolves the saltpetre, which, impregnating the wood, causes it to smoulder.—J.

**Alburnum** or sap wood or white wood are the same thing. When the colour varies much from the heart to the circumference, and, above all, when it lightens suddenly or too rapidly towards the limit of the alburnum, we may be assured that the tree is affected by some disease. The greatest strength is found between the centre of the tree and the sap wood, and the heaviest wood is the strongest.

**The woodpecker**, so absurdly accused of attacking healthy trees, is an indefatigable destroyer of hosts of insects injurious to vegetation, and especially of ants. "Last summer," says M. Aime, "I was walking in my park, when I noticed a woodpecker look round to see if he were observed, and then lie down as if dead and stretch out his tongue at full length. Now and then he drew it in; near him was an ants' nest. The ants, supposing him dead, swarmed over his tongue, intending to make a meal of it, whereas they fell a prey to the wile of the bird."

**The Riga Pine.**—This Pine is only a variety of *Pinus sylvestris*. It grows more rapidly and to a greater size, and its timber is more elastic and valuable when mature. The Riga Pine grows very well in dry soils, but grows best in those that would be regarded as a little damp. It is generally planted in the northern and central parts of France to advantage on a south-eastern, southern, western, or south-western slope, covered with dry heather, where any arborescent growth other than of resinous species would entirely refuse to live, or would be of but stunted growth. In the catalogue of the arboretum at the Government estate of Barres-Vilmorin (1878), where these Conifers thrive in great perfection, the Riga Pine is thus mentioned: Of all the varieties of the *Pinus sylvestris* the Riga Pine is unquestionably to be preferred on account of its beauty. Its trunk is perfectly straight, rises to a great height, and maintains a form that is almost cylindrical. It would be desirable to import the seeds from Riga. This can be done

at a cost of from 4s. to 5s. per lb., and they would be obtained from fine growths in the best condition. The starting of this tree should be by planting from nurseries. If grown thus the plants are quite vigorous, and soon make headway even in poor soils.

**Sycamore timber.**—The remarks of Mr. D. J. Yeo on this subject show how much the value of some kinds of timber depends on the locality in which it is grown. According to your correspondent, "it is commoner to find a few Sycamores for offer with a quantity of other woods than to find them in the market by themselves." But that does not apply generally. Here in Yorkshire and in Lancashire a good lot of Sycamore in a fall of timber will make it go off much better than it would do without it, and it will, if of fair size, bring as good a price or more than any other timber. In addition to fancy articles, very large quantities of Sycamore are used in Lancashire for printing blocks, bobbin wood, rollers for wringing and washing machines, and other similar purposes. As to the trunks spoiling by exposure when sawn, if that happens in the speedy way in which Mr. Yeo asserts, then the best way is not to saw it, but to sell it in the tree, in which condition, if we are to judge by the way in which timber dealers and manufacturers leave it lying about, it does not seem to take much injury. At Keighley, the great depot of Sycamores in Yorkshire, it may be seen lying exposed almost at any time; and the Irish Sycamore which comes over is transported without protection at all seasons of the year, and lies about the wharves or the railways like other timber. From these facts it would therefore appear that Mr. Yeo either overrates the dangers of exposure to Sycamore timber, or that those who work it are unaware of the dangers he writes about.—YORKSHIREMAN.

### THE LARCH IN PEEBLESSHIRE.

I LATELY visited the lovely valley of the Tweed, in the vicinity of Peebles, and was delighted to see such fine clean Larch flourishing on the steep hillsides, and seemingly as calmly indifferent as were their tenders to all the theories of Larch disease. The gales of last winter have worked terrible havoc here, but I have no doubt the present proprietors will emulate the spirit of their fathers, who, by planting to the mountain tops, have transformed this bleak region into one of the sweetest sylvan vales in all Scotland. Beside the romantic ruin of Nidpath Castle I noticed a Douglas Fir that had been planted in the teeth of the blast, and that suggested the idea of an old lady in a gale of wind. Some *Picea nobilis* in the same exposure were behaving more pluckily and scarcely indicated the prevailing wind. The cost of this excellent hardy Conifer, however, prevents its being extensively planted in the meantime, and whatever may be the value of the matured timber I fear it will not yield so early a return as Larch. A forester told me lately that he had on one occasion got £15 an acre for the thinnings of a Larch plantation twelve years planted, and I do not know of any other tree that could, even under the most favourable circumstances, show so satisfactory a result. I saw many fine examples of Douglas Fir in sheltered situations, but being more expensive than common forest trees it is always planted with special care, and we cannot judge of its progress compared with that of Larch, unless they are planted under exactly the same conditions, i.e., slit-planted in natural soil on an exposed mountain side. In a mixed plantation (chiefly Larch and Scotch Fir 10 feet to 12 feet in height) on the borders of Lanarkshire, and on a level piece of ground, I noticed some aphid on the Larch, with slight indications of blister near the base of a few of the trees. I asked the gardener, who also acts as forester, what he believed to be the cause of the disease. He said he had no doubt it was from sowing the seed of diseased trees. I



then asked him whether he believed that at one time there was no disease in this country. He said he did. "Where, then, was the first diseased seed procured?" He looked puzzled for a little, and then, laughing, said that that difficulty had never occurred to him. I confess I am very sceptical as to seed from a diseased tree necessarily reproducing the disease. It is now an ascertained fact that ova taken from a salmon suffering from a disease that will shortly prove fatal will produce perfectly healthy fry, and surely the disease is as thoroughly incorporated in the constitution of the salmon as in that of the Larch. This, however, is only matter of surmise, and I mean to try next season to procure seed from a thoroughly diseased tree and sow it alongside of seed taken from a healthy tree, with some Tyrolean as well, and to report progress to you from time to time. Meanwhile, I am glad to learn from foresters in various parts of the country that the Larch in recent years has been growing out of the disease, and I have a strong conviction that the more that nurserymen take to rearing their seedlings from native seed the less we shall hear of disease. It would be highly instructive if you could ascertain from some of our foreign correspondents next spring the exact date at which the Larch begins to open its buds in different parts of the Continent, and compare the returns with similar ones obtained from the north of Scotland, where the native seed is chiefly collected. I was struck in travelling from the head of the lake of Lucerne towards the St. Gothard Tunnel, about the middle of May last, to see the advanced state of the vegetation. While the snow line seemed not far distant the people were busy hay-making, and large standard Pear trees showed good crops of fruit the size of small Walnuts. Had the same trees been in Scotland they would hardly have been out of bloom, and, indeed, this season few of them would have got beyond the blossoming stage. As I was not in any of the Larch-growing districts I had no opportunity of making a comparison in regard to it. SCOT.

#### UNDERWOOD AND GAME COVERTS.

In the matter of game coverts, and even in places where game is not preserved, but where it is thought to be desirable to clothe the ground under the large timber trees with some species of shrubs, planters, says a writer in a contemporary, almost invariably select evergreen materials for the purpose. Putting aside the uniformity of this arrangement—for, owing to the few materials at command for this purpose, that is unavoidable—I wish more particularly to point out some advantages that arise from the employment not only of a greater variety of species, but also from these being deciduous and food-bearing. We know that but few of the evergreen shrubs carry fruits that are palatable to birds. *Berberis Aquifolium*, *B. Darwini*, and *Cotoneaster Simonsi* bear fruits, but they succeed thoroughly only in fairly open woods, by the margins of drives, and such like open parts. The Yew bears seeds that are eaten by small birds, but pheasants do not like them. The Virginian Red Cedar also bears seeds, but it is only in the hardest winters, when all other food is buried under the snow, that any creature will touch these; then roe-deer will do so, their flesh acquiring then the flavour and odour of Juniper. The ground under the perpetual shade of Evergreens is, and must necessarily be, always in a damp state, by reason of the sun not being able to penetrate through the foliage sufficiently to evaporate the moisture arising from snow and rain. Where deciduous vegetation covers the ground the shade is much less dense, being quite absent in the winter and

late autumn; so that the undergrowth, if kept of moderate height by cutting once in six or eight years, must be much less unhealthy for the animals existing in them. The more rapid growth of deciduous plants and the greater absorbent and exhaling property of their foliage must also assist in drawing moisture from the earth on which they are growing. The Hazel in variety is a good undergrowth plant, that is also adapted for many useful ends when of a few years' growth. It will grow in woods that are not too dense, and makes a fine covert alone. White Thorn and Black Thorn each make an almost impenetrable thicket if kept moderately low, and one very difficult for poachers to attack. *Cornus mascula*, *C. alba*, and *C. sanguinea* make good covert, especially in damp soils, the wood being also useful for sheep-hurdles and similar purposes. The *Viburnums*, such as *V. Opulus sterilis* and *V. Lentago*, are berry-bearing plants, like the above-mentioned, and to which shade is not inimical. The common Elder is another berry-bearing plant, adapted for growing almost anywhere, and easily kept at a moderate height, either by cutting down to the ground or to 3 feet or 4 feet high. *Symphoricarpos racemosus*, the Snowberry shrub, and *Ribes aureum* make good undergrowth, and flower well when the shade is not too great. A strong-growing herbaceous perennial, named *Phytolacca decandra*, bearing long racemes of fleshy purple berries, that birds are very fond of, should be planted or sown in all fairly open spaces, and which, when it is once established in a few spots, will continue to propagate itself by seed and root. It is as well to plant common Crabs in moderate numbers in all woods where game is kept, as birds are partial to the seeds that are found in abundance in the fruits. The selection should not be confined to the indigenous species, but should include the handsome Chinese and Siberian sorts. Beech, common Oak, wild Cherries, and *Celtis occidentalis* should all be planted as feeding trees in small numbers in woods made up of trees that afford no food to animals. It will thus be seen, from this selection of common shrubs, that the choice of the planter is not confined to evergreen species, nor is it at all desirable to plant only those over large spaces, which are, with the exception of Box, useless commercially.

**The Larch in America.**—The profit of growing the Larch is not yet understood nor its value for fence posts, Grape stakes, &c., after seasoning one summer. It does best when planted closely in rows 4 feet apart and 3 feet in the row. Planters should procure small plants from the large growers. Keep them in nursery rows two years, and, most important of all, set them where they are to remain at the earliest possible moment in the spring. Hon. J. H. Masters, one of the largest planters in the State, says: "Plant in rows 4 feet by 2 feet, which will give a large profit in posts and poles." He urges very early planting. Mr. Samuel Barnard says: "The Larch, which I think will prove of great value on rough and broken lands where they are found on a farm, and on the hills of Western Nebraska, has done well with me. Trees planted ten years are 20 feet in height, and measure 9 inches to 15 inches 1 foot from the ground. It does best when planted in rows 4 feet apart, and 13 inches in the row, \$700 to the acre. Its own leaves will soon cover the ground, keeping it moist and entirely prevent weed growth." The much-abused Cottonwood (*Populus*) has been a blessing to the poor settler whose means would only allow his planting the cuttings or seedlings pulled upon the sand-bars of the rivers. These soon gave protection from the fierce winter storms which sweep over the treeless prairies and an early supply of fuel. As soon as he is able to secure the plants or nuts, the Cottonwoods are only left to protect the second planting of Walnut, Ash, Catalpa, and the better kinds. The *Catalpa speciosa* promises to be the leading tree for forest planting.

One man the past spring planted 80,000 on lands of his own 250 miles west of the Missouri River.—*Gardeners' Monthly*.

#### NOTES.

**WHAT TREES TO PLANT.**—Mr. Webster seems to overlook the fact that in dealing with this question the future as well as the present must be calculated upon. I do not think I have spoken with any uncertain sound in giving my views with regard to the value of the Larch, yet looking at all the circumstances I must adhere to my belief that the Ash should be considered before it, and although Mr. Webster inferentially disputes this, he admits I am only traversing ground that has been well trodden before. When and in what way this has been done I do not know, but so far I have seen no valid argument against it.

**WITH REGARD TO THE ELM,** Mr. Webster's experience of what is done in a single city is no proof that my remarks on the subject—to which he takes exception—are not correct. It may be very well to set up a certain practice prevailing to some extent, say in Glasgow, as representing the country, but when but little is known on the subject as a whole, it is scarcely fair. In writing on the uses of the different woods, my information generally is derived from personal knowledge of widely distant centres, and although here and there different woods may be employed for some of the purposes enumerated, I believe that, so far as they go, they substantially represent the uses in the country as a whole. When Mr. Webster states that his informants "never used or knew the wood of the Elm put to such a purpose," it only proves how very limited their knowledge is, as against this one instance of the contrary I could give scores where it is so used.

**THE SAW IN TREE PRUNING.**—I quite agree with "G." (p. 554) that unless in exceptional cases the saw should never be used in tree pruning. Many of the advocates of such a thing cannot have observed the effects such mutilation has upon the tree in respect of the quality of the timber. If, instead of theorising so much, they would look to actual results, the time would be spent much more profitably.

**TREE PLANTING IN THE PAST.**—I do not know that it greatly matters who planted the Elms which have lately been the subject of a little controversy in these columns, but if "T. B." would argue backwards, I think he would get a little different view. To say nothing of a tithe, does he believe that one in a hundred of the young Elms now growing in this country have ever been planted? The mere fact of the Elm not ripening seed is no proof that it is not naturally reproduced, as, on the contrary, we know that vast numbers annually arise from suckers. So long, therefore, as they are reproduced naturally, it practically matters but little whether it is by seeds or suckers, as there would be as much difficulty in finding the first tree to grow a seed as it would a sucker. D. J. YEO.

**Gaultheria Shallon for covert.**—I remember some years ago on a visit to Balmoral seeing *Gaultheria Shallon* growing on the moorland ground on the summit of the hills above the castle, and the fruit was readily eaten by game, as the seeds had been passed by birds on the situations where they were found. The plants were generally in seed masses, a few inches square and 2 inches in height. A circumstance which I was not aware of till recently is the process now adopted by nurserymen in moistening tree and other seeds with water, and then sprinkling them over with red lead before sowing. The birds seem to have an aversion to the foreign colour thus given to such seeds, and therefore they are rarely meddled with.—J. M.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare*.

## ORCHIDS.

## LADY'S SLIPPERS IN WINTER.

If we take into consideration the easy way in which *Cypripediums* may be grown, the lasting properties of their quaint-looking flowers and their almost uninterrupted floriferousness, we must conclude that the estimation in which these plants are held by our Continental neighbours is not altogether unmerited. To these excellent qualities, moreover, we must now add another, viz., their power of withstanding London fogs, which they resist better perhaps than any other Orchids in cultivation. The foggy atmosphere which proves so destructive to *Calanthes* of all sorts, to *Vanda cærulea*, and to the various kinds of *Phalenopsis* seems altogether powerless when directed against the flowers of *Cypripedium*. Flowers at this season are naturally of the utmost value, and to have some twenty or more kinds of Lady's Slipper in full beauty at this time is extremely gratifying. *C. insigne* and its varieties, *Maulei* and *Chantini*, are all valuable autumn and winter-flowering plants. Being robust in constitution, they readily submit to either stove or greenhouse treatment, and they are also well adapted for indoor decoration. There is likewise another species, viz., *C. Spicerianum*, equally useful for brightening up our houses in autumn and winter, but which requires a stove temperature.

This, through intercrossings with the kind just named, has produced some good hybrids, which, independently of their individual beauty, possess also the merit of producing their blossoms at the same season as their parents. These are *C. Leeanum* and its variety *superbum*, the former of which originated at Burford Lodge. It partakes in a great degree of the characters of both parents. In *C. Leeanum superbum* the flowers are in all respects superior to those of the one just described, and the colours are more striking and distinct. Amongst other acquisitions resulting from crossing *C. insigne* and its varieties with other autumn-flowering kinds must be mentioned the beautiful *C. cæmæanthum superbum*, undoubtedly a most striking hybrid. Its foliage resembles that of *C. insigne*, but is darker in colour and its flowers present a combination of colours unknown in any other *Cypripedium*; the petals are vinous red with deeper veins, except at the base and apex where it shades off into pale green; the lip is also vinous and shaded with brown, while the dorsal sepal is deep claret-red marked with broad lines of dark purple spots and broadly margined with white. To these must be added the pretty and extremely rare *C. Arthurianum*, whose narrow dorsal sepal is rendered very attractive by numerous lines of small, closely set dots, extending from its base to its apex; *Ashburtoniæ* and its variety *expansum* also rival even the most showy kinds.

*C. BARBATUM* has a progeny no less remarkable than that of *C. insigne*. Indeed, practical men, in the early days of hybridisation, appear to have divided their attention between these two species, probably because they were the most ornamental kinds then in existence. Of Mr. Domin's crosses from *C. barbatum* we have the lovely *C. vexil-*

*larium*, now finely in flower. It is a beautiful and distinct Lady's Slipper, and nearly intermediate between the two parents, *C. barbatum* and *C. Fairieanum*. Like the latter species, it is of dwarf habit, and its foliage is distinctly marked; its flowers, which are large and striking, have their upper sepal whitish, stained with purple, and ornamented with port-wine coloured veins; the petals have retained that curious deflexed form peculiar to *C. Fairieanum*; and, as in that species, they are bluntly acute, with hairs around the limb and some warts on the surface. From the same raiser we have, also in flower now, *C. Harrisianum*, obtained by crossing *C. villosum* and *C. barbatum*. This, although entirely distinct from either parent, partakes of the distinctive characters of both. The upper sepal resembles that of *C. barbatum*, but is covered with a dense pubescence and very glossy; while the lower sepal, which is whitish green, is not glossy at all. The petals, which are spread out at right angles, are narrower than in *C. villosum*, very shining and port-wine coloured, with a very dark line on the middle rib. The lip is of a light port-wine colour, with here and there a tinge of light green. The colours, indeed, are altogether brighter and darker than those of *C. villosum*, while the flowers are larger than even those of the largest form of *C. barbatum*. Mr. Seden also supplied us with several good varieties from *C. barbatum*. Among those in flower now may be named *C. selligerum* and *C. marmorophyllum*. The former, which was produced by crossing *C. barbatum* and *C. lævigatum*, is bearing two or three flowers larger than those of either parent. The petals are about 3 inches long, deflexed, with a partial twist, and traversed by crimson veins. The lip is nearly the same as in *C. barbatum*, but lighter in colour, while the upper sepal is white, with broad black-crimson veins. *C. marmorophyllum*, though not one of the most showy of Lady's Slippers, is undoubtedly a very interesting hybrid, the result of crossing *C. barbatum* and *Hookeræ*. The upper sepal has the broad base and transverse shape of that of *C. barbatum*, whereas the petals are those of *C. Hookeræ*, bent down. The side angles of the lip, however, are better developed than in *C. Hookeræ*, and the inflexed margins are covered with shining warts.

ANOTHER GROUP, and a highly ornamental one, is the *C. Sedeni* section, plants of which are in flower at almost all times of the year, but principally now. *C. Sedeni*, itself a hybrid between *C. longifolium* and *C. Schlimi*, has given birth to a numerous family of most beautiful Lady's Slippers, valuable not only for their colours, but also for their floriferousness. Besides the charming *C. Sedeni candidulum*, *cardinale*, and *albopurpureum*, all of which flower earlier in the season, the most striking forms of this section in flower now are *C. Schröderæ* and *C. calurum*. The latter is a hybrid raised from *C. longifolium* and *C. Sedeni*. It produces a succession of flowers, which last during several weeks in good condition; these are of similar colours to those of *C. Sedeni*, from which, however, they differ in having their petals half as long again, and narrower and more twisted.

Foremost amongst Lady's Slippers now in flower must, however, be named the new and beautiful *C. Schröderæ*, one of the finest of the hybrids of the *Selenipedium* group that has yet been raised. This grand plant is the result of a cross between *C. caudatum* and *C. Sedeni*, the latter being the pollen parent. Its flowers are the largest in the *Sedeni* section, being over 4 inches across from the tip of the dorsal sepal to the end of the slipper. The dorsal sepal is whitish, tinted with pale rose, the lower sepal being larger and whiter. The petals, which are

quite 4 inches long, are pendulous, ribbon-like, twisted, and pale rose, with longitudinal deep rose coloured veins. S.

***Epidendrum arachnoglossum*.**—This, one of M. E. André's introductions, was discovered by him in New Grenada, at an altitude of about 2000 feet. It is said to possess the unusual and remarkable quality of blooming throughout the year, and M. André, who has grown it very successfully, states that the best way of managing it is to keep it in a cool house in winter and place it in the full sun in the open air in summer. This is the way in which M. André has treated his plants of it, but whether complete exposure in this variable climate would be attended by similar beneficial results can only be determined by a trial. In any case, plenty of light, air, and a considerable amount of sunshine seem to be essential points in the culture of this Orchid.—J. C. B.

**December-flowering Orchids.**—Amongst the various Orchids flowering this December at Messrs. Ireland & Thomson's nursery, Edinburgh, one of the most interesting is *Scuticaria Steeli*, a species with curious Rush-like leaves. Its yellow and brown-coloured blossoms are very sweet-scented, and remain in perfection for about six weeks. *Cypripedium insigne* here has often two flowers on a stem, and I also noticed a good stock of *C. Spicerianum* beautifully in flower. The collection of *Masdevallias* includes from twenty-five to thirty kinds; well-flowered plants of the pure white *M. tovarensis*, with two and sometimes three blossoms on each stem, are singularly pretty. There are also here some finely pitched plants of *Nepenthes*, especially of *N. Veitchi*, and in the same house along with fine specimens of *Crotons*, *Caladiums*; and other fine-foliaged plants is *Phyllotanium Lindenii*, an effective plant with variegated *Caladium*-like leaves about 1 foot long. *Ipomœa Horsfalliæ*, with crimson flowers, is well worth growing as a stove climber for winter flowering; and still more beautiful is the white-flowered *I. Thomsoniana*, which also blossoms more freely than *Horsfalliæ*.—C. M. OWEN.

## NOTES ON RECENT NUMBERS.

***Brodiaea (Milla) Tritoleia*** (p. 538).—The gardener may well claim "a bone to pick" with the botanist in the matter of names in this family, and there are not, luckily for us, many plants which can boast greater variety both in generic and specific nomenclature than these. It has no doubt been a puzzle and disappointment to others besides myself who have attempted to get together this class to find that what has figured under three different sets of names in three several catalogues has turned out to be one and the same thing in one's own garden, call it what you will. The splitting up of the old comprehensive genera into smaller ones with more intricate distinctions is no doubt very proper from the true botanist's point of view, but it is somewhat of a stumbling-block in the path of "non-Greek or Latin-speaking" men, and one would be thankful if they could have arranged to have kept the old family name, and have divided them more into sub-groups with which in practical matters we need not have disconcerted ourselves. The *Narcissus* may well serve as an instance; luckily, we can still call them all as such, and I believe it is still fairly correct to speak of *N. Clusii* without being obliged to dub it as a *Corbularia*. An ordinary spade labourer or garden boy cannot be expected to master so much "heathen language," nor can his superiors continue to repeat over and over again such hosts of queer-sounding titles till at last he learns to repeat them parrot fashion, and apply them to their respective owners. A thing called a *Spiræa* is pretty familiar both to the eye and ear of the flower-loving public during the spring and early summer months, and to necessitate another trouble to be remembered by turning it into an *Astilbe* or *Hoteia* is rather taking advantage of their willingness to learn. May not we, its "cultivating" godfathers, in our greenhouses and button-holes still call it a *Spiræa* without troubling ourselves on all occasions to repeat in full what it has inherited from its "dissecting" sponsors? I do not see why a bulb



should not have three names as well as a baby; it would not be any more necessary to repeat them all whenever we wished to make mention of a special individual, and we might have *Brodiaea Brevoortia* Coccinea, Esq., or Mr. *Brodiaea Stropholirion Californica*, which for "legal" purposes might be written in full, but would pass in ordinary conversation by what was sufficient to distinguish it from everything else and no more.

**Floral fans** (p. 690).—Without wishing to offend the feelings or detract from the originality of the floral fan inventors, I must confess I was much pleased to read "G. S. S.'s" condemnation of their device, and one would have thought that with the ladies themselves they would not find much favour. In the first place, they (apparently) cannot be made to shut up; if large they must be very heavy, if small they cannot be of much use; but the disadvantages are so well pointed out by "G. S. S.," that I need not enumerate them. I can only suggest one use for them, and that is that they should be formed into pairs of wings to carry off the baskets one sees sometimes in flower shops and elsewhere filled, not with flowers that can be taken out or put in water, but with decapitated, wire-stalked innocents made fast to the handles or sides and "unrefreshable," however much they may flag from the heat or thirst.

**Yellow-berried Holly** (p. 597).—In a well-berried year like the present one trembles for the fate of Hollies growing by the side of public roads, or else visible and accessible from them, and the pleasant discovery that the majority of one's tree has made itself scarce in the country and plentiful in the town during the night is often sufficient, amongst other things, to make one wish it were not Christmas. The way in which the trees are smashed about is most cruel; the despoiler has not time or safety to stop to choose his branches, so makes a bold sweep of the whole top; and if it happens to be growing rather tall and out of reach, why the stem is cut through first and then the branches can be stripped off that. Picking the berries by hand is rather an expensive business if there are many trees to be saved; but if the weather is hard or snow on the ground, the birds will often lend a helping bill and clear it almost as quickly as the "coster's" axe and saw. There is one other remedy—where the nurserymen are willing to undertake the picking for the sake of the seed, but, of course, there is a limit to the quantity required, and it is not everywhere that there is a nurseryman who requires a large stock. The yellow-berried Holly ought certainly to be more plentiful about the country than it is, also the variegated and large-leaved forms; in fact, every sort but the common one.

Sussex.

C. R. S. D.

## NOTES OF THE WEEK.

**Open-air flowers.**—It may interest your readers to hear that Wallflowers have been in bloom during the last three weeks in my garden, and also that I have had Cowslips in bloom for the same time in a box outside my window. Cowslips do not grow wild in this part of Devon.—KINGTON BAKER, *Butts Hill, Dartmouth.*

**Lælia anceps.**—At Redleaf there is a fine plant and variety of this grand old-fashioned Orchid in flower. It has no fewer than twenty-seven spikes on it, a real specimen, not a made-up plant. It has, Mr. Holah informs us, been in the same pan in which it is now growing over five years. It is one of the most showy of Orchids at this time of the year, easily grown, and lasts long in flower at a time when Orchid blooms are scarce.

**December flowers.**—From "St. Brigid's" garden on the Hill of Howth come charming blooms of the double Crown Anemones which grow there so finely together with various other flowers, such as Primroses, Tea and China Roses, Coronilla glauca, common Jessamine, *Schizostylis coccinea*, *Doronicums*, *Primula obconica*, and shrubby Veronicas, none of which show the least indication of having suffered from the wintry weather now prevalent.

**New Japanese Chrysanthemum.**—I send you two or three small flowers of a very bright Chrysanthemum. It is the result of a careful selection during three or four years from Tokio. By always keeping cuttings of the best plants I seem to be fixing the colour, which may almost be called scarlet.—G. H. ENGLEHEART.

\* \* One of the brightest and richest coloured varieties we have seen. The colour is the nearest to scarlet yet obtained.—ED.

**Crinum augustum.**—This is one of the noblest of the cultivated Crinums. It is a plant of stately growth, and produces clusters of large blossoms on tall stout stems. It belongs to the group of species in which the sepals of the flower are long and narrow, and in this species they are of a deep red-crimson, striped with white. It usually flowers at this season, and continues a long time in bloom, hence its value. It is now flowering in Mr. Bull's nursery at Chelsea.

**Eucharis amazonica.**—A fine plant of this is now coming into bloom at Swalcliffe Park, Banbury, making the third time in which it has bloomed this year. It is in a large pot containing some three dozen bulbs, all perfectly healthy. It produced its first crop of flowers in March, the second in August, and the third now consists of thirteen flower-stems, about the same quantity as on the two previous occasions. It is growing in sandy loam and a small quantity of leaf-soil, receiving when growing plentiful supplies of liquid manure.

**Ipomæa Thomsoniana.**—This new stove climber, which may be best described as a white *I. Horsfalliae*, is now in bloom in Mr. B. S. Williams' nursery at Upper Holloway. The flowers are pure white, of about the same size and form as those of *I. Horsfalliae*, and produced in clusters in much the same way. The leaves, however, are different, being trifoliate and of a different shade of green. The two associate beautifully together, and nothing could be more lovely in the way of stove climbers than to see these two *Ipomæas*, intermingled, under a roof, the one a rich satiny carmine, the other white.

**Orchid exhibition.**—It is announced that a grand show of Orchids will be held in the gardens of the Birmingham Botanical and Horticultural Society, at Edgbaston, on May 12 and 13 next year. A schedule of prizes has been prepared which consists of eleven classes, three prizes in each, ranging from £15 (for a group of twenty) to £1. There are five classes for groups of twenty, ten, and six plants for competition among nurserymen and amateurs; and for groups of *Odontoglossums*, *Cattleyas*, or *Lælias* and *Masdevallias*, the total amount of the prize money offered is £141. A first-rate show ought, therefore, to be got together in this great midland town. Messrs. Southall & Nettlefold are the hon. secretaries.

**Eucharis Mastersi.**—This, the latest addition to this genus, bids fair to become as valuable as the well-known *E. amazonica*, and it certainly threatens to eclipse *candida* and *Sanderi*, on account of its floriferousness, the purity of its flowers, and its luxuriant growth. We saw a few days ago a group of it in Mr. Bull's nursery, and we were struck with its loveliness. The flowers, which are numerous and just overtop the foliage, being almost erect, show themselves off to advantage, and as the cup is almost suppressed, there is an absence of that greenish whiteness which characterises the flowers of other *Eucharises*. They are, in this case, produced in clusters of from three to six, and are about a third smaller than those of *amazonica*.

**Bomarea conferta.**—Of this beautiful climbing plant a cluster of flowers comes to us from Mr. Chamberlain's garden at Highbury, near Birmingham, which is the finest we have yet seen. The cluster contains fully half a hundred flowers, each 2 inches in length and of a rich orange-crimson spotted interiorly with purple. The cluster is very dense, and as the stalks of the flowers are slender they droop together very gracefully. Mr. E. Cooper, the gardener, states that the plant from which the specimen was cut is planted out in a narrow border in a glazed corridor, the temperature of which is like that of a warm greenhouse. He also says that it flowers with him nearly the whole year round. We

gave a coloured figure of this plant when it was first introduced, but the present specimen is finer in every respect than that from which our drawing was made. Such an invaluable winter flowering plant cannot be too widely known.

**New Brussels Sprout.**—Mr. Gilbert sends us specimens of a Brussels Sprout that he has raised between his Gilbert Cabbage and the common Brussels Sprout. It is a loose, open sprout which, though excellent in quality, has no relation whatever to the original Brussels Sprout, which is small and compact, and well suited for a particular form of cookery long adopted by French and English cooks. We greatly regret to see the deterioration which has overtaken this vegetable in England—great coarse lumpy things taking its place. Its value consisted in its smallness and compactness. Some of the newer sprouts are, as we have said, large, coarse and open, and cannot be treated at all as Brussels Sprouts are by good cooks. Two heads of Chou de Gilbert, which accompanied the sprouts, were good and tender.

**Dichorisandras.**—The six or eight kinds of this genus represented in gardens are half of them handsome autumn and winter flowering plants—i.e., *D. thyrsoflora*, *D. Saundersi* (a pretty blue-flowered stove climber), and *D. vittata*; the others are pretty foliaged plants, and are worth growing on account of the beautiful veining and striping of their leaves. The best of them is *D. muscica*, which has fleshy leaves, 6 inches by 4 inches, the upper surface silvery, and spread over it is a lattice-like network of dark olive lines; the under side is a deep shining purple. When well grown this plant forms a most attractive little specimen. *D. cuprea* has leaves 6 inches by 3 inches, the upper surface a golden brown with a broad band of deep purple down the middle, the margins being pale green; in this also the under side of the leaves is blood-purple; the stem is green, mottled with purple, and as it is dwarf and thickly clothed with foliage, the whole plant has a singularly attractive appearance. *D. undata* is remarkable in having almost round leaves, curiously puckered, dark green, with the mid-rib and six principal nerves set in stripes of silvery green. Grown in a moist stove and shaded from bright sunshine these three small species of *Dichorisandra* form pretty plants, worthy of a place alongside of the *Anectochili*, *Sonerilas*, and *Lactonias*.

## GARDEN DESTROYERS.

**The Eucharis bulb mite.**—"W. J. M." wants to know if there is any remedy for this pest, and I am pleased to say there is. Two years ago I discovered this insect on our *Eucharis* and *Vallotas*, and in order to get rid of it I tried the washing-out process. I cut all decayed parts away till there was neither leaf nor roots left. I then put them under water for three weeks. I afterwards potted and plunged them in a hot frame, in which they started and made healthy growth; but in a short time the insects appeared to be as numerous as ever. Seeing in THE GARDEN sulphide of potassium recommended, I tried it with satisfactory results. I used a strong solution, viz., one pound to a common zinc pailful of water. In this I set the pots for twenty-four hours, or, in the case of large pots, set a saucer or flat under them, and watered them several times with the liquid. After this treatment I could find no trace of insects. Owing to the vitality of some bulbs the presence of this insect is not discovered until too late to effect a cure; the leaves look fresh as long as the heart of the bulb is sound; not until the core is eaten out of the bulbs do they show signs of failing. Wherever this pest gets established I find it to be the most difficult of all plant enemies to eradicate. It was the cause of our losing many of our Lilies some years back. It also attacks Orchids, Palms and Dracenas—in fact, all fleshy-rooted plants. This *Acarus* came to us from Holland along with our Dutch bulbs, and I would advise all who grow Hyacinths and similar bulbs to examine the base of each with a magnifying glass before potting them. Could not some of our Dutch friends give us its history? Its name is *Rhizoglyphus echinopus*.—E. CAMERON, *Ecristan, Moffat.*



## RENOVATING FRUIT TREES.

ALTHOUGH many articles have been written on root-pruning, but little has been said in favour of renovation, and yet one is quite as important as the other. By root-pruning or root-lifting our principal aim is a modification of luxuriant growth and the production of short-jointed, well-ripened fruit-bearing wood. But this is not the only advantage which follows either in the nursery or the private fruit garden, as it would be simply impossible to remove a tree with any degree of certainty where root-lifting is neglected. But few trees require root-pruning more than once or twice—the first time to check gross tap-roots, and to place all that are of any use in a horizontal position near the surface of the soil; the second, to check luxuriant growth of root and branch, and throw the trees into a fruit-bearing condition. When this, the great and all-important aim of every practical fruit grower, has been attained, good mulching and feeding and judicious cropping will keep rising young trees in a satisfactory state for a number of years. But there arrives a time when fully matured trees become weak, and show unmistakable signs of a falling off in size, quantity, and quality of the fruit which they produce. If the mulching is turned off and a trench is taken out a good distance away from the bole of the tree, it will most likely be found that the soil has become inert, sour, and impervious to the life-giving influence of solar heat and fresh air. More manure may be placed on the surface, stronger growth may be induced, and the tree may produce plenty of blossom; but the chances will run in favour of sterility, or if it does set, the fruit will be small, unkind, and deficient in flavour. Lichen and Moss will take a firm hold of the branches and spurs, the pores will be sealed, the roots will become fibreless, and the tree will become prematurely old.

**ROOT-PRUNING.**—Having brought the tree into bearing, renovation must restore it to something like its former vigour; but how is this operation to be set about? Well, before describing the three modes of dealing with trees when they get into this unsatisfactory condition—and I am sorry to say there are thousands in the country—the operator should provide a good supply of fresh turf, lime rubble, road scrapings, burnt earth, parings from the sides of paths, anything and everything that is fresh and suitable for working up into compost. This may lie for weeks or months after it is properly mixed, or it may be used immediately. The first, but not the most effectual, mode of renovation adopted by many fruit growers is simply the forking away of all the old surface soil from the borders quite down to the roots, which they neither injure nor disturb; but work carefully round the strongest with small hand-forks, cut and trim away dead pieces and suckers, and fill in with fresh compost. By cutting notches in the strongest roots, the formation of new rootlets is encouraged; but, independently of this, it is more than astonishing to find how quickly new fibres spring up, as if by magic, and how roots will turn out of the course which, apparently, they have been pursuing for years to partake of the good food so bountifully provided for them. The trees soon put on a better appearance, and on deep well-drained soils they may go on well for several years; but this mode of renovation cannot be depended upon, as there may be some deeply-seated roots which will always mitigate the benefit secured, not only in cold wet seasons, but also when the fruit is setting, and again when it is ripening in the autumn.

**ROOT-LIFTING, NOT ROOT-PRUNING,** is the second most effectual remedy, as every root and fibre

must be saved and kept moist until it can be relaid near the surface in fresh compost. The most effectual mode of procedure consists in throwing out a deep trench a considerable distance from the bole of the tree. Then with steel forks (the best horticultural implements ever invented) gradually work inwards until the points of the roots are picked up ready for relaying. When the inert surface soil and the worst of the subsoil has been cleared away and descending roots have been cut or raised, the work of making up again may be commenced, not by merely shovelling in the soil, as that would encourage the roots downwards in dry seasons, but by correcting the concrete and drainage and putting in a layer of fresh turf, grass side downwards. Having cut away all dead and cankered roots and shortened others, the work of relaying must be commenced by making a sound, well-rammed bed of the best of the old soil, the new being reserved for laying over the roots to attract the young fibres upwards. When every root has been relaid in a horizontal position, pack firmly with the new compost and flood the soil home with a plentiful supply of water. Allow this to stand for a day or two, then fill in with more new soil, and finish off with a good layer of manure as a mulching. If the trees have got into a very bad state, to avoid a severe check, the operation may extend over two seasons; in other words, it may be performed piecemeal by one side of the tree being root-lifted the first year and the other in the year following. Immediately after the roots have been placed in good compost, healthy growth of leaf and branch must be encouraged by scrubbing, scraping and clearing the stems and branches of Moss and Lichen, and syringing with a mixture of soap-suds, soot and lime, which will render them bright and capable of expanding, while the penetrating nature of the lime will free them from the larvae of destructive insects.

**BRANCH-PRUNING.**—The third and last operation should be allowed to stand over for a season or until such time as the roots have become thoroughly established in the new compost. This will include the thinning of the branches to let in sun and air, shortening back to improve the shape of the tree, and the partial or entire removal of the spurs where they have become weak, straggling, or crowded. In some cases it may be necessary to cut off all the spurs before the trees can be restored to anything approaching decent condition; but severe as this operation may appear, the only inconvenience likely to follow will be the loss of a crop, or perhaps two, until new spurs close at home are properly formed. Peaches and Nectarines never, of course, require this treatment, as they are not expected to produce fruit-bearing spurs, but Pears, Plums, Cherries and Apricots submit to it readily, always provided they are well furnished with fresh active roots capable of forcing the sap up into latent or incipient buds seated on the branches, and a spur is left at the extreme point to keep up the circulation. Apples, Pears and Cherries generally contain a fair number of young spur points which it is not necessary to remove; but Plums and Apricots often require more severe treatment, and notwithstanding the fact that the latter is the most disappointing fruit tree we have to deal with, it readily submits to this mode of resuscitation. More than thirty years ago two Apricot trees, with which I was well acquainted in my youth, having become long and weak in the spur, were treated precisely as I have in this paper advised. Many old hands shook their heads and predicted failure, but the soil, a rich sandy loam, soon became a mass of new fibres; every spur was then cut off and the thickest branches were notched with a knife, at

intervals, on the upper sides, and new spurs quickly followed. Anxious to ascertain if these fine old Moorparkes, which, by the way, had left an impression on the eye and the palate, were still in existence, I recently paid a visit to the garden in question, and there, sure enough, my old friends were still producing fine fruit, and they looked vigorous enough to undergo another operation. There may be nothing remarkable in this statement, but it goes to show that the advice I have given to the owners of unhealthy or neglected trees is sound and founded upon practical experience.

W. COLEMAN.

*Eastnor Castle, Ledbury.*

## EARLY PEARS.

I WAS somewhat surprised in reading the remarks of "Cambrian" (p. 418), in regard to "Early Pears," which he confines to "such kinds as come into use from July to the end of November"—a pretty long season of earliness. But my surprise comes not from this definition of earliness, but from the fact that he names but one August Pear—the Jargonelle. Why, with us we are surfeited with early Pears—that is, August Pears; and not only early Pears, but the very finest of Pears at any season. The Jargonelle is not considered worthy of cultivation. I have just half a tree of it, and would soon regraft it all over, but for old acquaintance sake and a reminiscence of what was once called good. Probably it is not so good with us as in England, as our climate is too hot for it, ripening it too rapidly. I could never get it so good as I tasted it in London. If you pick it too early it does not attain its melting, juicy flesh; and if you gather it when fully ripe, it is rotten at the core. Of the thousands of bushels of Pears sent to Boston Market you could not find ten bushels of Jargonelle.

The Pear Congress held at Chiswick will undoubtedly awaken an interest in fine Pears, and probably lead to the introduction of our American varieties, which now surpass all others. I only regret it was not held in September, when I could have sent fine specimens of the Pears of that season. Of course, all the August Pears disappear before the Bartlett (Williams' Bon Chrétien) comes into market.

With the "Pomologia Britannica" before me, I find that in 1830, when that beautiful work was published, only four August Pears are pictured, viz., the Jargonelle, Summer Francreal, Early Bergamot, and Madeleine; and these were the only kinds enumerated in a list in the same work of the "Finest Varieties of Fruit Trees recommended for Cultivation in a Select Garden in the Midland and Southern Counties of England." Three of these were old and well-known Pears here at that time, and so continued up to 1840, when their apparent worthlessness made us look about for better varieties. No doubt the wish was father to the thought, for we immediately began to have better Pears, which have so increased that to-day the number of delicious August Pears amounts to upwards of twenty—all American varieties but three. I will name them something in the order in which they came:—

1. **DEARBORN'S SEEDLING.**—Raised by the late Gen. H. A. S. Dearborn, the first president of the Mass. Hort. Soc., about 1830, but did not begin to be cultivated much until 1840. Described in the "Fruits of America," with a beautiful coloured plate. Ripens August 15 to 20.

2. **MANNING'S ELIZABETH.**—So named in honour of the late Mr. Manning, of Salem, Mass., who grew it from scions received from Dr. Van Mons, of Belgium, one of his seedlings, known as



No. 154. It is small, but one of the most beautiful of all Pears and deliciously sweet and fine. Ripens August 15 to 20.

3. BLOODGOOD.—Native of Long Island, N.Y., and brought into notice by Mr. Bloodgood, a nurseryman. A slow grower and rather shy bearer, but a medium sized, handsome, and very delicious Pear. Ripens August 15 to 25.

4. HANNAS.—Origin of this uncertain. Found growing in Boston, Mass., in the garden of Mr. Hannas. It is a good sized Pear, and just about as good as the St. Germain, having the fresh subacid smack of that fine old Pear. Ripens August 20 to September 1.

5. JULIENNE.—First described by Cox. It is a medium sized and very fine Pear, but it bears so abundantly that the flavour is often indifferent and the fruit small. Ripens August 12 to 20.

6. BOSTON.—Originated in Connecticut, and introduced by me in 1842. It is a match for the old White Doyenné and nearly as large as that fine Pear. An enormous bearer every other year. For many years it brought a higher price than any other Pear—£2 10s. to £3 per bushel. It is large, deep golden yellow with blush cheek, and as luscious a Pear as we have at any season. Ripens August 15 to 30. Must be gathered never later than August 20.

7. BRANDYWINE.—Found growing on the banks of the Brandywine, in Pennsylvania. A grand Pear; pyriform in shape, deeply russeted, and, as a cultivator once remarked to me when eating it, it was well named, for it really is a mixture of brandy and wine. Tree very vigorous, erect, and enormously productive. Ripens August 15 to 25.

8. BEURRE GIFFARD.—A French Pear of high quality, medium size, and handsome. The tree is of miserable growth, spreading habit, and only a moderate bearer. Ripens August 15.

9. ST. MENIN.—A French Pear, which I received from M. Jamin in 1845. It is large, oval, greenish yellow, with russet dots, and though not high flavoured is a good Pear. About 1860 I received it from M. Leroy as a new Pear under the name of Omar Pasha. Ripens August 20 to 30.

10. SUPREME DE QUIMPER.—Another Pear received from France, and an excellent kind it is. Nearly medium size, with red cheek, very juicy and delicious. Tree a good grower and bears well; and it ripens as early as the 10th of August, immediately after the Doyenné d'Ete.

11. OTT.—Originated in Pennsylvania, and is about equal to the Seckel. Just about the same size, same spicy excellence, and, but for its size and the abundance of fine large summer Pears, would undoubtedly be largely cultivated. Ripens middle of August.

12. MUSKINGUM.—From Ohio. A good sized, roundish, handsome, and very fine Pear. Ripens August 20.

13. MOYAMENSING.—From Pennsylvania. Almost too late to be classed among the August Pears, though one fruit this year was gathered August 22. It is a very fine Pear, peculiar in shape, being flattened, with a distinct suture on one side of the fruit. It much resembles in quality the old white Doyenné, very productive. Ripens August 25 to September 15.

14. OSBAND'S SUMMER.—From Mayne Co., New York. A remarkably handsome and rich Pear, and, but for its rather small size, would be a great favourite. Ripens August 10 to 20.

15. CLAPP'S FAVOURITE.—Though the last of my list, by no means the least. It is a fruit quite

as large or larger than Williams' Bon Chrétien; much handsomer, having a decidedly rich rosy cheek, and in quality quite as good, though not so sweet. The tree is vigorous with large glossy foliage, an annual bearer, but does not keep quite so well as most summer fruits. It should be gathered before there is the least tinge of yellow, and it will then ripen up and please all who cultivate it. Ripens August 15 to 30.

I could name several more which quite equal or surpass either the Francreal, Madeleine or Early Bergamot. But all of the above may be classed among our very finest Pears, though none are of extra size except Clapp's. If I had to name the cream of the whole thirteen they would be Boston, Brandywine, Bloodgood, Suprême de Quimper, Hannas, and Clapp's Favourite.

All these are for special garden culture. For growing for the market, the early Pears are of little value. The Doyenné d'Ete is hardly gone before our markets are filled with Bartlett's from Virginia and California, followed by all the good large autumn Pears, and the transportation is so rapid and the packing so well done, that they are generally received in the finest condition. Weeks ago we had ripe Duchess.

There is no reason why all the Pears I have named will not grow where the Seckel or Bartlett succeeds, and I trust that not only "Cambrian," but other cultivators in England will give our early Pears a trial. Hale's Early Peach was found to be a fine fruit, and our Pears will be found to do just as well.

C. M. HOVEY.

#### PRUNING GOOSEBERRIES.

SOME prune too much and some too little. In the former case the trees make too much wood and bear but little fruit; and in the latter case the bushes bear plenty of fruit, but from lack of pruning it is inferior in size and quality to that produced by properly pruned trees. A Gooseberry bush of any of the free growing sorts will profitably occupy a space 6 feet square, and as the object of the cultivator is to fill up the space as soon as possible, the pruning chiefly consists in thinning out the branches, very little shortening being done. The young trees are headed back in the nursery bed till a strong base has been formed, but afterwards the shoots are left full length, or nearly so. In pruning established trees, first look round the base of the bush, and cut off all branches that are too near the ground. This we call lifting them up. Fruit growing close to the ground frequently gets gritty, and thereby spoiled; therefore no sacrifice is made in clearing out the bottom; besides, air and sunshine can circulate all the better when there is a clear space between the branches and the ground of 10 inches or so. Always in pruning, whether we prune little or much, keep an eye to preserving form and symmetry, as although freedom of growth is desirable, a sprawling habit should not be encouraged.

Having lifted up the bottom of the bush, so to speak, by the removal of all branches near the ground, the centre should be opened out, and the remainder of the pruning will consist in thinning out the branches sufficiently to let in air and sunshine and give space for next season growths. This thinning should be done in such a manner as to leave the branches regular. The crop of fruit will be borne chiefly on the young wood; and in order to keep up perennial youthfulness in the bushes, an old branch here and there should be taken out and a young one left in its place. Except for the sake of symmetry, none of the young shoots need be shortened, as the

wood of Gooseberries will ripen sufficiently to bear its whole length. When Gooseberry bushes are permitted to attain full size there is less danger of the loss of the crop from spring frosts, as the branches shelter each other. It is only when pruned on the spur system that the crop fails through having no shelter. In districts where birds are numerous it is sometimes recommended to leave the pruning till spring; but I confess I could never see the force or value of that advice. It is much better to prune in the winter, and to dress the trees at once with something which the birds dislike. If syringed twice during the winter with soot and lime-water, birds will not touch them, and the mixture will be of some use in cleansing the bushes from Moss and insects.

E. HOBDAY.

5424.—Late Grapes.—The question asked by "R." (p. 502) is a most difficult one to answer, at least satisfactorily, as no experienced Grape grower has yet met with a variety that will hang in a house for any length of time adapted to the culture of Ferns or aquatics. If his Hamburgh Vines are fresh, healthy, and in good condition, why not push them on with all reasonable speed through the summer to ensure their being thoroughly ripe before he houses his plants in the autumn. Then cut and bottle the Grapes in a cool, dry, well-ventilated store-room. If this plan does not meet his case, he may try Gros Maroc, a variety which colours and comes to maturity in a low temperature, Black Alicante, and West's St. Peter's. These, if the existing Vines are sound and not too old, he may inarch or bottle-graft one season and fruit the next, still retaining the stocks until he has fairly tested these thicker skinned varieties. But it is extremely doubtful if the quality of the fruit grown under such conditions will prove equal to the Hamburghs. Surely he might give and take in the management of such incongruous occupants as greenhouse plants, requiring much water, and ripe Grapes, which require a thoroughly dry atmosphere—indeed, a plant grower would inquire what kind of plants he succeeds in maintaining in a healthy condition where the floors and walls are saturated with water through the winter. If he grows Gros Maroc and Black Alicante, the two varieties most likely to answer his purpose, he should cut off all the largest shows and shoulders, as small bunches keep best. He should also thin the berries extra well, and endeavour to get them ripe by September, even if a little extra fire heat is applied. He should give the greenhouse plants water in moderation, on fine mornings only, until the Grapes are fit for bottling, and while securing a crop of fruit that will carry him through January he may find his greenhouse plants greatly improved by being kept in a drier atmosphere. Lady Downes, Gros Colman, and Mrs. Pince are of course the best late-keeping Grapes, but to attempt their growth in a cold greenhouse would be courting failure.—W. COLEMAN, Eastnor Castle, Leicestershire.

Lady Beatrice Lambton Pine-apple.—Three years ago I had a sucker of this Pine given me, a small piece emitted immediately under the fruit. It grew well, and became a plant, consisting of a few very strong upright leaves about 5 feet in height. In August last it produced a fruit which has just ripened, and when cut to-day it weighed 9 lbs. 2 ozs. It is perfectly conical in shape, and the crown is not more than 4 inches high. It is a very handsome-looking Pine-apple, and had the fruit appeared in spring, and not in autumn, I have no doubt it would have weighed 2 lbs. more, as since the beginning of October the house in which it has been growing has almost invariably been below 60° at night, or about 55° in the morning. As it is I am perfectly satisfied



with it, and although this Pine may require a good deal of head room, it grows so upright that they might be plunged much closer together than other kinds of Pines. The plant from which the fruit in question has just been cut has four good suckers on it. In my opinion Lady Beatrice is a valuable addition to our not over-abundant varieties of Pine-apples. As to flavour, I cannot say much as yet; but judging from its weight and the way in which the saccharine juice is oozing from a pip at the base, I know that there is something good inside.—J. MUIR, *Margam, S. Wales.*

## ROSE GARDEN.

### CULTURE OF ROSES IN POTS.

HYBRID PERPETUAL ROSES must be well established in pots before they will flower in a satisfactory manner. Plants so established are necessarily rather expensive to purchase in quantities, which is, I think, one reason why they are not more generally grown than they are. If, however, one is prepared to exercise a little patience and to set about the work in the right way, there is no reason why this section of Roses should not be as much cultivated in pots as the Tea-scented varieties. The present is a suitable time to commence establishing the plants in pots for this purpose, as what are known as dwarf plants grown in the open air may be purchased at most nurseries. These, subjected to the following treatment, will answer the purpose perfectly. The first thing to do is to make a selection of suitable varieties, and the following would be our choice, viz.: A. K. Williams, carmine-red; Charles Lefebvre, bright crimson; Pierre Notting, dark crimson; Duke of Edinburgh, purplish crimson; Duchess of Norfolk, very bright red; Abel Grand, pink; Anne de Diesbach, rich deep rose; Anna Alexieff, pale rose; Countess of Oxford, carmine; Duchesse de Vallombrosa, pale pink fading to white; Etienne Levet, carmine-rose; François Michelon, bright rose; Lady Sheffield, cerise; Louise d'Arzens, French white; Madame Lacharme, white; and Boule de Neige, white. La France makes a grand Rose for a pot, and so does Baroness Rothschild, but it is later in opening its flowers under the same treatment than any of the others named.

THE BEST SOIL for pot Roses is a sound mellow loam that contains a good proportion of fibre. With a soil of this description, manure of any kind is unnecessary. In fact, it will do more harm than good, as it quickly gets exhausted of the nutriment it contains, and then it gets pasty and sour, and retains much more moisture than is good for the roots. If the loam should be in any way tenacious, a little coarse sand or road grit will be useful to keep it open, and it should be moderately dry when used. No time should be lost in now getting the plants home and potted; 7-inch pots will be large enough for the first year. These should be quite clean and carefully crocked, remembering that half a dozen pieces of crocks well placed will as effectually drain a pot of this size as double the number of pieces carelessly dropped into the pot. Before the plants are potted, the roots should be examined; any that have been injured in taking them up should have the injured part cut away, and any long straggling roots may be shortened back. When potting, care should be taken that the collar of the plant is placed just under the surface of the soil, and that the latter be firmly pressed round the roots. The branches should not be pruned before the beginning of February, when they may all be cut back to within three or four buds of the stem.

A COLD PIT OR FRAME will be the best place for them until the end of March, as it is desirable not to expose the plants to severe frost. As a matter of course, the soil must be kept moist all winter, and, as roots begin to make growth in spring, increased quantities of water will be required. If a light brick pit can be devoted to them, they may remain in it until they come into flower, or they may have a light and airy position in a cool greenhouse. In whatever structure they may be grown, they will be benefited by being syringed night and morning, and if aphides make their appearance, they must be fumigated to destroy them. If mildew should attack the leaves, a little flowers of sulphur sprinkled on the affected parts will kill it. A full crop of flowers must not be expected the first season; therefore, as soon as the first lot fades, the plants should be first hardened off and then taken to a sunny border out of doors, and the pots plunged to their rims in the earth. In this position they may remain all the summer, care being taken that the roots do not suffer from want of water; and if they can have liquid manure in any form, it will be better for them than clear water. If the plants are to be kept in pots which do not exceed 8 inches in diameter, they ought to remain in the pots in which they were first placed until they have completed the second season's growth; and as plants large enough to produce a tolerable crop of flowers can be had in 8-inch pots and kept in good condition in them by being annually repotted, such plants are more useful to many cultivators than larger specimens. However, there is no reason why they should not be shifted into larger pots from time to time, as they get large enough, until they reach pots 14 inches or 16 inches in diameter. In pots of this size large and handsome specimens can be grown. If the plants are to be forced into flower in a temperature higher than that of an ordinary greenhouse, the repotting or shifting must be done early in August; but if they are to come into flower in a cool house, repotting may be deferred a month later. In dealing with those in 8-inch pots, about two-thirds of the old soil should be shaken away from the roots every year, and fresh material should be added in its place; but when dealing with larger plants, which are to have more root room, only half of the old soil should be shaken away from the roots, as too much root disturbance in their case is not desirable. By shaking away half of the old soil every year, it is quite possible to keep Roses in pots healthy and vigorous for about twenty years, if, during the growing season, the roots are nourished with some stimulating liquid.

PRUNING must be always in accordance with the time when the plants are wanted to be in flower. If wanted to bloom in March they must be pruned in November; but if they are to flower in a cool house, they need not be pruned until the end of the year. If the plants are to be confined to 8-inch pots, they will require to be cut back to within two or three buds of the old wood every year; but if larger pots are used, and plants in proportion, 6 inches or 8 inches of young wood may be left for the first few years, until they have reached nearly to the height required. Almost all Roses make an effort to renew themselves every year by sending out from the crown one or more strong shoots; these must be preserved by cutting them down at pruning time to within 12 inches of the pot, and if the branches are crowded, one of the oldest should be cut out to make room for the young ones. This appears to be Nature's way of proceeding, and those who grow Roses in pots will do well to preserve these young

shoots, as they are the means by which old plants are supplied with young and vigorous branches. J. C. C.

**New Roses.**—The following are being distributed in Lyons, viz.: Tea Marquise de Vivens (Dubreuil).—Buds large and beautiful in shape; very bright dark rose, edged with yellowish white outside of the petals, white slightly yellowish; semi-double, and a free bloomer. Its chief merit is being very fine in the bud state before expanding. Tea Comtesse de Frigneuse (Guillot).—Good in shape, medium size, nearly full, and a free bloomer; very bright pure yellow. Tea Souvenir de Hélène Lambert (Gonod).—Flowers full yellowish pink, centre darker; medium size. Tea Souvenir l'Amiral Courbet (Pernet). Medium size; tolerably double dark rose; not very vigorous. Tea Madame David (Pernet).—Flowers large; delicate rose, sometimes shaded with light salmon, and edged with white; vigorous. Tea Edmond de Biauzat (Levet).—Flower large, full, globular in shape; light vivid rose. Tea Claudius Levet (Levet).—Flowers large, full, globular in shape, light vivid rose. Tea Claudius Levet (Levet).—Flowers large, dark rose, edged with a darker colour, centre slightly yellowish; vigorous. Tea Marguerite Ramet (Levet).—Flowers large, full, good in shape; fine vivid rose, centre lighter and slightly shaded with light crimson; vigorous, and a free bloomer. Tea Souvenir de Victor Hugo (Bonnaire).—A good-sized, full, finely-shaped flower; vivid pink, slightly edged with yellowish-white, centre yellowish; a very abundant bloomer. Hybrid Perpetual Rosieriste Chauvry (Gonod).—Flowers large, full, finely shaped, and nearly globular; colour light vivid crimson; free bloomer. Hybrid Perpetual Souvenir de Victor Hugo (Pernet).—Flowers large, nearly full, and globular; brilliant light rose; vigorous, and a free bloomer. Hybrid Perpetual Clara Cochet (Lacharme).—Flowers very large, globular in shape, full, and brilliant colour rose, with a darker centre. Dwarf Perpetual Polyantha floribunda (Dubreuil).—Flowers of the size of those of Anne Marie de Montravel; delicate rose, shaded white, very full; trusses large; an abundant bloomer. Hybrid Perpetual Polyantha Max. Singer (Lacharme).—Very vigorous; flowers large for this class of Rose, being equal in size with those of Hybrid Bourbon Hermosa; colour bright dark cherry-red, or light bright crimson; free bloomer.—JEAN SISLEY, *Monplaisir, Lyons.*

### GARDEN WALKS.

THE general appearance of any place depends materially on the way in which the garden walks have been laid out and made in the first instance, and also on the condition in which they are afterwards kept. Walks improperly made continually wear into holes, the result of one part being less solid than another, and consequently certain to subside under a weight of rain water or a heavy roller. Such holes remain full of water in rainy weather, and it is impossible to repair them with any degree of satisfaction, or at least to present the same appearance as would have been effected had a uniform solidity been insured throughout at first. In this operation, as in practically all others, a proper system must be adopted and worked upon. Workmen are apt to trust too much to their eye in guiding them in matters relating to the levelling of ground or gravel, but this by itself is invariably misleading. Gravel walks, if properly made, are admitted to be somewhat expensive; yet if they are to be reconstructed, it is most important that the work should be properly executed, if only a part at a time, in preference to half doing the whole at once, and securing at best but an unsatisfactory result. Into the question as to whether there are not other materials besides gravel equally well suited for the surface of walks it is not intended here to enter; suffice it to say that there are no end of new walks being formed and others being remade, and gravel is the material used.



An essential condition in walk-making is to arrange the levels so that the water shall be able to pass away readily. In some cases this is easily accomplished by the natural disposition of the land, while in others where the surface is nearly flat great care and forethought are necessary from the commencement. Whether the walks are in the flower garden, pleasure-ground, or kitchen garden is of little importance; the same principles as regards their construction must be applied. These are briefly the levelling of the two edges so that both correspond as nearly as possible in any rise or fall throughout the entire length. Secondly, the insertion of a drain, or another provision according to circumstances, for conducting the water away after it has collected in the catch-pits. These latter must be situated at the lowest points available, or, should the walk be of considerable length and on a continuous fall, one at about every 30 yards or 40 yards will suffice. Various methods have to be adopted for disposing of the water which thus accumulates. The best plan is to insert a drain, if a suitable outlet can be obtained, the full length of the walk, and have a junction connected with the catch-pits on either side. Some place the drain in the centre, and others select one of the sides. In the former position, unless strong pipes are used, and they are put some 2 feet or 3 feet deep, there is danger of a heavy roller crushing some of them.

The ordinary levelling instruments necessary are a set of boning rods, a straight-edge about 12 feet long, which should be made from a strip of wood not likely to warp readily, and a spirit level, with the tube properly fixed in a separate piece of solid wood in preference to a part of the straight-edge itself. At the commencement two fixed points are requisite, one being at the highest and the other at the lowest end, if this is practicable. At times several undulations of greater or less depth will cause the adoption of special levelling arrangements to insure drainage. Verges or edges, as the case may be, require to be put at the proper level and in the proper position before the walk itself is commenced. It is surprising what a difference is observable in a walk after the work is finished, when both it and the edges have been properly levelled and the necessary fall made equal throughout, compared with one badly made. The height of the two ends being fixed, strong wooden pegs should be placed 10 feet apart as guides, their proper heights being ascertained by the use of boning rods. To make safe it is also advisable to test the pegs afterwards with the straight-edge and spirit level, as one 10-foot length should show the same fall as another by the air bubble. To insure firm edges they should be made up with fairly dry workable soil, well trodden and rammed some 3 inches further on either side into the walk than what is meant to be left eventually. If the ground admits it is best to have both verges or edges on the same level. This may readily be obtained by making the end or main points the same, and working the interval from them in the way already described.

Assuming that a walk 10 feet or 12 feet wide has to be made and that the two edges are properly prepared, the intervening space if composed of soil should be excavated to a depth of from 9 inches to 12 inches. Into the bottom some 6 inches thick of old bricks, clinkers, or similar material should be laid and the centre part always kept somewhat higher than the edges. A row of level pegs should then be driven in 10 feet apart through the centre, their proper level being obtained in precisely the same way as for the edges. They are meant to indicate the height of the walk in the centre when finished. In order that rain water may be conducted to

the sides and from thence into the drains, it is most important that the centre of any walk should be kept sufficiently high for that purpose, while not being elevated so much as to make walking uncomfortable. It would be a glaring fault in a newly-made walk to see puddles of water lodging in its centre, and nothing is surer as a test of workmanship in walk-making than a heavy shower. It may be taken as a general rule that walks less than 10 feet wide and with a fall lengthways will be safe if their centres are on a dead level with the verge or edge, the surface being made to slope to nearly 2 inches below this at the edge. The centres of 10-foot walks should be raised 1 inch; 12 feet, 1½ inches, and at least ¾-inch rise should be allowed for every 3 feet width above this. A depth of nearly 2 inches should show at the verges in each case, a level at which the gratings may also be fixed.

Above the layer of bricks or clinkers already referred to some rough ballast should be laid and thoroughly rammed all over alike. The shape of the surface should be indicated by this layer and sufficient space left for at least an inch of good gravel over the surface; 2 inches would be very much better, but such a quantity cannot always be afforded. In adding the finishing coat it is important to use only wooden rakes and place them in the hands of workmen who have an idea of how to use them in levelling the surface evenly. A spit too much or one too little will be readily detected by an experienced eye. Allowance in depth should be made for treading down and rolling and the level pegs should not be pulled up until after the surface has been trodden when the holes must be filled in and a half spit of gravel added to fill up the hollow thus caused. Treading should be practised crossways, a second rake following to take off stones and remove any inequalities left. After this a light roller should be used for the first start, and should the gravel be dry enough, a heavy one may be drawn over almost immediately after. If any part is found to cling, the heavy roller should not be used, and a little dry sand will materially assist in keeping the other clean if shaken over it when passing along. In my opinion nothing is better than to get a new walk thoroughly firm if possible before any rain comes; after this a heavy shower does a great deal of good. If rain gets into loose gravel, the latter is often not properly solidified for a long time afterwards.

Personal experience in this work is the only way of learning how to do it. Some idea may be given as to how it should be proceeded with, but this alone is insufficient, as circumstances vary so much in different places, and permanent objects at certain fixed levels have to be worked to at times, and they not unfrequently come in the way of arranging the space between, in the way that would otherwise be thought most desirable. The foregoing remarks are intended to encourage the adoption of a system of walk-making thoroughly, in preference to conducting it with the eye only as the main guide; this is a very material help certainly, but not to be depended upon wholly by itself.

J. G. K.

#### NOTES FROM QUEENSLAND.

It may possibly interest some of the readers of THE GARDEN to know a little of the aspect as well as of the flora of this colony from notes made by me in the early part of last year. I was settled for a time at Bundaberg, on the Burnett River, the seat of the sugar industry in the Mulgrave district. In this part there is a tract of 14 square miles or so of volcanic country, called the Woongarra Scrub, the soil of which

throughout is like brickdust, or red adobe, and contains very few stones. It is, nevertheless, heavily timbered, the monarch amongst trees being the Moreton Bay Fig, *Ficus macrophylla*, which grows upwards of 100 feet in height, its broad and heavy arms extending for many yards around; and the perambulating surface roots, like huge serpents, suck nourishment from a good acre of land. Its mighty buttresses stand round the trunk like so many stalls in a stable. Strong vines belonging to creeping plants, like great ropes, act as stays, and support the scrub king from the sweeping effects of tropical winds. The childhood of these trees is worth a passing remark. The seeds, carried by birds or by accident, get deposited in the hollow of some other dead or decaying stem, often upwards of 30 feet or more from the ground. There they germinate, and send forth a strong root which finds its way down the bark until it reaches the ground. This strong descending root then forms a stem, the branches of which begin to expand, and in a few years the foster-stem crumbles away and disappears. In other words, this tree always begins its existence as a parasite. I have seen other varieties of the *Ficus* tribe germinate on the ground, but never this one. Vegetation hereabouts is of a varied character, such as the Scrub Iron Wood (*Myrtus Hilli*) and Iron Bark (*Eucalyptus*), which has grand bunches of *Mistletoe* (*Loranthus pendulus*) hanging from its limbs. Here also can be found the Bird's-nest Fern (*Asplenium Nidus*), *Acrostichum spicatum*, *Platynerium alcinore* and *grande*, a l of which are parasites. Single plants of these latter would fill an ordinary sized wheelbarrow. But there is now little of this scrub left. Capitalists have got hold of it, and the axe and fire are making way for the one great industry, sugar. At Maryborough, a fine town with many handsome buildings, I sauntered into the Botanical Gardens, on the north bank of the river. This lovely garden embraces every variety of landscape, hill and dale, water and woodland, gay foliage, bold shrubberies, stately tropical plants, birds, sweet in the way of song and plumage lovely. These gardens are kept in good order, but the drought of 1883-4 created sad havoc amongst plants of more temperate climes. *Araucaria Bidwilli*, a native of this colony, and also *Cunninghamia* were doing well. It is just far enough north for the Norfolk Island Pine, *Araucaria excelsa*, to live out of doors. *Jacaranda mimosæfolia* makes a grand tropical shade tree, and bears lovely bunches of purple flowers, followed by long flat pods. *Hibiscuses* of many kinds flower beautifully here, and make bright the more sombre foliage of other shrubs when out of flower. *Oleanders* also thrive splendidly all through the colony, and are in bloom during nearly every month of the year. The *Lantanas* are dreadful weeds, and soon take possession of good ground. *Bougainvillea glabra* flowers uninterruptedly throughout the year, and *Plumbago capensis* makes a charming hedge, lovely when in flower, and it also withstands a lot of hard treatment. *Poinsettia pulcherrima* is a common garden plant hereabouts, and very gay its scarlet bracts are when backed up by dark-leaved shrubs; but the frost nips the shoots in winter, and it looks miserable from May to August. The Pampas Grass thrives to perfection, and in the form of single tufts is most striking. *Bignonia venusta* produces such a mass of deep orange flowers, as to be quite dazzling to look at. *Gardenia florida* seems to be, on the contrary, always in a bad state of health. It flowers well enough, but is kept down by brown scale. *Cupressus Lawsoniana* thrives well here, and some good specimens of it may often be met with. Of fine-foliaged plants there are the silky Oak (*Grevillea robusta*), a native, but a beautiful tree,



*Yucca aloifolia*, *Dracenas* of various sorts, and *Musa Ensete*, majestic in appearance, as seen amongst shrubs. It thrives well, as do all the Banana tribe anywhere in Queensland in good soil. Singular to say, there are very few Palms, a circumstance possibly owing to most of them liking dense shade whilst young. Some of the edgings to the flower beds were very pretty. They consisted of several varieties of *Alternanthera*, which is generally torn up into pieces and laid in like Boxwood. *Pyrethrum aureum* thrives well, and I noticed a large round bed covered with wire, about a foot from the ground, on which was trained several plants of *Allamanda Schottii*, edged with *Cineraria maritima*. This had a fine appearance, the large yellow flowers, peeping from amongst the dark green foliage, contrasting well with the white edging.

*St. Fort, Fife.*

S. F. C.

## FLOWER GARDEN.

### FOXGLOVES IN WOODLANDS.

THIS common aspect of English woodland beauty in summer is very attractive. Among all our native flowers there is not, perhaps, a more beautiful one than the common Foxglove, whether seen singly, in little groups, or in large colonies in the woods throughout the country. Our illustration is an engraving taken by the Rev. H. E. Fox, of Durham, who writes: "This scene is a narrow strip of woodland fringing the river close to this city, locally known as 'The Banks,' the property of the dean and chapter, but thrown open to the public. Little was formerly done for it—it was left as a wilderness; but of late years, mainly through the exertions of Canon Tristram, a good deal of judicious care has been shown, and it is being turned into a charming wild garden. The



Colony of Foxgloves in a wood.

Foxgloves were pricked out in an open glade on a rising bank, beautifully situated to show them off, with a dark background of trees, and were of mixed colours. Our Durham people have learnt thoroughly to appreciate what has been done for their enjoyment, and, notwithstanding the opinion expressed by a great many some years ago, hardly a flower is now touched, except by casual 'cheap trippers' from a distance, though the place is entirely open and no policemen are about. Our illustration well shows the wonderful luxuriance and beauty of the plants, though perhaps their beauty is all the greater when they do not have quite so much of their own way, when the struggle for life or other cause makes them congregate in spots, while they send out scattered groups and scouts here and there.

### RUDBECKIA NEWMANNI.

THE grandest mass of hardy flowers from one kind of plant which I have ever had was produced this year, in the shape of a plantation of this *Rudbeckia*, and it may be useful to describe how we came to have it in such quantities. Finding last year that its flowers were much valued in a cut state, I set about increasing our stock. Having a few old plants of it at the end of last October, I took them up and divided them into as many pieces as possible; but, not knowing exactly how the plant might behave under such severe handling, I reserved a few side pieces to which roots were attached, to make sure of getting a few flowers this season. The remaining pieces I pulled away from the old stool, regardless whether they had roots or not. I need not, however, have had any misgivings as to whether the rootless pieces would grow or not. Both those with roots and those without them were planted in a well-prepared piece of ground, and then left to take care of themselves. My idea was that, owing to their small size, they would require to stand one year where they were planted before they would be large enough to occupy permanent positions in the mixed borders. My judgment was, however at fault, for the

be safely recommended to become acquainted with it as soon as possible. It is one of those plants which anyone can grow who has soil of an ordinary character, and it is so hardy that frost does it no harm. The largest flowers are, however, obtained from young plants; therefore, in a general way, it is desirable to take up the plants once every three years and divide them, and either well manure the stations for them, if they must occupy the same position, or else remove them to another spot properly prepared for them. When I say that this *Rudbeckia* wants neither sticks nor ties to support its growth, and that in a strong soil the height of the plant does not exceed 2 feet, I think I have said enough to show that, hardy plant as it is, we have few tender subjects that can approach it in usefulness for late summer and autumn flowering. J. C. C.

**Late-planted bulbs.**—At one of the London auction sales I purchased a quantity of bulbs of *Scilla sibirica*, though without much hope of a good display of bloom, the season being far advanced. They were, however, not much shrivelled, and at the base of the bulbs young roots were just on the point of starting; so I at once planted them in the usual way. The result certainly justified the small outlay, inasmuch

as they prolonged the flowering season, for those that had remained in the ground were in full flower by the time the newcomers made their appearance above the surface, while these latter in their turn developed spikes of bloom nearly equal to the earlier ones. I have often planted other bulbs late in the season with a fair measure of success, but hitherto not equal to that in the case of the *Scillas* just named. One thing I have noticed with regard to late-planted bulbs is that, even if they flower well, when examined at the end of the season they are puny and exhausted-looking compared with early-planted ones. This is probably owing to support for the flower-stem being drawn directly from the bulb, without replenishment from the as yet only partially-developed

roots. Another effect of late planting is in many cases to dwarf the flower-stem, this being especially noticeable in the various *Lilies*; indeed, where grown in pots, I have seen them potted late for the express purpose of keeping them dwarf—an object which has been in the main fulfilled, but at the expense of the bulbs, that dwindled away to almost nothing by the time the flowering season was over.—H. P.

**Outdoor Chrysanthemums.**—I am interested in what Mr. Murphy has written about these (p. 585). I do not, however, quite understand how he can preserve his flowers uninjured, say into December, if the weather is frosty without the protection of some kind of coping. And where the coping is permanent, as in my case, the plants must be grown in pots in the open garden, since they would get no rain to leaf or root under the coping. If my south wall were not coped, I should certainly grow my



Chrysanthemums without pots, as Mr. Murphy describes, adding a temporary coping of some sort when the cold set in. I am sure that the one great essential in this open-air culture of Chrysanthemums is to keep the flowers perfectly dry. At the present time (Dec. 6) I have really splendid flowers of *Jardin des Plantes* and other varieties on my wall. Chrysanthemums against a south wall and under eaves during July and August in this past hot summer would certainly have been scorched to death in my climate.—G. H. ENGLEHEART, *Appleshaw, Andover.*

### HELLEBORUS LIVIDUS AND TRIFOLIUS.

AFTER Mr. Brockbank's article in *THE GARDEN* of the 21st ult. upon *Helleborus trifolius*, I think we need not pursue the history of this plant much further. The point which I first raised in *THE GARDEN*, Vol. XVII., p. 281, and at intervals since, was brought, after much discussion, to a satisfactory issue in the summer of this year. It has been shown that the plant was described and figured by Gerard, as "the wild black Hellebore," in 1597; described and figured by Aldinus as "*Helleborus niger trifolius*," in 1625; described by Parkinson as "the Trefoile prickly-leaved bastard black Hellebore or Bearesfoot," in 1640; described and figured by Newton, who adopted the names, given by Gerard and Parkinson, in 1680; described by Munting as "trifolius" in 1681, and by Mentzelius as "*Helleborus foliis trifolius*," in 1682, and described and figured as "*H. trifolius*" by Morison in 1688.

Now, although figures and excellent descriptions are given by Aldinus and by Morison, Mr. Baker explained to me that, according to the rules of nomenclature, "trifolius" being the name given by Linnaeus, must of course supersede the earlier claim on behalf of "trifolius," and "trifolius" has consequently been now generally accepted as the name of the Corsican Hellebore figured in the *Bot. Reg.*, vol. xxiv., pl. 54. Now, with regard to the other three-leaved Hellebore ("*H. lividus*" of *Bot. Mag.*, vol. ii., pl. 72), though it was not introduced until more than two hundred years after trifolius, it has disappeared from cultivation, and has not yet been recovered in its wild state; but the investigation which took place elicited the fact that a plant resembling *lividus* had been in the Chelsea Garden, and from this, I believe, Sweet's plate was taken. Then Mr. Baker, who most kindly assisted in the search, discovered a dried specimen at Kew, in Forsyth's herbarium, labelled "Nice."

I have myself a remembrance of such a plant fifty years ago in the garden of a well-known botanist, the Rev. J. T. Huntley, of Kimbolton; but within the last week I have most valuable information, from the very highest authority, that about the same time the true *lividus* grew in the Botanic Garden of Trinity College, Dublin. Mr. Burbidge has kindly allowed me to make use of his letter, which is as follows:—

"Now, as to *Helleborus lividus*. Some time ago I had a bundle of letters sent to me, and among them some from the late Dr. Mackay, the first curator of Trinity College Botanic Gardens, Dublin, interested me very much. In one is a list of desiderata, and among other plants which he wishes to obtain is *H. lividus*; there is only the bare name in the list, but it attracted my notice after what yourself and other friends had written. So one evening when Mr. John Bain came in to see me, I showed him the name, and asked him if he remembered the plant; he at once described the plant as a very pretty one, quite different from the large *H. argutifolius* (now *H. trifolius*). Indeed his description convinced me that he had seen the true plant, his ideas of flower, habit, and foliage being most accurate. After he had kindly given

his account of the plant, I brought out the *Botanical Magazine* and turned to the plate of *H. lividus* therein, which he at once recognised as the plant of which he had so good a recollection. The only thing he did not like about the figure was the leaves. Mr. Bain was assistant curator here in Dr. Mackay's time, and with the highest cultural abilities possessed, moreover, accurate botanical knowledge. After Dr. Mackay's death, Mr. Bain succeeded to the curatorship. I am fully convinced of two things: first, that the late Rev. Mr. Ellacombe, then of Bitton, grew the true *H. lividus*; and secondly, that from his garden it came to that of Trinity College, Dublin. Thirdly, I am sorry to add that it does not exist here now. It is very curious that the habitat of the true *H. lividus* is lost, but it is sure to turn up sooner or later."

I will not add a word that might distract attention from Mr. Burbidge's recital.

South Devon.

T. H. ARCHER-HIND.

**Sir Watkin Peerless Narcissus.**—Surely our good friend, Mr. Frank Miles, has taken up a wrong cue (p. 584), since I am not aware that Mr. Engleheart ever suggested that this variety was raised by Herbert. Besides, it is now well known that Sir Watkin existed in Wales for years before Mr. Pickstone was born! I do not mean as a wild, but as a cultivated plant in old gardens! When or whence it came to Wales no one now knows. Mr. Miles's seedling *N. moschatus* with a reflexed perianth is something wonderful, and a plant long wanted by those learned in Daffodils.—LEX.

**Salvia Pitcheri.**—With us in Somerset this plant has stood in the open borders for these past three years, and every year it increases in vigour, and proves to be capable of enduring cold much better than its appearance would indicate. Although this autumn it has passed through some sharp frosts and a week of cold, foggy weather, and is now at the end of November in good condition, I cannot say that it is a striking plant, but its spikes of lovely blue flowers are certainly valuable at this time of year.—J. C. C.

**Veronica Andersoni** is a most useful plant for supplying cut flowers late in autumn and early in winter; on the south coast it attains the dimensions of a good sized shrub. I find that if planted in a sunny position, where the young growths get well hardened by exposure, it is much more floriferous than in partially shaded positions, where it grows more luxuriantly, but flowers less. We have some old bushes of it planted close to some glasshouses, where they get the full force of the sun's rays, and the benefit of the reflected heat as well, and they continue to flower all through the winter, except during exceptionally severe visitations of frost. Those who have not given this useful plant a trial should lose no time in doing so, as in localities where it is too cold to trust such plants out of doors all winter they are most useful lifted and placed under glass during the coldest months. There they will produce their pretty spikes of flowers freely during the period when cut flowers are in most request, and that without the aid of artificial heat.—J. G., *Hants.*

—*Veronica Andersoni* may, with a good deal of truth, be described as a perpetual flowering plant, for when we get a mild winter it remains in flower the whole of the year. It is during autumn and winter, however, that it produces the greatest number of flowers; and, as a matter of course, they are more valued than at any other time. Here, in Somerset, it was in flower the whole of last winter, and I should not like to mention the number of flower-spikes that we have cut from two large bushes of it growing in the open. Considerable numbers were, however, cut two or three times every week, and what enhances their value so much is that they can be cut with any length of stem one wants. The foliage, too, being thick and shining is a great advantage, as it lasts in a fresh condition long after it is cut. This *Veronica* sends out spikes of flowers from the axils of the leaves, a circumstance which adds to

its attraction in a cut state. As the first flowers open with a purplish shade, and fade to nearly white, there are two distinct colours on each well developed spike. Even after enduring 10° or 12° of frost, it will go on flowering again should a few mild days set in. It can be increased by means of cuttings made of the young wood as readily as *Pelargoniums* during the summer months. With a cone of ashes laid over the roots, and the branches wrapped in two or three thicknesses of old mats just when severe frost sets in, it will pass safely through even a severe winter.—J. C. C.

**Acacia vestita.**—This is the name of an *Acacia* specimens of which have been sent to us by "R. B." from a plant that has been growing in a conservatory for these thirty years. It is stated to have a stem 9 inches round from the ground to the roof, and a curious bark like hippopotamus leather. Its beautiful golden balls of flowers hang a yard long from the roof downwards, and it is also most handsome on account of its soft glaucous foliage. It was introduced into English gardens about forty years ago, and is figured in the *Botanical Register*, t. 698. Still we have not met with it anywhere among cultivated *Acacias*; it is not included among those in cultivation at Kew, where over a hundred species are represented. As a companion to *A. Riceana*, from which it is, however, widely different, except in habit, *A. vestita* deserves to become better known. Its position, botanically, is near *A. cultriformis* and *A. pravissima*.

### BLUE LOBELIAS.

WHERE summer bedding is still followed blue *Lobelias* are indispensable, being dwarf and compact in habit, and flowering continuously for months together. There are several varieties, or selections from what used to be called *Lobelia speciosa*, differing more or less in shades of blue, some being adapted for carpet bedding, others for ribbon borders, while others of more robust growth are especially valuable for vases and mixed boxes or baskets. There are various ways of getting up a stock of this useful plant, but in order to obtain plants of uniform character there can be no question that growing them from cuttings or divisions of the old plants is the best way; while seedlings, being more robust in growth, come in usefully for mixed beds and arrangements. For cuttings or for divisions we mark the best plants in summer, and about the end of August cut the bloom off, in order to concentrate the strength of the plants in the production of growing shoots. In October, when the beds are cleared, they will be found to have developed a regular tuft of shoots, and may be lifted carefully with a ball of earth and put into pots or boxes, or if large quantities are required, we plant them in cold frames, as they succeed admirably under exactly the same conditions as those that suit yellow *Calceolarias*, viz., a moist, cool atmosphere, with external covering to exclude frost. Cuttings may be taken off in February, and, under ordinary care, they strike as freely as those of any plant with which I am acquainted; if, however, plenty of old plants have been saved, the most expeditious way of getting up a stock is to take up the plants, pull them into as many pieces as may be required, and replant them in frames, keeping them close until they have become well rooted; they may then be freely ventilated to keep them as dwarf and hardy as possible. Whether, however, raised from cuttings or division, the main point, in order to ensure dense tufts of bloom, is frequent stopping, so as to prevent the plants wasting their energy in the production of flowers before they are required. If raised from seed, autumn sowing is decidedly preferable to spring, as by it time to grow them on gently in a cool temperature is obtained, and by frequent stopping bushy little plants by May is the result; whereas, if sown in spring in heat, they must



be kept in a fairly high temperature, in order to have them of the required size by May. Sowing requires great care, for the seeds being very minute spread evenly on the surface with difficulty. I find pots or boxes, filled with fine soil and coated with white sand, to answer well. Give them a good watering before sowing, and cover the seed thinly with sand, over which place a sheet of glass and set the pots in a warm house or frame until the young seedlings appear, when they may be transferred to cold pits. When the young plants are large enough to handle, plant them out in frames or boxes, and treat them exactly the same, as regards pinching and general routine work, as plants raised by means of division or cuttings. They will repay good culture by the striking display of bloom which they produce. J. GROOM.

Gosport.

### THE JAPANESE HOP.

(HUMULUS JAPONICUS.)

THIS was, by old authors, included under *H. Lupulus*, the common Hop, and considered by them to be synonymous with that species. As an ornamental twining plant it is much the same as the common Hop, though entirely wanting in



Japanese Hop (*Humulus japonicus*).

that which makes the Hop so valuable commercially. It is therefore well for Hop growers that botanists have seen fit to keep it distinct. The scales in *H. japonicus* are much smaller than those of the ordinary Hop, and not papery in texture, as in *H. Lupulus*. The uses to which Hop plants may be put in gardens are numerous. For covering old buildings, outhouses, rustic pillars, and summer-houses, few plants are better adapted or of quicker growth. *H. japonicus*, like *H. Lupulus*, is a perennial, and when once fairly established gives little or no trouble beyond clearing away dead refuse from it in autumn. As represented in the annexed illustration, trained up straight poles, nothing in the way of twining plants could be more effective. Scrambling, too, over a few tree roots thrown carelessly in a heap, or tumbling in graceful festoons from a verandah, few plants look better. One advantage the Japanese kind has over the common Hop, and that is, it has slightly larger bunches or heads of flowers, thus making it a little more attractive as a garden plant. It is remarkable that in this, as in many other twining (not climbing) plants, the mode of growth is always in one particular direction, though twining plants as a whole do not always twine in the same way; for instance, the Black Bryony, *Tamus communis*, Honey-suckle, Hop, and others go with the sun from right to left, or from east to west by south, while

many more, such as the Scarlet Runner, *Convolvulus*, many Leguminous plants, &c., go the contrary way. It flowers with us in October. Messrs. Haage and Schmidt, of Erfurt, are now distributing this new Japanese plant. K.

### NOTES ON THE CHRYSANTHEMUM.

CULTIVATORS of this queen of autumn flowers and others desirous of becoming growers of it will now be forming collections of it for the coming season, and will doubtless be anxious to know what new varieties they may add with safety to kinds which they already possess. As regards myself, I have made up my mind to grow kinds only that I know to be really good, or such as may be recommended to me by growers on whom I can depend. The following selection of varieties from all sections will, I know, prove satisfactory, and repay any trouble that may be bestowed on them:—

#### REFLEXED VARIETIES.

Cullingfordi	Golden Christine
King of Crimsons	Pink Christine
Madame Madeleine Tezier	Mrs. Forsyth
Cloth of Gold	Chevalier Domage
Dr. Sharpe	Phidias
Distinction	Emperor of China

#### DECORATIVE VARIETIES.

Flocon de Neige	Tendresse
Lady Selborne	George Glenny
James Salter	Mrs. Dixon
La Nymphe	Mrs. G. Rundle
M. Henri Jacotot	Dr. Sharpe
M. Moussilac	Cullingfordi
Simon Delaux	King of Crimsons
Triomphe du Nord	Aureum multiflorum
George Gordon	Flambeau
L'Or du Rhin	Margot

#### BEST TWELVE JAPANESE.

Belle Pauline	Baron de Prailly
Mdme. C. Audiguier	Golden Dragon
Fair Maid of Guernsey	Mdme. Lacroix
Meg Merrilies	Boule d'Or
Jeanne Delaux	Val d'Andorre
Criterion	Margaret Marrouch

#### BEST TWELVE INCURVED.

Lord Alcester	Golden Queen of England
Empress of India	Jeanne d'Arc
Queen of England	Princess of Wales
Golden Empress	Hero of Stoke Newington
Alfred Salter	Jardin des Plantes
Prince Alfred	Princess of Teck

#### ANEMONE VARIETIES.

Lady Margaret	Minnie Chaté
Fleur de Marie	Mrs. Pethers
Gluck	Empress
Acquisition	Georges Sand

#### JAPANESE ANEMONE.

Fabias de Maderanaz	Sœur Dorothee Souille
Mdme. Cabrol	Mdme. Bertha Pigmy
Madame Clos	Souvenir de l'Ardenne

#### POMPONS.

President	La Pucelle
Black Douglas	Lizzie Holmes
Mdme. Marthe	Nelly Rainford
Golden Mdme. Marthe	Rosinante
Marabout	Pygmalion
Adèle Prosette	Toussaint Maurisot

#### ANEMONE POMPONS.

Mr. Astie	Regulus
Antonius	Marie Stuart
Madame Montels	Calliope
Queen of Anemones	Marguerite de Coi

#### THIRTY JAPANESE VARIETIES.

Belle Pauline	Hiver Fleuri
Mdme. C. Audiguier	Triomphe de la Rue du
Fair Maid of Guernsey	Châleot
Meg Merrilies	M. Burnet
Baron de Prailly	Elaine
Jeanne Delaux	M. Astorg
Margaret Marrouch	Balmoreau
Criterion	Bouquet Fait
Val d'Andorre	Duchess of Albany (Jackson)
Mdme. de Sevin	Grandiflora
Golden Dragon	Japonaise
Mdme. Lacroix	M. Ardenne
Comte de Germiny	Soleil Levant
Boule d'Or	Thunberg
Peter the Great	Mons. Tarin
Fernand Féral	

#### THIRTY INCURVED VARIETIES.

Lord Alcester	Lady Carey
Empress of India	Barbara
Golden Empress	Empress Eugénie
Queen of England	Miss Mary Morgan
Golden Queen of England	Jeanne d'Arc
Alfred Salter	Baron Beust
John Salter	Cherub
Prince Alfred	Lady Hardinge
Lord Wolsley	Mrs. W. Shipman
Princess of Wales	Mr. Bunn
Mrs. Heale	Princess Beatrice
Jardin des Plantes	White Venus
Hero of Stoke Newington	Prince of Wales
Refuge	Nil Desperandum
Princess of Teck	Mr. Brumles

NEW VARIETIES.—Cullingfordi—This I look upon as likely to take a very high position, its colour being so rich; its flowers are truly reflexed, of great depth and substance, and under good cultivation its blooms will doubtless be freely produced. Mdme. Madeleine Tezier—This was sent to me last spring for trial by Messrs. Laing, of Forest Hill; it is a valuable addition to the reflexed class. It is white, delicately tinted with blush, which gets heavier as it approaches the bottom of the petals. Marguerite Villageoise—This was also sent to me by Messrs. Laing. It is a good addition to the Anemone Japanese class, being a fine, full-centred flower, and free in the way of growth. It is deep lilac, tipped with a much lighter shade.

In the Japanese section, in which the largest number of new kinds has been produced, the following are quite the best: Belle Pauline, a large, full bloom, with flat, long, drooping florets, white, clearly margined with deep lilac. This is a great acquisition, and sure to become much appreciated, being very vigorous in constitution. Val d'Andorre, a full flower, with long, reflexed florets, orange-red shaded with gold. This should be in every collection, whether grown for exhibition or home decoration. Very fine blooms of it can be produced on plants from 2 feet to 3 feet high; hence its value. L'Adorable—This resembles the preceding in style of growth and the shape of the flowers; the latter are of large size, and dark canary yellow in colour. Maiden's Blush—This has received two first-class certificates during the season; it is a large, full flower of a pleasing shade of colour, viz., blush white. Fernand Féral—This is one of last year's Continental varieties; it is a very fine, early blooming kind, the florets of which are slightly spiral and of a delicate lilac-rose. Madame Laing—This was shown extra well by Messrs. J. Laing at the Crystal Palace Exhibition in November last. Its colour is white, deeply tinged with blush, and the florets are broad and flat. L'Ebouriffée—This was shown in good condition by Messrs. Cannell at the National Society's Chrysanthemum Show. In shape it somewhat resembles Criterion. It is a large flower of a bronzy gold colour. Mdme. de Sevin—This is amaranth-magenta, a colour much admired and a step in quite a new direction. The flowers stand well above the foliage, and are very deep in form. It is a sort that is sure, when better known, to be much sought after for grouping. M. Astorg—This produces flowers of a very graceful habit, the florets drooping in an elegant manner, and quite different from the general style of Elaine, a variety which it somewhat resembles. When fully expanded it is nearly white.

No additions have been made to the incurved section, if I except the sport from Queen of England called Bronze Queen, so named on account of its colour. I regard this as a great acquisition; it promises to be quite as good as its parent in size and quality, and what more could be required, Queen of England being immensely popular? It is a variety which can always be depended upon for producing blooms



of high class quality. It was raised by Messrs. Carter, High Holborn, by whom it will be distributed, i.e., if it remains steadfast another year.

The Japanese varieties appear to claim most favour, especially the *Anemone* Japanese section. *Anemone* Pompons are also very much appreciated in a cut state for vase decoration; when grown in bunches and not disbudded, their colours are very variable and decided. Single *Chrysanthemums* should be oftener met with than they are, seeing that they are so well adapted for filling vases intermixed with other flowers, or even with Fern fronds. New varieties possessing brighter colours than those already in cultivation are now making rapid advance, and indeed have been doing so for these last few years.

As regards systems of growing *Chrysanthemums*, they are numerous, some succeeding in one way and some in another. There is really no hard and fast line as to when to strike *Chrysanthemums*. For show blooms cuttings can be taken at any time during the present month—any time say after the 10th. January, indeed, might do equally well, a point worth knowing, as circumstances sometimes do not admit of striking cuttings at any stated time, and, moreover, cuttings cannot always be had of some varieties when wished for; still, if possible, I say take them this month, and for large specimen plants take them early in the month; they require a long season of growth, as stopping the shoots to promote dwarfness checks growth somewhat. Some think February or March early enough to take cuttings, but I am of a different opinion, for this reason, when the cuttings are struck in December the plants have, as I have said, a much longer season of growth than if struck in the early months of the year; consequently the wood is naturally better ripened, never having received a check through being struck in heat, as happens when the cuttings are put in say in February. Flowers of good quality cannot be produced on plants which have soft unripened wood; they may be large in diameter, but will be wanting in solidity, a point of more importance than mere size. Having given my reasons why propagation should be done early, I will now describe what I consider to be the best way in which to strike the cuttings.

Select strong, firm (not too sappy) cuttings from 2 inches to 3 inches long (those which come up as far away from the stem of the plant as possible are best); trim off the bottom leaves and cut the shoot clean across just below a joint; prepare a sufficient number of clean 2½-inch pots, or what are commonly called thumb; at the bottom of each place one crock and a small piece of rough soil or partly decayed leaves; fill the pots up with soil consisting of loam, leaf-soil and silver sand in about equal proportions; on this lay a little sand and dibble the cuttings in singly in each pot, pressing them firmly in the soil; give them a gentle watering to settle the soil around them and place them under a handlight in a cool house; place in the handlight or frame some ashes whereon to stand the pots; keep the lights closed except for an hour every morning, when they should be taken off and all condensed moisture allowed to dry up; then replace the lights, repeating the operation every morning. Very little water will be required until they are rooted, which will be in about three or four weeks according as the variety is a strong or a weak grower. As soon as they show signs of rooting give air by tilting the lights a little; this will prevent them becoming drawn, and as soon as thoroughly rooted remove the lights altogether. The best position for them then is on a shelf close to the glass in a cool house. Water carefully and give air freely to prevent them

from getting in any way weak or drawn; neglect at this stage cripples the plants for ever. A good beginning goes a long way towards effecting a successful finish. Flowers of the best quality cannot be obtained if the plants are in any way coddled or crippled during their early stages of growth.

E. MOLYNEUX.

Swanmore Park, Bishop's Waltham.

**Grouping Chrysanthemums.**—"A. D.'s" remarks upon grouping *Chrysanthemums* (p. 560) coincide exactly with my own ideas of the way in which they should be grown and grouped. At the Bristol *Chrysanthemum* Show just lately it was painful to see the way in which the plants were grown and twisted into shape, somewhat resembling a huge Cauliflower. I am surprised that societies do not abolish the flat, pancake form of growing *Chrysanthemums* altogether, and encourage a more natural plan of growing them, one that would be useful alike in the conservatory and on the exhibition table. There were three or four groups of *Chrysanthemums* exhibited at the show in question trained erect, and these were good and pleasing to look at compared with the abortions just alluded to.—T. M. M., Yate.

**How to save Chrysanthemum seed.**—In Vol. V. of THE GARDEN (p. 304) is an account of a branch of *Berberis japonica* which had been cut in February and placed in a bottle of water, and had eventually borne berries in the April following which apparently contained good seeds. This specimen was shown to the floral committee of the Royal Horticultural Society. "In connection with this fact Mr. A. Salter informed the committee that nearly all the *Chrysanthemum* seed from which he and his father, Mr. J. Salter, of the Versailles Nursery, Hammersmith, raised the many fine varieties of this valuable winter blooming flower, for which they became so justly celebrated, was ripened by them on carefully crossed and hybridised (*sic*) flower-heads cut from the plant, and placed in jars of water, where they often took three months to ripen perfectly and thoroughly, a circumstance which could not be depended on if the stems were left on the plants where they usually damped off without ripening any seed." Perhaps Mr. Alfred Salter will oblige us by now corroborating this statement as proving, beyond a doubt, that *Chrysanthemum* seed really can be obtained from home-grown plants in England. At any rate, this is a plan easily tried by all interested in *Chrysanthemum* culture, and I hope this paragraph may meet the eye of Dr. Walcot, of Mr. John Thorpe, and of Mr. Forsyth (late of Stoke Newington), now in Australia, and still a cultivator of the queen of autumn.—F. W. B.

**Chrysanthemums at Holmbury.**—By the kind permission of Mr. F. Leveson-Gower, the gardens at Holmbury were thrown open to the public from the 3rd to the 10th inst., for the purpose of giving lovers of flowers an opportunity of viewing the excellent collection of *Chrysanthemums* annually grown there. The collection consists of some hundreds of plants, including many of the best old varieties and some excellent new kinds. Altogether, the show was an extremely interesting one. All classes of this favourite flower were well represented, and the plants, which were in three houses, were tastefully arranged.—C. D.

**Cardamine pratensis fl. pl.**—This plant is worth carefully observing at this season. It frequently happens that its leaves on falling to the ground, and whilst still attached to the plant, put out rootlets from the midrib and small shoots from the upper side, thus producing new plants. In one clump I noticed to-day some dozens of new plants just rooted in this manner. It is a curious fact, I believe, that this does not occur with the single variety, but only with the double form of the Cuckoo flower. W. BROCKBANK.

**Mr. Miles's hybrid reflexing Daffodil.**—I hope Mr. Miles will kindly give us the full history and a sketch of his hybrid between *Narcissus triandrus* and *N. moschatos* which he incidentally mentions in his postscript, p. 584. At least one such "reflexing Daffodil" was known so long ago as 1623,

but has probably been lost long ago. This last Haworth called *N. minor cyclamineus*, and he never saw it alive, but quotes the figure in Rudbeck's "Theatrum Floræ." This old kind would, however, seem to have been smaller and of a deeper yellow than is that Mr. Miles refers to in his note.—F. W. B.

## GARDEN FLORA.

### PLATE 522.

#### THE GENUS OROBUS.\*

In this genus (now amalgamated with that of *Lathyrus*, though differing from that genus as well as from the *Vicias* in having no tendrils to the leaves, and chiefly in not being of a climbing habit of growth) we have very many really useful garden plants. All the species enumerated below are of perennial duration and perfectly hardy in this country, the only difficulty being that a few of them produce their flowers before the late spring frosts and easterly winds have left us; the damage done in this way is, however, of comparatively rare occurrence, and does not happen at all in sheltered localities or positions. Many of the *Orobuses* are common in gardens, where they are used effectively, both in mixed borders and on rockeries, and we hope yet to see a greater number of them than there is at present established in the wild garden, where their handsome flowers and delicate green young foliage



*Orobus lathyroides*.

would be especially welcome, associated with Daffodils and Crocuses in the early spring months. Although they prefer a deep rich soil, and are all the better for a little attention bestowed on them, they flower with a freedom in the ordinary mixed border almost unequalled by that of any other spring flower. In low-lying localities, or where late spring frosts are severe, or where shelter from easterly winds is meagre, they may be grown with safety round the edges of shrubberies having west or southern exposure. This, however, only applies to vernus and its varieties; the others generally flower when all danger is past. Vernus and its varieties are now being largely used for forcing; they stand heat well, and may thus be had in flower a month or more before they would be in bloom in the open. It must, however, be borne in mind that plants for forcing should be established in pots in autumn, as lifting and potting just about the time when they are required for the forcing house impairs their value. Our plan is to get them well established in 8-inch pots in autumn, filling the pots with their crowns, and depending for stimulants principally on liquid manure. In this way, we have always managed to have a good show of the Vernal Vetch; the white variety is particularly handsome and useful for this purpose; therefore it and the variety cyaneus

\* *O. cyaneus*, here represented, was drawn in Messrs. Paul & Sons' nursery, Brockbourne, in June.





OROBUS CANESCENS.







should be the two principal kinds used where space is limited. In the wild garden, where good sized clumps or patches will be required for effect, the ground should be cleared of Couch Grass and other weeds. It should be simply dug a spit deep and the *Orobuses* planted from 1 foot to 2 feet apart; if doing well, they will be found to almost meet when full grown. Most of the species ripen seed in this country, and this, rather than division or offsets, should be taken advantage of to increase them, as I find, where possible, it is always best not to disturb them at the root and even when digging the borders in spring in which they are growing care should be taken not to disturb them. Where seeds are



*Orobus luteus.*

not required, the pods should be left on the plants, as when blown about by autumn winds their rustling noise is not unpleasant.

*O. CANESCENS*, the subject of the annexed plate, is one of the freest flowering species belonging to this genus. It differs from all other Bitter Vetches in its style being dilated upwards, and approaches nearer to *Lathyrus* than any of them. It was introduced many years ago by Mr. Fischer, of Gottingen, and flowered first in the Botanic Garden, Glasgow. It flowers later than the spring Vetch, and is considerably more useful as an outdoor plant, blossoming, as it does, just at a time when the particular tint of its large and beautiful



*Orobus flaccidus.*

flowers is scarce both on the rockery and in the mixed border. It may be forced with as great ease as *vernus* and its varieties, to which it forms a good successor. We have seen it used very effectively for edging beds in a cool conservatory. When left from year to year undisturbed it never fails to bloom in April, a month nearly before flowers appear outside. It grows from 1 foot to 18 inches high. The stems, which are square, are striated and quite glabrous. The leaves, which are almost sessile, have two or three pairs of opposite narrow sword-shaped leaflets, furnished with little or no pubescence, and therefore very inappropriately named. The flowers number from four to ten on

a stalk, which is about twice the length of the leaves. They are larger than those of any of the others and are rich purple, changing to blue when fading, and are produced in May and June. Its habitat is said to be South Europe generally, but Bentham says the central parts of the Pyrenees.

*O. LATHYROIDES*.—The upright Bitter Vetch is a vigorous species, useful in permanent borders or on rockeries. It grows from 1 foot to 2 feet in height, and throws up numerous freely-branched stems, usually with three or four racemes together, crowded with flowers of a beautiful blue colour, and lasting much longer in perfection than those of most other kinds. It makes a first-rate wild garden plant, where when once established it is quite able to take care of itself, and if left undisturbed for a few years forms dense masses, which during June and July are literally covered with its handsome flowers. It seeds freely, by which means it is easily increased. It is a native of Siberia.

*O. LUTEUS*.—This is a pretty species, but one which varies considerably. Turra states that the stem is 3 feet high and branched; Gerard, that it is simple; Haller, that it is altogether branched; and Villars, that it is simple or branched. Haller describes it as one of the handsomest of the papilionaceous tribe, a character which the plant when grown in gardens and well attended to deserves. With us it grows from 1 foot to 2 feet in height. The flowers, of which there are about twelve in each raceme, are all directed one way, and are of a pale or deep yellow colour. They are produced in June and July. This species is a native of the Alps of Switzerland, Siberia, &c. It differs but little from *O. aurantius*, *O. aureus*, and *tauricus* except in the colour of the flowers. These are all hardy and extremely useful border plants.

*O. VARIUS OR VERSICOLOR*.—The parti-coloured Vetch, as it is sometimes called, is later in flowering than *O. vernus*, to which it forms a succession. It is nearly allied to *O. angustifolius*, and seems to have been confounded with that species, although widely different, having winged stalks and branched, spreading stems, with broader leaflets and stipules than those of *angustifolius*. Miller was acquainted with it as early as 1759. It is perfectly hardy and flowers abundantly in May and June, producing about six crimson, pale yellow, and buff flowers on each cluster. It is found near Bologna, in Italy, and is readily increased by offsets.

*O. VERNUS* (the Spring Bitter Vetch).—This is, perhaps, the commonest of all our garden Vetches and perhaps the oldest, having been cultivated in this country, as appears from Parkinson, as early as 1629. It is easy to grow, takes up but little space, and besides being an extremely free bloomer when planted at intervals in the mixed border, it is wonderfully effective, as Scopoli asserts, before the arrival of the swallow. It also does well on rockeries, especially in the rough or semi-wild parts of it, where it can get a little protection from cold easterly winds and late frosts which are so prevalent in the early spring months. A deep, rich soil suits it best, as the roots go down to a considerable depth. It grows about a foot or 18 inches in height, and has a compact, bushy habit, producing numerous spikes, each being generally furnished with about five showy tri-coloured flowers, purplish and blue with a whitish keel when they first open, but gradually changing colour as they get older, finally becoming sky-blue when about to fall. They are succeeded by short pods, reddish in colour and when fully ripe quite black. The leaves, which are composed of two or three pairs of oval, pointed leaflets, are entire at the margins, and of a pretty

soft green, with nearly sagittate stipules. The variety *alba*, with pure white flowers, is chaste and beautiful, and should be in every collection, as should also the one with double flowers. The variety *cyaneus*, the flowers of which are a beautiful porcelain blue and purple, is also a desirable addition; it grows just as freely as the type, and may be planted in the ordinary border. The variety *flaccidus* has narrow flaccid leaves, but is no improvement on the type. The var. *gracilis* has narrower leaves. They are all natives of Switzerland, Germany, &c., and flower with us in the latter end of March and April.

The following kinds, where there is room, are well worth attention, viz., *O. alpestris*, a fine, free flowering kind, with purple and crimson veined flowers; *O. tuberosus*, flesh coloured changing to blue; *O. Fischeri*, with large, handsome purple flowers; *O. Jordani*, blue; *O. variegatus*, purple and variegated; *O. hirsutus*, reddish; *O. lævigatus*, pale yellow; *O. sylvaticus*, cream, streaked and tipped with purple; *O. niger*, purple; *O. flaccidus*, a species from South Europe.

D. K.

## FERNS.

### FERNS SUITABLE FOR BASKETS.

WHAT can be more attractive than a well-grown Fern in a basket, whether suspended from the roof of a cool house or stove? Ferns impart to a house a striking appearance, and often fill up gaps advantageously between the plants on the stages and the glass. The soft and beautiful green of the fronds have, even in the hottest days of summer, a cool and refreshing appearance, and growing them in baskets seems to be the only method of displaying the elegant forms of a large number of them in anything like perfection. The baskets which we use are made of galvanised wire, neat in pattern, and without all those indescribable appendages that belong to those so often seen in shops. Elaborate patterns often take up space that the soil should occupy. Having chosen the basket, proceed to line it. Sphagnum Moss we object to, it decays so soon and never looks well. In making up baskets for Polypodiums, Davallias, and Acrostichums, cut good fibrous peat into thin layers and arrange them neatly over the wires; peat is the predominating material used for filling up about the plant together with broken pieces of charcoal, sandstone, and coarse sand. For Adiantums, Nephrolepis, and Aspleniums the baskets should be lined with loam, thin turfy pieces, with the grassy side inwards. For Nephrolepis make the compost lighter by adding leaf mould, but for the other two genera good rich loam with a little dried cow manure, broken pieces of charcoal, crocks broken fine and sifted on to the mixture with a fair sprinkling of good sharp sand will answer. Planted in a mixture of this kind they make fronds of good substance, and are more easily kept moist than when put into a lighter compost.

Many baskets are greatly improved by planting over the surface small pieces of Selaginella and allowing it to grow and hang over the sides. For this purpose *S. flexuosa* may be used in the case of baskets intended for the stove, or *Asplenium flabellifolium* used in like manner has a pretty effect; the latter we grow in many of our large Orchid pots and baskets with the view of covering their sides, which it does admirably. For a cool house I know of nothing better than Selaginella Kraussiana and *S. uncinata*. The following list includes a few of the most suitable Ferns for baskets, viz.: *Acrostichum villosum*.—Stove. Mexico. *Adiantum Wagneri* (*A. decorum*).—Stove. Andes of Peru. *A.*



cuneatum.—Stove or cool house. Tropical America. *A. æthiopicum*.—Stove or cool house. Tropical and sub-temperate zones. *A. æ.* var. *assimile*.—Cool house. Australia. *A. Moorei* (*A. amabile*).—Stove. Andes of Peru. *A. tenerum* var. *farleyense*.—Stove. Mexico. *A. caudatum*.—Stove. Tropics. *A. Edgeworthii*.—Stove. Himalayas. *Aspidium triangulare*.—Cool house. West Indies. *Asplenium Belangeri*.—Stove. Malayan Islands. *A. longissimum*.—Stove. Java. *Davallia elegans*.—Stove. Tropical Asia. *D. e.* var. *dissecta*.—Stove. Asia. *D. immersa*.—Stove. Tropical and Sub-tropical Asia. *Gymnogramma schizophylla*.—Stove. Jamaica. *Nephrolepis cordifolia*.—Stove. Tropics. *N. c.* var. *pectinata*.—Stove. Tropical America. *Polypodium lachnopus*.—Stove. North India. *P. pleiosorum*.—Mexico. *P. p.* var. *appendiculatum*.—Stove. Mexico. *P. subauriculatum*.—Stove. Tropical Asia. W. H. Camb.

### HOW BARREN FERNS ARE INCREASED.

HOWEVER great the advantages from the propagation of Ferns by seed may be, there are some cases in which that mode of increasing them is practically impossible, as there are kinds permanently barren, or at least so far as plants in cultivation are concerned. As a rule we find that character mostly developed in plumose forms of different species, either British or exotic. Among the former, the most striking instance is the beautiful Welsh Polypody (*Polypodium cambricum*), which, although grown in immense quantities under very different circumstances, and subjected to various climatic conditions and influences, has never, to our knowledge, been seen bearing any fertile fronds. That characteristic is equally well illustrated in the case of the lovely undulated form of the common Hart's-tongue or *Scolopendrium vulgare* var. *crispum*, which, although grown in enormous quantities, has invariably retained from producing spores. There is, it is true, a *Scolopendrium crispum* fertile, but it is a totally different plant from this, and one which for beauty cannot compare with it. To a less degree that barren character is also exemplified in Moore's plumose form of our native Lady Fern (*Athyrium Filix-femina*), which seldom produces any spores; whereas the *A. F.-f.* plumosum of Axminster, which is less plumose, generally does. Of the former variety I have year after year carefully examined the fronds of plants growing under totally different conditions, and the result of my researches was that sometimes, but very rarely indeed, only a very limited number of spore cases were to be found—not in sufficient quantity in any case to warrant the propagation of that lovely variety from spores exclusively. The same remarks also apply to *Polystichum angulare plumosum*, which partakes of the barren character to an exactly similar degree. If a few spore cases are produced, they are generally found upon close inspection to be abortive. This absence of spores sufficiently explains the rarity of these lovely forms in our collections, as well as the comparatively high figures at which they are quoted in Fern catalogues. Their propagation is a very slow process, particularly that of the *Polystichum*, which can only be increased by offsets which are but sparingly produced at the base of the protracted trunk, and only after the plant has attained a certain age.

VARIETIES OF *ATHYRIUMS*, though also of slow propagation, are more rapidly increased, as the duplication of the crowns takes place much more readily. These may be separated in March or April, when they should be put into single pots in light, sandy soil, in which they never fail to form independent young plants during the season. They should then be kept in a cold

frame, as artificial heat is not in any way beneficial to them, and little or no water should be given until the first fronds appear, which they generally do from two to three weeks after separation when performed in March. The same mode of increase may also be employed for most of the crested, tasselled or depauperated forms of this same species, the faithful reproduction of the endless, and in some cases confusing, varieties being at least doubtful from seed. The barren forms of *Polypodium* and also of *Scolopendrium* are more plentiful for this reason, that, while in the cases just described, one must wait for the production of a sucker or of a duplicate crown, these may be, and indeed often are, propagated by division either of the underground rhizomes, small pieces of which never fail to grow if there are a couple of fronds attached to them, or division of the crowns, which are produced in greater abundance. As regards the *Scolopendriums*, all may be readily increased by dividing the stool or underground stem, with which every plant belonging to this genus when sufficiently old is provided. Cut up that portion which is below ground into small fragments, lay these in a shallow pan half filled up with crocks, and cover them with a small quantity of very sandy soil, which should be kept moderately moist. In this way a ready crop of young plants in all respects like the one from which the divisions have been obtained will be secured. A little artificial heat, such as that of a Melon bed or of an intermediate house, greatly assists the development of the young growth.

IN EXOTIC FERNS we find the same barren character affecting to a similar degree the plumose forms of different species. A popular illustration of this character is undoubtedly the beautiful *Adiantum farleyense*, which, according to some authors, should be a plumose or much enlarged form of *A. tenerum*, and, according to others one of *A. scutum* or *Ghiesbreghtii*. Whatever its pedigree may be, it was first discovered in Barbadoes by the late Mr. T. C. Daniel, of Stoodleigh, near Tiverton, who sent the original plant to England, and from this plant all those afterwards propagated were produced by division; none appear to have been raised from spores, which from time to time we have heard of as existing in various places, but have never seen.

*A. FARLEYENSE* is, as has just been stated, exclusively increased by division, and it is found to be more profitable to divide small plants than to cut up a large specimen, divisions of which take a much longer time to form plants. This Fern may be safely divided at all times of the year, provided the divisions may for a month or six weeks be kept in a warm, close place; but it is nevertheless best to perform the operation between March and August. Another barren Fern is the rare and beautiful *Lomaria discolor bipinnatifida*, a truly fine Australian Fern, and one of the most elegant for decorative purposes. It is subarborescent and apparently plumose, and bears a much closer resemblance to *L. falcata* than to *L. discolor*, to which, however, it is said to be related. Its fronds, which are produced in great abundance, spring from the crown of a short, robust stem; they measure from 18 inches to 24 inches in length, and have a peculiar arching habit, produced doubtless by the weight of the leafy portion of the fronds, which, instead of being simply pinnate like those of all other *Lomarias*, have their pinnae very closely set, so as to overlap each other. It is essentially a cool growing Fern and somewhat scarce, owing to the fact that although it produces would-be fertile fronds, having all the appearances of fructification, these never contain any spores; suckers

have therefore to be resorted to, and these are very sparingly produced from the base of the trunk and generally below the surface of the ground. These, however, if taken off when furnished with three or four fronds, but not before, and potted in a light compost containing a little decayed Sphagnum, soon make young plants which afterwards grow rapidly. In *Microlepia hirta cristata* we have a plumose and gigantic crested form from the New Hebrides, in the South Pacific Ocean. This also partakes of the barren character in as great a degree as any of the sorts above mentioned. It is a grand plant, with the spreading habit of the normal form, from which it differs materially in having its fronds heavily tasselled at their extremities, and also the rachides of the pinnae branched and sub-divided at their ends. It requires the temperature of an intermediate house in which to develop its handsome fronds to their greatest perfection, and as these often attain 4 feet in length, and are gracefully arching, owing to the weight of the massive tassels with which their summits are ornamented, it may be advantageously cultivated as a basket Fern. The propagation of this remarkable plant is effected exclusively by division of the crowns—an operation which may be performed with safety at any time of the year, as the plant is in active growth at all seasons. It has the greatest antipathy to loam, unless, indeed, it be very fibrous, and does much better in sandy peat or good leaf-mould. *Davallia fijiensis*, an ever-green plumose form of Hare's-foot, of comparatively recent introduction from the Fiji Islands, is another striking addition to the section of permanently barren Ferns. Its finely divided and beautifully glossy fronds, which grow from 2 feet to 3 feet in height, are compoundly divided, the whole of them being split up into lanceolate pinnules of a firm and durable texture and bright green colour. These are abundantly produced from creeping rhizomes, which exhibit a great dislike to being kept under ground. Therefore, its propagation, though somewhat slow, is comparatively easy, as every piece of rhizome, with a frond or two attached to it, and provided with the rudiments of roots, will, by being detached and kept close for a short time, produce young plants in all respects like the parent. This, too, has a great aversion to loam, but a little of it may be added to the peat or leaf-mould and silver sand in which it particularly seems to delight, keeping its rhizomes well above ground.

IN *NEPHROLEPIS DUFFI* we have a beautiful and distinct entirely barren Fern, a native of the Duke of York's Islands, in the South Pacific. Its fronds, which are densely crowded, grow from 15 inches to 20 inches in length, and are either slightly or heavily crested, according to the heat to which it is subjected; the higher the temperature the larger are the crests. The pinnae, which are small and produced in pairs, one overlapping the other, those above being the largest, present an arrangement entirely different from that observed in any other *Nephrolepis*. Their predominant form is semi-circular, and they are all slightly toothed at the edges. The compact, elegant habit of this Fern and its bright colour render it a desirable plant for house decoration. Its propagation is comparatively easy and rapid—a circumstance which accounts for the quantities of it to be met with in different stages of development in our markets. It produces in abundance stolons from which young plants spring up in all directions. The best way is to plant it in a bed consisting of rough fibrous peat, a little chopped Sphagnum and silver sand. In this compost the stolons should be firmly pegged down as they make their appearance, and there the young plants will root freely and grow, and can be



taken up without difficulty and put into single pots. This is by far the best way of increasing all Ferns provided with proliferous stolons.

Besides the above, there are several other exotic kinds equally barren; but as they do not possess any particularly decorative properties, they are not in such great demand, and their propagation does not, like that of the above-mentioned species and varieties, require any particular attention. S.

## INDOOR GARDEN.

### SELECT DWARF CEREUSES.

To anyone acquainted only with the tall, leafless, spine-clothed, pole-like species of *Cereus*, the cultivation of which is impracticable in all but very large gardens, and which are therefore relegated to botanical collections as plants of less beauty than singularity and ugliness, the two species here figured and described will be a surprise. There are a good number of *Cereuses* with small stems, and which bear large beautiful flowers, that might be cultivated in small houses or even in frames. Mr. Loder, of Northampton, has shown that some of the group known as *Echinocereus* may be successfully grown out of doors in sheltered sunny positions all the year round. Such large-flowered, richly-coloured species as *C. cespitosus*, *C. Fendleri*, *C. Simpsoni*, &c., may be managed on a shelf near the glass in a cool greenhouse, or in a frame with a sunny aspect, and we are certain that the flowers they will produce under this treatment would astonish those who object to all *Cactuses* because of their want of beauty. The four species here described form a little group of very dwarf-stemmed, large-flowered plants, the stems like those of *Stapelias* and the flowers as large and beautiful as single *Dahlias*. Surely such plants are deserving of a larger share of favour than they meet with from English horticulturists, though in various Continental countries they find many admirers.

**C. BERLANDIERI.**—This distinct and beautiful little *Cactus* comes to us from South Texas and Mexico, where it is not uncommon in sandy or gravelly soils on dry sunny hillsides. It forms a tuft of short branches, which spring from short procumbent stems, none of them exceeding 6 inches in length by  $\frac{1}{2}$  inch in thickness. They are almost round when old, the younger ones being slightly angled, and bearing along the ridges little tubercles crowned with spines. The flowers measure over 4 inches across the spreading petals, and are composed of a bristly tube bearing a single regular row of bright purple-coloured petals, with a disc-like cluster of stamens in the middle, which are rose-coloured, the stigma standing well above them. The form of this flower, as shown in the illustration (p. 614), suggests the flowers of *Mutisia decurrens* or one of the *Sunflowers*. This species is sometimes called *C. repens* or *C. Deppei*. It may be grown in a cool greenhouse or frame, in a position where it would get abundance of sunshine to ripen its growth and induce it to flower, which usually occurs in May or June. Exposure to all the sunlight possible and total dryness in winter, with liberal

treatment as regards soil and water in summer, are the conditions required to keep this and other cool house species of *Cereus* in health, and cause them to flower every year.

**C. LEPTACANTHUS.**—The size and form of the flowers of this species are well represented in the accompanying woodcut, whilst the colours of the petals are a deep purple-lilac on the upper half, the lower part being greenish white, forming a well-marked zone or eye, which contrasts well with the rich purple above it. The stamens are arranged in a disc, and are pure white, tipped with small orange-coloured anthers, the star-shaped style, which spreads over the stamens, being yellow. The habit of the plant is very similar to that of *C. pentaplophus*. A plant 8 inches across and 4 inches high bears about a score of short branches, and these under good cultivation will produce from four to eight flowers in a season. Each flower remains fresh upon the



Flower of *Cereus leptacanthus*. Colour, lilac-purple and white. (Natural size.)

plant about eight days, the flowering season being in May and June. It is unnecessary to speak in terms of praise of this beautiful little *Cactus*, but one cannot help feeling surprised that it has not found favour in English gardens, notwithstanding its having been introduced into Continental gardens about 1860, and there becoming a popular garden plant. Like the majority of the species of this group, *E. leptacanthus* thrives in a cool sunny greenhouse or frame, requiring only protection from frost, and, on the other hand, in summer exposure to full sunshine and air.

**C. PENTALOPHUS.**—As the name denotes, the stem of this small *Cactus* has five ridges or angles, bearing at intervals little pointed tubercles, crowned with five short white bristle-like spines. It is, however, only the young stems or branches that are thus characterised, the older ones being almost cylindrical, and without either tubercles or spines. The main stems are procumbent, and bear at right angles with them the younger upright branches, which on well-grown specimens are so numerous as to form a tuft. The flowers are about 3 inches wide, spreading, the petals

broad and overlapping, rose-coloured, except in the centre of the flower, where they are almost pure white; the anthers are yellow, whilst the large-rayed stigma is bluish in colour. The flowers are developed in summer if the plant is grown under the conditions recommended for *C. leptacanthus*. Indeed, these two species are by some considered only forms of one, an opinion which, however, we do not hold after seeing the two kinds together. *C. pentaplophus* has fewer and shorter spines, the angles of the stem are more prominent, and the flowers are smaller and duller in colour than they are in *C. leptacanthus*. The former is a native of Mexico, from whence it was introduced to Kew and flowered in 1838, and may still be seen in cultivation there.

**C. PROCUMBENS.**—A pretty little *Cactus*, with spreading prostrate stems, bearing fleshy upright branches, 3 inches or 4 inches high, which when young are four or five-angled, becoming quite round with age. There are little tufts of short bristle-like spines along the angles. The flowers are developed on the ends of the ripened branches and are 3 inches across, the petals spreading and recurved, as in the species here represented, their colour being a bright rose-purple. The anthers form a corona-like ring about the upright rayed stigma. This plant is cultivated at Kew and in the garden of Mr. Peacock, of Hammersmith, but only rarely produces flowers, although we are informed that in its native haunts (the sandy, gravelly plains of Mexico) it is very free flowering. It grows freely if kept in a warm or intermediate house and kept dry during autumn and winter. If allowed to get wet during that time it often succumbs to rot, the stems being rather soft and watery, and more like those of a *Stapelia* than a species of *Cereus*. Mr. Croucher made various experiments upon this plant with a view of inducing it to flower freely, but neither grafting it upon the stem of another kind, nor exposure to a low temperature in winter, nor very hot treatment in summer had that effect upon it. If anyone knows the treatment that will produce annually the flowers of this beautiful plant, those who have it, but cannot flower it, will be glad to learn some particulars respecting it. B.

### WINTER FLOWERING BROMELIADS.

A CONSIDERABLE proportion of the cultivated *Bromeliads* are useful winter-blooming plants, or at all events they may be so managed as to be had in flower during the duldest months of the year. This is seen by the large number of species now flowering at Kew, where there is a rich collection of these plants, comprising large, handsome flowered, as well as ornamental-leaved, kinds. There is good reason for believing that many of the beautiful plants of this order are neglected in horticulture simply because they have not been made known; probably also the makeshift treatment they have often to put up with in the few gardens where they find a place has resulted in their making an indifferent display, and so falling into bad repute. When liberally treated, however, *Bromeliads*, or most of them, yield in abundance large, richly-coloured flowers or flower-heads, such as should bring them up to a level



with a great many Orchids and other popular plants. We have never heard of an amateur in England taking up Bromeliads as a hobby, although many Continental establishments contain large collections of them. If someone in search of a family of neglected plants that want bringing into prominent notice would turn his attention to Bromeliads, he would find a rich reward in the beauty of their flowers, and also would do horticulture good service by making their beauties known. The species now flowering at Kew are as follows:—

**PITCAIRNIA ANGUSTIFOLIA.**—This has linear green leaves, 2 feet long, and a peduncle often 3 feet long, branching at the top, and bearing numerous long tubular flowers, some of them 2 inches long and brilliant orange-red.

**P. AUSTRALIS.**—In this the flower-scape is erect, and bears a cluster of beautiful, brilliant scarlet flowers.

**P. MUSCOSA.**—A small plant, the dark tuft of green spineless leaves being not more than 6 inches high, whilst the flower-scape is a foot high, erect, unbranched, the upper half clothed with flowers 2 inches long and bright red coloured. This is a pretty little species, and deserves to become widely grown as a useful winter-flowering plant for small collections.

**P. ZEIFOLIA** has broad, strap-shaped leaves, 2 to 3 feet long, and bright green. The spike is stout, upright, 3 feet high, the upper foot clothed with large, boat-shaped, overlapping bracts, which are reddish yellow in colour; the flowers are somewhat long and tube-shaped, and are developed in whorls from the bottom upwards, their colour being green and yellow.

**ECHMEA FULGENS** produces an erect branching raceme, which bears a great many bead-like flowers, not unlike the seeds of the *Abrus precatorius*, or "Crab's Eyes," their colour being coral red, tipped with blue.

**E. WEILBACHI** bears smooth, shining green leaves, the bases of which overlap so as to form a sort of urn. The flowers are borne upon a tall, erect spike, with boat-shaped bracts standing out at almost right angles with the stem, and inside these bracts are the buds and flowers, like Peas and Beans in size, but coloured a delicate violet, which, in the brownish bracts, has a singularly beautiful effect.

**BILLBERGIA LONGIFOLIA** has clasping leaves and an erect spike of large crimson reflexed bracts, quite 3 inches in length by an inch wide, and tubular flowers 2 inches long, their colour being green, pale yellow, and blue. When well grown this is a very noble and richly coloured species.

**B. MELANACANTHA** has long leaves, with black spines, and a drooping panicle of flesh-coloured flowers tipped with deep blue.

**PORTIA KERMESINA.**—A handsome plant, the leaves of which are large-spreading, forming a rosette nearly 3 feet through, their colour being deep red. The flower-spike is stout, erect, 1½ feet long, the upper portion covered with very large rose-coloured bracts, above each of which the flowers are seen protruding, their colour being pale lavender.

**VRIESIA PSITTACINA** and **V. BRACHYSTACHYA** are remarkable, owing to their flattened, scaly-looking scapes, which are of a bright crimson and yellow colour.

**TILLANDSIA LINDENI VERA** is also flat-scaped, but, in addition to this, it produces large, beautiful violet-coloured flowers. These, with a few others of less note, are now in flower in the T range at Kew. B.

### FREESIAS.

As I find that no one has replied to your correspondent who has been troubled about the cultivation of these beautiful and delicately perfumed flowers, let me just give a few remarks which may be useful. I am quite sure that there are numbers of readers of THE GARDEN who are much better qualified to answer him than I am; but as in my small way I have succeeded with them, my experience may be useful. At first I had the same difficulty which your correspondent experienced, and, indeed, I believe it was the

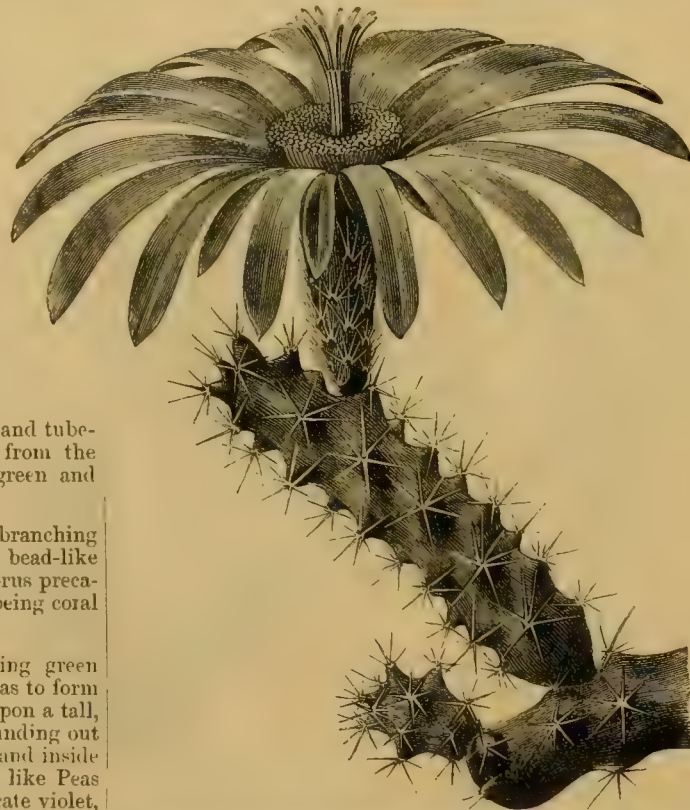
very particular as to soil so that it is light and open; some I planted in peat and sand, some with loam, leaf-mould, and a little well rotted manure, and I do not think there was much difference between them. After they are potted they are placed in a cold frame or pit, and need not, if the soil is tolerably moist, be watered for some time, or if so very sparingly; but should the compost be dry, they will require more. It has been sometimes said that the failure in blooming them is to be attributed to their having too high a temperature in winter, but this can hardly be the case, as I remember I think reading in THE GARDEN a notice where they had been placed in stove heat and had produced some extraordinarily fine blooms. However, I have no temptation to treat them thus, as I have no more heat in my small house than is sufficient to exclude frost. They are placed there amongst the other plants and bulbs and have flowered well; in fact, I consider them to be as easily grown as any bulbs that I have, and my collection is not a very small one.

There is another point, too, in their favour: they come readily from seed, which is produced in considerable quantity. I have always kept the seed and sow it when I have planted the bulbs in a light compost, such as I have mentioned. The seed should be lightly covered and care taken in the watering so as not to wash it away. It is best to place them in a frame exposed to the south and kept close for a time until the seed begins to germinate; but even this is not indispensable. Although the bulbs thus formed are small, they will flower the second year, although, of course, feebly. I have been enabled not only to increase my own stock, but to give some away to friends. There are several varieties, so called, but I find in my experience that they differ very little from one another; that called *Leichtlini major* has more orange on the throat, and is thus worth growing, but with this exception I have seen but little variation, and anyone who will try the ordinary kinds need not, I think, trouble themselves about any more, and surely no one who has a greenhouse ought to rest content without growing some of this beautiful bulb, whose perfume is so delicate and

indescribable, unlike anything that I know of amongst flowers. DELTA.

### AN INTERMEDIATE HOUSE.

HAVING had some ten years' experience of a house of this class and having had a great deal of value thereout, it occurs to me that a few notes as to what I have succeeded in growing and as to what I have failed over may, perhaps, prove an inducement to some to go a step beyond the ordinary greenhouse with its everlasting Primulas, Cinerarias, and Pelargoniums—not but that these are most useful and desirable, too, but, in my view at least, they fall far short in interest of many subjects that can be grown in a house kept a little warmer and moister than an ordinary greenhouse. Such a structure has much to recommend it; it is not so costly for fuel, nor does it feel so unpleasantly hot as an ordinary stove, while a large number of so-called stove plants will do well in it, even if they do not reach their fullest development. My house



Flower of *Cereus Eilandieri*; bright purple. (Natural size.) See p. 613.

same with a great many, so that one grower said they ought to be called *refractory* instead of *refracta*. I am inclined to think that the cause of failure had something to do with the manner in which the bulbs had been ripened the previous year; for the last three years I have not only had no trouble with them, but I have been enabled to grow a goodly number of seedlings, of which many have flowered. I believe that thorough ripening of the bulbs is a material point in culture, and consequently as soon as the flowering season is over the pots are thoroughly well roasted in the sun. When the foliage has completely withered they are then laid upon their sides under the stage, and remain there during the resting season. When the time for repotting comes in the autumn, if they have been properly treated, it will be found that the bulbs have considerably increased in number. I then make a division of them, placing the larger bulbs by themselves; these are potted about six in a 5-inch pot, while the smaller ones are planted tolerably thickly together. I have not found that they are



is a half-span about 35 feet by 10 feet, in two divisions of 20 feet and 15 feet respectively, and runs nearly north and south. A flow and return worked by a saddle boiler runs almost all round; were I building a similar house I should put more piping, as this is not enough. We try to maintain a winter minimum of 50° at night in one division and a few degrees warmer in the other; but on cold nights, especially if windy, this temperature often gets down to 45°. In summer a light smear of whitening is used to break the full force of the sun, but as our stock is miscellaneous, Ferns, Orchids and Sundews, we cannot shade too much.

Commencing with Ferns, a great variety will succeed with intermediate treatment; such *Adiantums* as *farleyense* (which colours beautifully ruddy), *tenerum*, *tinctum*, *cuneatum*, *gracillimum*, *formosum*, *glaucophyllum*, *Capillus-veneris*, *cardiochlamum*, *concinnum*, *concinnum lætum* and *amabile* all do fairly well; *trapeziforme*, *Sancta Catharinæ* and *macrophyllum* not quite so well. *Asplenium rachirhizon*, *flaccidum* and *bulbiferum* are tolerably at home, and the same may be said of *Goniophlebium appendiculatum* and *Gymnogramma chrysophylla*, a seedling of which raised here has grown into a huge plant. Sundry *Selaginellas* also do well, but we have rather too much light and air to grow them to perfection. We have a good many other Ferns also, such as *Blechnum brasiliense*, *Davallia dissecta*, *Cheilanthes elegans*, *Nephrolepis exaltata*, *Onychium japonicum*, *Lygodium scandens*, various *Pteris*, &c.; *P. tricolor* barely exists with us, however.

Of Orchids the following grow and bloom fairly regularly: *Acropera Loddigesii*, *Brassia verrucosa* and *B. v. major*, *Ceologyne cristata*, *C. corrugata*, *Cypripedium barbatum*, *C. Hookeriæ*, *C. insignis*, *C. Boxalli*, *C. villosum*, *C. venustum*, *Lælia anceps*, *Lycaste Skinneri*, *Maxillaria picta*, *Mesospididium sanguineum*, *Odontoglossum Alexandræ*, *O. Rossi*, *O. pulchellum majus*, *Oncidium aurosum*, *O. tigrinum*, *Zygopetalum Mackaili* intermedium, *Pleione lagenaria*. Others which bloom occasionally, but not every year, are *Cattleya crispa*, *C. Mendeli*, *Saccolabium ampullaceum*, *Anguloa Clowesi*, *Dendrobium densiflorum*, one or two *Masdevallias*, *Odontoglossum citrosimum*, *Lælia majalis* and *purpurata*, *Maxillaria tenuifolia*, *Cymbidium eburneum*. Some of these are very small bits, and some I have not had long, and will when stronger flower regularly, I have little doubt. *Calanthes* we can grow fairly well, but they flower badly, and the same applies to *Dendrobium nobile*. *Phalænopsis Schilleriana* failed utterly; so did *Cypripedium niveum*. *Dendrobium chrysanthum* and *Pierardi* barely exist. *Vanda furva* grows, but never has bloomed, also *Lælia superbiens*. Of miscellaneous we have two *Nepenthes* in excellent health, and with many pitchers, although not tall. *N. distillatoria* has grown from a seedling in a 2½-inch pot to a plant with about forty pitchers. *Asparagus decumbens* is now forming a delicate green veil and showing lots of bloom. On the roof *Stephanotis*, *Hoya carnosa*, and *Passiflora quadrangularis* grow and bloom freely—the latter fruits; *P. princeps*, a more recent addition, also does well; *Epiphyllums*, *Gloxinias*, *Achimenes*, *Tydeas*, *Begonias*, *Coleus*, *et hoc genus omne*, are fairly done; while for bringing on early bulbs, *Hyacinths*, *Tulips*, &c., we find our little house very useful. Amongst what we fail in I may further note *Clerodendrons* and *Allamandas*; *Eucharis* exists, but seldom blooms; of *Poinsettia* the same may be said; *Cissus discolor* exists, and but little more.

The above list, which is by no means complete, shows how much pleasure and interest may be had out of a little house such as I have described.

Circumstances of situation, &c., determined various matters in connection therewith which I should not have chosen deliberately, and which if planning another such house I would avoid; but, all things considered, we cannot complain.

Dublin. GREENWOOD PIM, M.A., F.L.S.

#### SMILAX ASPERA.

IN some of the warmer countries of Europe this species of *Smilax* is cultivated for its roots, which afford the Italian sarsaparilla of commerce, as also do the other European species of this genus, known as *S. nigra*, *S. mauritanica*, and *S. alpina*. The ordinary and well-known sarsaparilla is obtained generally from *S. officinalis* and *S. syphilitica*, both natives of Tropical America, and cultivated in a few English gardens for their large, bold green leaves, which are serviceable,



*Smilax aspera*.

especially in large houses, for covering pillars, rafters, &c. The smaller and temperate species, represented by *S. aspera*, have lately been brought into notice as useful decorative plants, their long, twining shoots, decked with hastate, prettily spotted leaves, lending themselves to such uses as the draping of tall vases or for hanging baskets in the same way as the little creeping *Ficus* and other similar plants are now employed. These little *Smilaxes* are sturdy enough to bear a great deal of rough usage without being injured. They are equally pretty when grown against a trellis or about a pillar in a greenhouse, as they are evergreen; the leaves are bright and graceful in form and remain healthy on the plant for a long time. In the warmer parts of England these European kinds may be grown against a wall out of doors, or they may be used with good effect for trailing

about stones, or on old tree stumps in a rockery. Along with these may be placed the North American species, viz., *S. quadrangularis*, *S. Sarsaparilla*, *S. rotundifolia*, *S. tamnoides*, &c., which are, of course, hardy in this country, as may be seen by an inspection of the collection of hardy *Smilaxes* cultivated in the Kew arboretum. As a really useful and easily grown decorative plant, the species represented in the annexed woodcut is the best of the cultivated kinds, whilst *S. officinalis* may be recommended for cultivation in large tropical houses. The flowers of these plants are small and unattractive as regards colour; but some of them are sweetly scented, whilst some again are succeeded by bunches of bright red berries as large as Peas. Whilst writing of these plants we may call attention to the curious fact that *S. officinalis*, although cultivated in gardens for many years, has not yet been known to produce flowers; other similar species have flowered frequently at Kew and elsewhere, but this one never. For their propagation these plants may be divided at the root, or they may be readily increased from cuttings of the stem.

B.

## TREES AND SHRUBS.

### THE MOUNT ENOS FIR.

(*ABIES CEPHALONICA*.)

IN that interesting work, "The Colonies," written by the late General Sir Charles Napier when Governor of Cephalonia, much useful information is given regarding the above interesting and ornamental tree, although at the same time it may be inferred from the text that he was not at that time aware of its being a distinct and unrecognised species, for in speaking of it he says: "It is well known to planters that Firs grown in high and exposed situations possess great durability; and this is the case with the Firs growing on the Black Mountain, the wood of which is of the hardest texture." The Black Mountain, of which it is a native—so called from the dark appearance given it by these trees—runs in the interior of Cephalonia from north-west to south-east, the highest point, the ancient Mount Enos being 5000 feet above sea level. This latter was at one time, during the seventeenth century, covered with a dense forest of *Abies cephalonica*, and from which a good revenue was obtained, but of late years, through the ravages of fire and neglect of preservation, much of the original forest has been destroyed, and the name Black Mountain is now rendered, in the true sense of the word, almost meaningless, and more so by the general whitish appearance caused by the limestone formation of the rock. In these, its native haunts, it attains an average height of 60 feet with a trunk diameter of 4 feet, the largest and finest timber being produced in the gorges and valleys where partial shelter is secured, the highest rocks and ridges being cold and bleak, and in most places with but a slight coating of earth atop.

This distinct and handsome Fir is well adapted for general use in our country, and whether planted singly on the lawn or mixed with others in the woodland is at all times a pleasing object and well worthy the attention of planters.

Unfortunately, in some districts, and more especially when planted in unsuitable situations, young trees of this Fir are apt to suffer from late spring frosts, which should, however, be no detriment to its extended use, as by a proper selection of soils and sites success in the cultivation of this tree is a by no means difficult task. A stiffish soil such as good clayey loam, but thoroughly drained, and a northern or western



aspect will be found the most suitable, as these considerably retard early growth, the great evil to which the tree is susceptible in our climate. The branches, where the tree is allowed plenty of room, spread to a great extent, more particularly the lower, are usually horizontally arranged, and with the tips inclined upwards. Leaves fully 1 inch in length, flat, sharp-pointed, and twisted half round at the base or foot-stalk, dark olive green above and with two distinct silvery lines on the under side. Cones erect, cylindrical, and usually several on the same branchlet,  $5\frac{1}{2}$  inches long by  $1\frac{1}{2}$  inches in diameter, and with the bracts exceeding the scales. On the trees here the cones are usually produced in pairs, fours, or sixes, and invariably on the three upper tiers of branches. When arriving at maturity, resin exudes in quantity from their surface and forms into clear, limpid, irregularly shaped masses, and which is by no means an uninteresting feature of the tree.

Amongst the oldest and perhaps largest trees of *A. cephalonica* in this country are at Hampton Lodge, near Farnham, these having been raised from seeds sent home by General Napier in 1824. Others sent home about the same date by Sir Frederick Adam were planted at Blairadam, in Scotland. The largest of these is now 45 feet in height, with a circumference of 4 feet 4 inches at 3 feet from the ground. Two others, one 38 feet and the other 36 feet in height, have stem girths at 3 feet of 4 feet 11 inches and 3 feet 8 inches in circumference. From having repeatedly lost their leading shoots these trees are rather coarse and ill-grown. These measurements were taken in October of the present year. Of the plants raised from seed sent by General Napier several were distributed amongst English nurserymen, one of these when not 4 feet in height being sold to the Duke of Bedford for 25 guineas; others realised a nearly similar sum.

By far the finest specimen I at present know of is growing at an angle of the road leading to the mansion house of Churchill, in Co. Armagh, Ireland, the residence of Sir Wm. Verner, Bart. Fifteen years ago and when upwards of 40 feet in height it bore several cones, which were artificially fertilised, and a nice lot of healthy plants were raised from the seeds.

Other fine specimens in Ireland are those at Castle Martyn, in County Cork. In England there are also many handsome trees of *A. cephalonica*, notably in Norfolk, Somerset, Kent, and Herefordshire.

On this estate growing in strong, rather damp loam and a shady situation is a fine tree now fully 50 feet in height, with a stem girthing 4 feet 6 inches at a yard up, and a diameter of spread of branches covering 30 feet. It is in excellent health, bears annually a good crop of cones, and from present appearance would lead one to infer that it would attain goodly proportions in years to come. The stem is well and regularly branched, these being long in proportion to the tree's height, almost horizontal, and with up-turned tips, but these are, I believe, all peculiarities of the tree in its native wilds. As a forest tree *Abies cephalonica* offers well and is not nearly so apt to suffer from overcrowding as several of its allied species with which we have experimented.

The timber, according to General Napier, is of excellent quality, and he informs us that in pulling down some houses which had been built from a hundred and fifty to three hundred years before the woodwork of the Black Forest was as hard as Oak and perfectly sound.

In the seventeenth century, when the forest was no less than 36 miles in circumference, wood

was supplied therefrom for the islands of Cephalonia, Zante, and others, as well as for the arsenal in Corfu. It is extremely resinous.

A. D. WEBSTER.

**Magnolia macrophylla.**—As Mr. Frank Miles (p. 597) appears to be interested in this tree, allow me to furnish him with the following particulars regarding a specimen of it in the pleasure grounds here. It is planted on a north-west slope, surrounded on all sides by trees both deciduous and evergreen, and is consequently thoroughly protected from all rough weather. Indeed, I fancy it is sheltered too much, and that the flowers would be produced more freely if we could remove a belt of trees growing very closely to it and running from south-west to south-east. As it is we get on an average from twelve to twenty blooms during the season from it. The soil in which it grows is a sandy loam, quickly changing to sand. I find, however, that extraordinary care must have been taken with choice specimens of trees in the old planting days here, some two or three cartloads of prepared soil being allowed to each, in order to ensure their well-being for at least some considerable time. The dimensions of this particular *Magnolia* are—height, 30 feet; girth, at 3 feet from the ground, 2 feet 6 inches; spread of branches, 24 yards (circumference).—E. BURRELL, Claremont.

**Prumnopitys elegans.**—This little evergreen shrub much resembles a dwarf-growing Yew, but altogether is of a lighter tint, and with the leaves glaucous beneath. Its neat, much-branched, but free style of growth eminently fits it for planting where a more vigorous class of shrub would be out of place. Should it by chance, however, become too large for the allotted space, the branches may be pruned back without injury; indeed, it seems to bear even a severe cutting with impunity. It is among the most useful of Conifers for filling winter beds, as the roots are close and form a dense compact mass, so that they can be readily shifted from place to place without injury, while the cheerful green colour of its foliage is retained throughout the winter without any of the brownish hue common to many Conifers. Cuttings of this Conifer strike more readily than those of the Yew, and grow freely during their earlier stages. It is a native of Valdivia, and is said to attain in that country a height of 40 feet to 50 feet, with the habit of *Abies Douglasi*, but here it is only a dense-growing bush.—T.

#### WORK DONE IN WEEK ENDING DEC. 8.

##### DECEMBER 2.

Fine; much colder. Began to clear leaves out of shrubby clumps, and to cut the Grass edgings of mass, after which the ground will be lightly forked over, and what few spring-flowering plants there are to spare will be planted round the margin of the clumps. Primroses, Silenes, Wallflowers, Myosotis, and other easily raised spring flowers are all suitable for planting in such positions. Trenching ground for fruit trees and Rose planting, pruning Currants, tying Raspberry canes to wires, and nailing cordon Pear trees on south and west walls. At present pruning, painting with insect-preventing solution, washing glass, limewashing walls, and re-tying to trellis of fruit trees form the greater part of our daily labours in the houses; indeed, besides watering of plants, no other description of work has been done to-day.

##### DECEMBER 3.

Fine the greater part of the day, but heavy rain at night. Continued raking out leaves of shrubberies, and the shallow digging over of the front margins of same in order to plant spare spring-flowering plants. Being a still day and suitable for leaf-carting, a push has been made to get this kind of work out of hand, the stacking up of the good leaves and burning up of rubbish and sticks being left for dry frosty weather. Trenching ground, nailing Pears, and pruning bush fruits, Currants and Gooseberries, form the sum total of our outside work to-day. Cut Muscat Grapes and put them in bottles. They have shrivelled a good deal, and as it cannot be for the reason that they are not well ripened, I suspect the

border (inside) has got too dry; and not wishing to risk the damping or decay of berries through an over-moist atmosphere, owing to watering of border, we chose what I consider to be the least of two evils, i.e., bottle the Grapes rather than water the border at this late season with the Grapes still on the Vines. Muscats with us have never kept really well in bottles, that is, not for any length of time, and this makes us somewhat reluctant to cut them. As the foliage has all fallen, and the wood is brown and hard, the Vines will now be pruned, the house washed, and the border well watered. Tying Peaches and Figs to trellis. Early Peach house is now kept closed except for an hour or two at mid-day, and the trees are syringed once a day when the outside air, not otherwise, is at all dry.

##### DECEMBER 4.

Though fine, the rain that fell during the night so saturated the ground as to put a stop to digging, nailing, and pruning, and our work has been the opening and clearing of drains on walks and coach roads that had got choked up with sand, owing to the long-continued heavy rains. Now that leaf carting is finished, the Grass verges of coach roads are being cut with the edging iron, and soon as this is done and cleaned up, the horse roller will give the finishing touch, the rolling being repeated after each sharp frost. Indoor work having been the counterpart of yesterday's, any further note of it is unnecessary.

##### DECEMBER 5.

Fine; recommenced pruning and nailing of fruit trees, completed trimming up the margins of shrubby clumps, swept and rolled walks, and also rolled lawn in places where worm casts had made it unsightly. Cleaned up herbaceous borders, and covered up for protection with Cocoa fibre tender Irises, such as *susiana*, *Gladiolus*, and *Lilium auratum*. With the little labour involved by such protection, all these winter well with us in the open borders, and flower far better than they did when we practised annual lifting. Cannas, and even Dahlias, we have wintered in the same way, but with results so unsatisfactory, that we cannot commend that method of preservation. Our Strawberry forcing pit being filled, other plants have to-day been put on shelves in early vinery, the temperature of which now ranges from  $55^{\circ}$  to  $65^{\circ}$ , according to the weather. There being a bed of leaves and litter on the floor of the house, the moisture arising therefrom is ample; hence, syringing of Vines is not required, though, when the outside air is dry, the Strawberry plants will be syringed when the house is closed up. Looked over all Grapes still hanging on the Vines and removed all loose foliage. Poinsettias, Bouvardias, and *Adiantum cuneatum*, in mixture in one of our small houses, have such a charming effect, as to in some measure make us reconciled to the loss of the Chrysanthemums, that are now past their best, many of which have been cut down to-day, such as are required for cuttings being put in frames and the others thrown away.

##### DECEMBER 7.

Dry, but a very cold north-easterly wind, so that we did not attempt any transplanting, as roots suffer quite as severely from exposure to drying harsh winds as they do from frost. Continued pruning and nailing, also trenching and repairing of drains and roads. Covered up Broccoli that are ready for use, and added more litter to that already given to Globe Artichokes by way of protection. Jerusalem Artichokes are all dug up and housed in a cool shed, being covered with sand, which keeps them in as good a condition as if they were left in the ground, besides the advantage of being able to get at them in all weathers. Sowed Melons, Cucumbers, and Tomatoes, and also put in cuttings of the latter, as well as other cuttings of Chrysanthemums. Pruned the Vines and watered inside borders of late Muscat vinery. Pines, too, were looked over in respect of watering, though few required any; yet it is better to examine them about once a week lest any suffer from being too dry.

##### DECEMBER 8.

Bitterly cold, and the thermometer at freezing point all day long. Stacked up leaves and started fires to burn up rubbish, sticks, hedge clippings, and the like. In this way we obtain all our charcoal, and



the ash is invaluable as a manure for any crop on our light soil. Grubbing Hazel stems and roots that now occupy ground on which it is proposed to form a garden of the commoner garden and wild flowers. There are some fine timber trees—Beech, Oak, and Birch, and these will of course be left for shade as well as for ornament. Work in the houses has been cleaning the vineries that have been recently pruned, tying Figs to trellises, picking over and rearranging Pelargoniums that are now in fine flower. Some of our Ferns—*Adiantum cuneatum* and *A. pubescens*—are badly affected with a soft brown scale, and in order to clean them, the fronds have been cut entirely off, and the crowns of the plants are now being cleaned and the surface soil removed, and which will be replaced with new soil, after which the crowns will be syringed with water in which paraffin oil has been mixed at the rate of a quarter of a pint to two gallons of water.

HANTS.

## FRUITS UNDER GLASS.

## CUCUMBERS.

September-sown plants intended for coming into bearing after Christmas, and giving a supply of fruit through the most trying months in the year, will now require and repay all the skill and attention that can be devoted to them. The plants would, no doubt, commence fruiting now, and possibly give a good supply quite through the winter; but where other compartments are in bearing, and the fruit is not actually wanted, it is best to keep them steadily progressing. This steady progress is the point which many aim at, but all do not reach, and yet it is not bound up in mystery, but is attained by paying particular attention to the most trifling details. One of the most important, it is hardly necessary to say, is the maintenance of steady temperatures by night and day above and below the roots; hence the necessity for good covering throughout the hours of darkness, not only to economise fire heat, but also to equalise it over every part of the house. Mats, frigi domo, and canvas blinds are often used for this purpose, and all of them, no doubt, possess special advantages; but the best material I have yet met with is the oiled canvas used by Mr. Dawes at Temple Newsham, Leeds. It is made up into sheets of any size by the vendors, and can be kept in its place in all weathers by means of cords passed through eyelet holes along the sides. Moreover, being impervious to wet, the chilling effect of cold rain and snow coming into immediate contact with the glass is in some measure avoided. Other advantages are cleanliness, neatness, security to the lights in windy weather, and last, but not least, economy. The next point is a steady bottom heat of, say, 80° or 85°, not from fire heat alone, as that is too dry, but from fire and fermenting material combined. Well worked stable manure, in the absence of anything better, may be used with great caution, but the best of all fermenting material is sound Oak leaves. These also should be well worked and turned before they are introduced into a close pit; but once the noxious gases have passed away they are sweet and acceptable to plants of all kinds, so long as they give off warmth, and they form an indispensable article in the potting-shed afterwards. To maintain this bottom heat of 80°, a good reserve of leaves should always be kept on hand ready for use, and a few of these should be taken in at short intervals, otherwise checks from fluctuations will be unavoidable.

Cleanliness must not be neglected, for plants, like animals, thrive best where the atmosphere is kept fresh and sweet, by the removal of all inert decaying matter and the introduction of pure air. Therefore, floors, paths, walls, and glass should be as regularly cleansed as our dwelling-houses, and the bed should be top-dressed with fresh virgin soil or loam, a most excellent deodoriser, at short intervals. From this time until days begin to increase in length the syringe will not often be applied to the foliage; but there may occur periods when tepid water can be used beneficially, and such opportunities should not be lost, as an occasional bath is better than no bath at all. On all dull, dark, or frosty days, the atmosphere of the house can be kept fresh and moist by damping the clean available surfaces, but not the hot-water

pipes, as much mischief often follows what people used to call steaming.

*Cropping and stopping* must be regulated by circumstances. If fruit is wanted, the plants must be allowed to carry it, otherwise it may be pinched off, together with male blossoms, quite up to the end of the year, and, while refraining from close pinching, moderate extension may be adopted, provided the foliage does not become crowded. The temperature of the winter house may vary from 65° to 70° by night and 70° to 80° by day, more or less according to the state of the bottom heat, the weather, and the mode of covering. It is not intense heat nor intense vigour that brings about success; but it is the maintenance of a regular system, made up of details, trifling in themselves perhaps, but highly important and essential to success when combined.

*Insects.*—When particular attention is paid to the preceding details, and the plants are abundantly supplied with tepid water or warm diluted liquid, insect pests do not make much headway, neither is mildew troublesome; but once let the lower roots become dry, spider will speedily follow. The best remedy for this, also for mildew, is sulphur water, sulphide of potassium, or sulphur in a dry state. If taken in time, spider can very often be checked by careful sponging with warm soft soap water; but before any of these remedies can be permanently effectual, anything approaching dryness at the roots must be corrected, and the evaporating pans must be kept constantly charged with diluted liquid.

*Autumn plants* that have been some time in bearing will now require liberal feeding and frequent top-dressing with rich turfy loam—little and often—old lime rubble, and an occasional dressing of soot to keep down worms. The latter, it must be borne in mind, is very powerful, especially when new, and for this reason must be used sparingly. If the plants are in pots and fermenting material is used, as an aid to the hot-water pipes, make additions as often as the bottom heat shows signs of declining below 80°. Mix the old and new well together, and dust with fresh slaked lime as the work of turning proceeds. Guard against over-cropping, unless the plants are to be removed when successions come into bearing, and always cut the fruit before it has attained full size. Train all young growths strictly on the extension principle, as every point pinched during the month of December produces a check, and cut away old vines to let in light and rays of sunshine, should that luminary, of which we have seen so little this autumn, make a feeble effort to compensate for the past.

Where *light hot-water pits* devoted to very late Melons are now at liberty, they may be prepared for the weakest of the autumn sown plants. If kept growing through the winter they often do good service before January sown plants come into bearing in the spring.

## CHERRIES.

If all the details noticed in my last paper on these excitable trees have been carried out, and the lights have been drawn off during this mild, wet weather, there will be little danger of the roots being too dry, as the rains will have penetrated to the drainage. But where this safety-valve, a portable roof, has not been provided, the borders must now be looked to as the time is at hand for closing. If not already done, old trees full of flower spurs may have a good mulch of rotten manure, to be washed down by future waterings; but young ones, as previously suggested, will set their fruit best where this application of animal manure is withheld until after the petals fall. In either case, a thin layer of fresh friable loam, added to the borders, will draw the most useful surface roots upwards and do good service when the fruit is setting. If pot trees are still out of doors, they should be taken out of the plunging material, cleansed and top-dressed ready for placing in position when the house containing the permanent trees is closed for forcing. Pot trees always pass through the different stages of their growth somewhat quicker than trained trees established in the borders, hence their value for giving the first dishes of ripe fruit where only one house is devoted to their culture. These, it is hardly necessary to say, should include the best early varie-

ties, such as May Duke, Black Circassian, Early Rivers, Belle d'Orleans, and Frogmore Bigarreau. If these are not in stock, and a really unique selection is wanted, trees established in pots ready for forcing should be obtained at once; or, strong pyramids, selected from the open quarters, may still be potted and plunged in a sheltered border where they will get thoroughly established for forcing another year. If ripe fruit is wanted early in May, the house should be closed about the end of the month, when a night temperature, ranging from 40° to 45° will be quite high enough to start with. Always force with a circulation of air, unless the weather is very severe, when the ventilators may be kept shut to prevent the necessity for more than a passing current in the hot-water pipes. Let the day temperature range from 45° to 50° in unfavourable weather, and 5° higher when mild and gleams of sunshine admit of a free circulation through the front and apex openings. Syringing must be regulated by external conditions and the arrangement of the structure; if light and elevated, as all Cherry houses should be, the trees may be syringed twice on fine days, once when the weather is dark and cold; but in order to avoid incessant syringing and constant firing, Cherries, like Peaches, should be assisted by the introduction of a good ridge of moist fermenting Oak leaves, to which a little well worked stable manure may be added from time to time as the heat shows signs of declining.

## PLUMS.

If very early fruit is wanted, and the most suitable forcing kinds are thoroughly established in pots, a batch of trees may be taken into the house for starting with the Cherries. Many people force the two together, and they do very well through the early stages, but they require separate compartments when the Cherries begin to ripen, and for this reason the forcing houses for these impatient fruits should be divided into sections by glass partitions, light and efficiently ventilated. Heat every house should have, but for Plums and Cherries a flow and return pipe will be found ample, as it is only necessary to apply fire heat when the trees are in flower and the fruit is setting. At all other times ordinary kinds can be grown on under the influence of solar heat; but the petals of the flowers of these trees being so thin, and the pollen so easily affected by damp, fire heat, nine times out of ten, becomes absolutely necessary to the perfect fertilisation of the flowers when they are forced. Plum houses proper, containing established trees of the leading kinds of Gages, or possibly furnished with Golden Drop, should not be started until January, as they are generally kept in a state of activity until late in the season, and although they require so little artificial heat, they will repay the owner for a fair share of rest. If the buds show signs of swelling, the trees must now be carefully protected from birds.

## STRAWBERRIES IN POTS.

Where a properly-constructed Strawberry house exists, or a light, well-ventilated span-roofed pit can be fitted up with shelves, the forcing of Strawberries can now be commenced with some degree of comfort and credit. But where they have to be hoisted above Peaches and Vines, or mixed up with other subjects, a start should not be attempted before the beginning of the new year. Assuming that a suitable structure was filled with good plants early in the present month; that the pots, small in themselves, are well filled with roots, and the crowns are thoroughly ripe; keep them regularly supplied with tepid water, and syringe once or twice a day according to the state of the weather, but avoid a close, humid atmosphere, that will favour elongation of the roots and leaf-stalks at the expense of the future fruit. Commence forcing always with a circulation of air and by the maintenance of a temperature ranging from 40° to 45° at night, rising to 50° or 55° by day; and in order to be able to dispense with fire heat, keep the house replenished with well-worked fermenting Oak leaves, the warmth and moisture from which will very often do away with the necessity of direct syringing in dull weather. One of the main points in successful forcing being efficient ventilation, permanent and temporary pits and houses should be liberally fitted with hit-and-miss ventilators, let into the back and front walls, for keeping up a constant current of moist warm air. These should be placed near the ground-line, as it is important that the air from the



exterior be passed over the fermenting leaves before it comes into contact with the bottoms of the pots on its way to the apex openings. Many Strawberry growers always start their plants in Melon pits filled with fermenting leaves, and very well they answer, provided they are fitted with shelves some 12 in. to 16 in. below, and raking with the pitch of the glass. A circulation of air kept passing over the fermenting material, which should not be too near the bottoms of the pots, is imperative, otherwise the heat will draw out the young roots and force up the foliage in advance of the crowns, when as a natural consequence the flower-scapes will be weak and the fruit small.

**Successional crops.**—Where Vicomtesse Héricart de Thury, established in small pots, is used for very early forcing, a second batch of the same excellent kind in larger pots may be introduced for succession. Then comes La Grosse Sucrée, a little later, but somewhat larger in the berry and in no way inferior; Sir Charles Napier where it does well, the never-failing President, and Sir Joseph Paxton, one of the best Strawberries we have for travelling. In order to keep up the supply, a light, well-ventilated succession pit should now be filled with some of these varieties for coming on in succession. But very little top heat will be needed, as Strawberries start in a low temperature, particularly if placed in pits that have been used for Cucumbers or Melons, and although imperceptible, still contain a little latent heat in the beds or linings. Plants intended for coming on later should now be under cover, or plunged to the rims in the open air to protect the pots from frost. If placed in cold pits, throw the lights off every day when the weather is not wet, no matter how cold it may be, as Strawberries always start best after a thorough rest, and although we are now approaching the middle of winter, see that the roots do not suffer from the want of water.

W. COLEMAN.

Eastnor Castle, Ledbury.

## KITCHEN GARDEN.

### NOTES ON MUSHROOM GROWING.

At this season, when choice vegetables are not so plentiful as in summer, a good supply of Mushrooms is most welcome. We hardly ever attempt to grow Mushrooms in summer, as other garden produce is then so varied that they are not valued, and they are easier grown in winter than in summer. Insects are apt to damage them then, and they do not develop freely during hot weather. Now they come up in abundance and as fresh as possible. There are not, I hope, now many growers who use fire-heat in their culture. Artificial heat for them at any time is superfluous. I am not one of those who care to attempt their culture in the open air in the dead of winter, but I would never desire a better place in which to grow them than a tool-shed, a potting-shed, or a shed of any kind. We have Mushroom beds in the potting-shed now and others in a cool house, and the crops which they produce are as abundant and lasting as anyone could desire them to be. Their quality, too, is exceedingly good, and I would now no more think of growing Mushrooms in a heated house than I would of growing midsummer Cabbages under glass. Some friends of mine near here who own cow-sheds and other buildings have been trying their hand at growing Mushrooms in them, and they are delighted with the result. One, an extensive farmer on the Margam estate, made up a bed with horse droppings; and another, by way of experiment, with manure entirely from the cow-sheds. This bed has produced a good crop of excellent Mushrooms. Another bed has been formed with the cow manure, and I have no doubt that it will prove to be quite a success. It is very important that the manure be moderately dry and sweet before the bed is made up. When right in this respect,

little danger need be apprehended from spawning too soon or having it either too hot or too cold. If the manure is so wet as to stick together, it will not answer; but if two or three forkfuls are thrown into a heap and trodden on, and then when shaken out again are as elastic as if they had never been pressed, the bed may at once be made up. We have got into the habit of being very careful in this respect. Our beds are spawned the same day on which they are made up, and soiled over on the day on which they are spawned. We would rather have the manure half composed of short straw than have it wholly droppings. Mushrooms will not succeed well if the surface is very dry at one time and wet at another. A medium condition as regards moisture suits best. Direct currents of cold wind must not be admitted, and where there is no door to shut and keep the wind off, a thick layer of hay should cover the bed. We keep a little hay on the surface of our beds from the day on which they are spawned until the last of the crop is cut. Good spawn is absolutely necessary in order to produce Mushrooms; without this no one can be successful. I would strongly recommend all to try the shed system of culture; they will find it simple, interesting, and profitable.

Margam, South Wales.

J. MUIR.

**Forcing Rhubarb.**—A fortnight or so ago we began forcing Rhubarb, some old casks were turned upside down over several crowns, and then stable manure and leaves were mixed up and placed around and over them so as to form a hotbed; one of the casks happened to be air-tight at top and did not allow the steam to escape. In looking inside to day I found that the young growths had started, but that the close atmosphere had soon caused them to decay. The other crowns which had a little ventilation afforded them are going on all right.—CAMBERN.

## SOCIETIES.

### ROYAL HORTICULTURAL.

DECEMBER 8.

THIS, the last meeting of the year, was a very small one, for, owing to the frost, exhibitors did not care to bring out tender plants. First-class certificates were awarded to—

**CALANTHE PORPHYREA**, a hybrid raised and exhibited by Sir Trevor Lawrence, Burford Lodge, Dorking, who has been successful in raising several Calanthes. The variety in question is one of the richest in colour that has been exhibited, rivaling even in that respect Sedeni. It differs from all others on account of the flowers being copiously marked with tiny dots on the labellum and bases of the sepals. The flower, too, is different in shape, being rounder in outline than any of the others. The growth is similar to that of *C. Veitchi*. It is quite an acquisition to this already rich genus.

**CHRYSANTHEMUM BOULE DE NEIGE**.—A "decorative" variety remarkable for its floriferousness and good habit of growth. The flowers are of the same size and form as those of the well-known *Julie Lagravère*, but pure white, and produced in clusters of from three to six. The exhibitor, Mr. Owen, of Maidenhead, showed from his nursery a basketful of plants of it, about 18 inches high, produced from cuttings struck in June. Being naturally a late flowerer, it is invaluable at this season.

**CHRYSANTHEMUM QUEEN OF THE YELLOWS**.—A single-flowered variety and extremely pretty. The flowers are quite circular in outline, the outer florets forming a neat row around the cushion-like disc. The whole flower is a soft, clear yellow, and one would scarcely tell it from a yellow Paris Daisy. It was selected from a large number shown by Messrs. Cannell, Swanley.

ORCHIDS were few. Sir Trevor Lawrence showed three hybrid *Calanthes* besides that certificated. The first was named *burfordensis*, a highly-coloured flower, but not so rich as *porphyrea*; casta, like *vestita albo-lutea*, being white with yellow eye; *aurantiaca* with reddish yellow centre, and *amabilis* a pale rosy flower in the way of *Veitchi*. This series of hybrid Orchids sufficed to show what beauty and variety may be added to cultivated Orchids by hybridising. Mr. Vanner, of Camden Wood, Chislehurst, showed the new *Barkeria Vanneriana*, a beautiful Orchid in the way of *Lindleyana*, but paler in colour and somewhat different in the shape of the flower. There were no fewer than fifteen blooms borne on the slender spike, but it was evident that they had been expanded some time and had become dull in tint. Mr. Dorman, The Firs, Sydenham, sent a specimen of the new *Masdevallia melanoantha*, a handsome species belonging to the *Peristeria* section, having shortish fleshy leaves and thick-textured flowers with longish tails. The colour of the lower sepals is a deep claret-purple, that of the upper portion paler, while the tails are pale yellow. Mr. Dorman also showed a plant of the beautiful *Odontoglossum adpersum*, which may be described as a yellow-sepalled *O. Rossi majus* with a large pure white heart-shaped lip. It is still rare.

**CHRYSANTHEMUMS** contributed largely to the display, a numerous collection of single and double sorts being shown by Messrs. Cannell, of Swanley; among these were many novel varieties, and which, though not calculated to please a fastidious *Chrysanthemum* exhibitor, will be sure to be appreciated by those who prefer elegance to mere size. Some of the single sorts are extremely pretty, particularly those which have pure white florets and golden centres; a sort called *Pocohontas* was one of the best, but others, such as *Mrs. Deane*, *America*, *J. Y. Murkland*, will find admirers. The Queen of the Yellows, which was honoured with a certificate, is one of the prettiest we have seen among single sorts. Messrs. Cannell are doing good service in bringing these single sorts into notice, but let us hope that they will not bring out any of the mongrel race, half single, half double, which are not double enough to please the lover of double *Chrysanthemums*, or elegant enough for those whose tastes run in the direction of singles. There were several of these half-and-half sorts in Tuesday's collection which answer to this description; there were a few pretty new doubles, but in all conscience we have already a surfeit of new double *Chrysanthemums*. It seems to be the old story—over-supply, the outcome of the recent stimulus that has been given to *Chrysanthemum* culture. The names of the best doubles in this collection were *La France*, *Rubra perfecta*, *Crimson Perfection*, and *Eugène Laujault*, a lit le yellow *Anemone* sort, very pretty. Messrs. Veitch showed a good white sort named *Domination*; and Mr. Ralling, of Hampstead, showed a sport from the *Duchess of Albany* variety, which may prove good.

The zonal *Pelargoniums* from the Swanley Nurseries gave a cheerful aspect to the otherwise dull exhibits, and the perfection of the trusses and the splendour of their colour astonishes even those to whom the art of flowering *Pelargoniums* during winter is no mystery. There were about a dozen sorts shown, and though we have before enumerated, the list may be useful to some. The loveliest white was *Queen of the Belgians*, which probably is the veritable queen of white zonals, and a fit companion to her majesty was *Swanley Gem*, which is of the most pleasing cherry-rose hue imaginable, and its white centre sets off the colour to advantage. Among other good sorts were *Kate Greenaway*, *Lord and Lady Chesterfield*, both good, *Ajax*, *H. Jacoby*, *Jealously Improved* (which looks like an improved *Guinea*), *Raphael*, *Eurydice*, *Crocus*, and *Kentish Fire*. This selection would suit any garden, and the double Ivy-leaved *Mad. Thibaut* should be added.

**CYCLAMENS** were shown admirably by Messrs. Page, of Teddington, who are now among the leading growers of this charming winter flower. They have a superb strain and their whites are matchless, and three of the best are named *Albion*, *Queen of the Whites*, and *October White*. These are all good, but so nearly alike, that it requires a very discriminative eye to see the difference between them. There were from 200



to 300 plants shown and a silver medal was awarded.

Mr. James, of Farnham Royal, showed two good *Primulas*—*Argus* (purple) and *Purity* (white), and Messrs. Carter sent long branches of the curious greenhouse climber, *Boussingaultia baselloides*.

**Fruit.**—The principal exhibit placed before the committee was Williams' Winter King Grape, a new variety, which has been exhibited at this place by Mr. B. S. Williams, of Upper Holloway, for the last three years in succession. Its history is brief. It is said to have originated five years ago by grafting the Gros Colman variety on a stock of Raisin de Calabre. It is a black Grape, a good deal like Black Alicante, with oval berries of a rich plum colour, and carries a fine bloom. Its skin is not thick, as in Gros Colman, and the flavour is good, the flesh juicy and moderately firm. It may prove an acquisition if as easily grown as the Alicante, and will hang as long. A few seedling Apples were shown, among them being Rood Aston Seedling, from Mr. Miller, of Rood Aston, and Packington Free Bearer, from Mr. Woodford, of Atherston.

**Scientific committee.**—Among the subjects of general interest discussed was Dr. Masters' preliminary report relating to the experiments on earthing of Potatoes at Chiswick. He observed that through the absence of *Peronospora*, as in 1884, the object of the experiment failed; but the general results of produce under the different methods of treatment corroborated those of last year. He summarised them as follows: 1, earthing up produces a crop of more uniform and of superior quality, even if less in quantity; 2, that bending the haulms occasions a diminished yield; 3, that a larger aggregate produce is derived from planting old tubers than from the employment of cut sets. It was suggested that the sub-committee should continue the experiment next year, but with fewer rows, and confine the observations to testing the Jensonian method of moulding should the disease occur. A Potato much resembling a hand in form was sent to the scientific committee in Nov., 1884. It weighed 15 ozs. On being planted the produce in 1885 was 8 lbs., or more than 800 per cent. Such a result would seem to corroborate those at Chiswick, namely, that whole sets usually give a much greater produce than those which have been cut, the former presumably supplying more nourishment, and, therefore, greater vigour on commencement of growth.

#### NATIONAL CHRYSANTHEMUM SOCIETY.

A MEETING of the committee of this society was held at the Royal Aquarium, Westminster, on Wednesday last, when the following varieties were certificated: Messrs. W. & G. Drover, Fareham, took first-class certificates for White Dragon (Japanese), a variety of the Dragon type, but pure white, and with broad florets; Glorioso (Japanese), pale yellow, and of the style of *Agréments de la Nature*; and Bicolor, with florets reddish orange and yellow, a pretty and distinct sort. Mr. Owen received a first-class certificate for Boule de Neige, shown at South Kensington the day previous and described above. Messrs. Veitch received first-class certificates for Pelican (Japanese) and Ceres, the latter a beautiful blush white Japanese variety. Mr. Davis took certificates for W. T. Burnet, Duchess of Albany, Ville de Toulouse, and Japonaise, the latter in the way of Comte de Germiny, but more incurved; also for Ceres, which is considered a first-rate late sort. Messrs. Cannell, of Swanley, received a first-class certificate for Catherine Wheel, a blush white sort of the Japanese Anemone section, with flowers of a fine symmetrical outline. Votes of thanks were accorded to Messrs. Cannell for a collection of cut blooms; also to Mr. Davis, of Camberwell, for cut blooms. All the flowers shown at this meeting were uncommonly fine, having regard to the late date.

**Floral fans.**—I am sorry to find that "G. S. S." dislikes these. They will never banish bouquets, but they are at least as pleasing, certainly far lighter, and they also serve the double purpose of being at once a fan and a bouquet. Probably Mrs. Smith's fans were not half the weight of any ordinary bouquet, perhaps

not more than one-third, and whilst the floral dressing affixed to them lent beauty which could only have been found in some exquisite painting, it did not in any way interfere with the proper uses of the fans. It is a style of decoration which comes within reach of all; the mere framework may be obtained at a trifling cost, the covering of lace is simple and easily put on, and the sprays of flowers and foliage may be attached by dexterous fingers with ease. Thousands who could dress a fan with a few flowers neatly could not make up a respectable bouquet, whilst the quantity of flowers needed for the latter would dress a dozen fans. That artificial flowers may be employed is certainly no worse than is the wearing of them in hats or bonnets, but it is certain that for all these purposes, where obtainable, natural flowers would be preferred.—A. D.

#### CHRYSANTHEMUM SHOWS.

THE past season has hardly tended to increase the Chrysanthemum in public estimation. That has arisen from no fault of the growers or of show committees, all of whom have done their best; but chiefly from the fact that the season has not been a favourable one for the production generally of first-class blooms, and plants have shown nothing new or striking either in form or training. Then we have seen nothing of a very special character about new kinds which tended to lend to the flowers increased interest. The best among the Japanese section, and these are not absolutely new, are Belle Pauline, ro-cum superbum, and that fine reflexed kind, Cullingfordi. Still, these have been seen before. Something unusually good is now needed to create more than ordinary interest in the minds of visitors to shows, whilst growers who produce blooms and plants for exhibition will hardly trouble on that account so long as there are valuable prizes to be picked up. Then it would seem as if the favoured incurved kinds were almost played out, for any genuine novelty is not to be found. Now and then some kind of well-known sportive character produces a variation, which shows a tint differing from the parent or another sport in the most infinitesimal degree, and forthwith it receives a name, and is awarded a certificate of merit for its eccentricity. It might be thought by the uninitiated that kinds which are marked for their consistency of character would the most merit such honours. Perhaps that very eccentricity which promotes change in the incurved Chrysanthemum, as remarkable as are the variations in the colour of the chamæleon, may have affected my mind, as only in that way can I excuse the apparent want of consistency shown when I invite yet another Chrysanthemum show. But, then, I do not ask for any common one—some small suburban affair, which shall be a reproduction, perhaps a little better, or perhaps a little worse, than dozens of others held annually almost within the sound of Big Ben.

I should like for once to see a score of these shows thrown into one, and a really grand exhibition created, at which we should see concentrated all the best plants and all the best flowers to be found in the kingdom. Such a show would be a kind of festival of Chrysanthemums, distinct from the many isolated ones now held. Why cannot we have a really national Chrysanthemum show, for once a show in reality, a show lasting for four days, carried out under the most able direction, and helped by a schedule of prizes of the most liberal kind? It is notorious that many good provincial growers now are attracted to the metropolis during what is termed the Chrysanthemum week of the November month, that they may see what is of the metropolitan best, and they are not always sent back

satisfied. The fact is, we have so many shows, that the best cannot be found at any one of them, but can only be seen by visiting a score, and picking out the wheat from the chaff.

The National Chrysanthemum Society's exhibition is no doubt one of the largest of its kind held, but then it is not much more than some two or three smaller shows rolled into one, and in many a suburban or provincial show some things, either of plants or flowers, will be seen in better form. We want to see if possible all these good things brought together in one centre, and at the same time we want to be saved the necessity of running all over the metropolis and one half the kingdom to find the best and which may be attracted to one centre. Were but a grand central and truly national show established, which would gather all that was really good under one roof and at one time, it is very probable that not only would myriads of persons who now seldom see a Chrysanthemum show visit such a grand, because national, display, but it would likewise lead to a much greater interest in the Chrysanthemum and its culture than now exists. The present class of show visitors is a stereotyped one, and comprises chiefly those already interested in the flower. This class is, however, but a very limited part of the population, and we want to create something more than a limited class interest. We want a truly national Chrysanthemum exhibition. A. D.

#### QUESTIONS.

5433.—**Rose Camellia.**—What is the correct botanical name of the single Rose whose local name all along the Riviera, Cannes, Nice, &c., is Rose Camellia? Is it the Camellia de Japon Rose, which is white, single, and rather striking?—W. E. G.

5434.—**Seeds.**—Will someone of your readers kindly inform me if I can procure seeds of *Ipomœa Horsfallii* and of *Schizostylis coccinea*, and if so, where? I have had what were said to be seeds of the former, but they turned out not to be genuine.—G. C.

5435.—**Hallstorm insurance.**—The executive committee of the Society of American Florists will feel greatly obliged if any of the readers of THE GARDEN will furnish them with information regarding the insurance of glass structures from losses by hail. Would they kindly give the names of any companies that grant such insurances, the per cent. charged per thousand and square feet, the manner of determining and adjusting losses so occasioned; and any other information bearing on the subject that can be given will also be welcome? No company in America will take risks on glass from breakage by hail, hence we are driven to the formation of a mutual union insurance with our own lines, and many of our members deem this impracticable.

#### LATE NOTES.

**Tropæolum tuberosum.**—I can send our strong tubers of this pretty climber in exchange for other interesting things on receipt of address and 3d. to cover postage.—GREENWOOD PIM, Monkstown, Co. Dublin.

**Angræcum caudatum.**—In reference to the note about the flow ring of this Angraecum in England (p. 593), I may state that it has frequently flowered at Glasnevin. In 1879 one plant of it had three fine flower-picks, but it has not flowered since then.—F. W. M.

**Names of plants.**—*Paul de Sen.*—*Helleborus abschasicus*.—*J. G. K.*—*Cymbidium Lowianum*, fine var.; 2, *Barkeria Lindleyana*; not *B. elegans*; 3, *Brassavola speciosa*; seed leaf and bulb.—*T.*—*Odontoglossum atropurpureum*; *Humeana* is the same plant.—*Recher.*—*Adiantum Pacotti* and *Pteris cretica alba-lineata*.

**Names of fruits.**—*J. S.*—*Marie Louise.*—*W. M.*—1, Winter Hawthornden; 2, Sweeney Nonpareil; 3, Court of Wick; 4, Golden Noble.—*W. S.*—The two large Apples may be Beauty of Kent and Mank's Codlin.—*H. Franklin.*—1, Old English Codlin; 2, Winter Strawberry.—*C. W. M.*—Beauty of Kent.—*G. Smith.*—1, Beurre de Capiaumont; 2, rotten; 3, Napoleon; 4, Easter Burre.—*C. Lucas.*—Glou Morceau.

#### BOOKS RECEIVED.

"Arboretum Segrezianum: illustrations and descriptions of new and rare trees and shrubs at Segrez," by Alphonse Lavallée. Part 6.

"The Carnation and Picotee: their History and Culture by E. S. Dodwell.

"Poetry Aliments," by D. J. T. Gray. Bazaar Office Strand, W.C.

"The Orchid Grower's Manual," new and revised edition (6th), by Mr. B. S. Williams, Upper Holloway, N.



## WOODS & FORESTS.

### GROWING TREES FOR PROFIT.

ONE of the most serious indictments to which the advocates of more extensive planting are open is the very common one of jumbling up into a single list the species and varieties of trees which are suitable for planting for profit and those which are merely of use for climatic reasons, or for ornament, and that without any indication of the purpose for which each kind is adapted. M. Howitz, of Copenhagen, in the list he furnished in connection with his proposals for reforestation of Ireland, is a great sinner in this respect, for out of his catalogue of over fifty kinds of forest trees not more than a third would be likely to be of any commercial value if grown. This is the case with the list if taken as a whole, but if the Conifers alone are selected, the proportion of trees for which there is at present no market in these islands is still greater, being, in fact, about nine-tenths of the number. If this collection was put forward merely as trees likely to grow freely in this climate, criticism would not be called for, but when it is given to the public as a serious economic project, it is essential that its true worth should be considered. Of timber trees cultivated here, less than a score are of any recognised value in commerce, so if the scheme of M. Howitz is carried into effect, and if the species he selects were planted in anything like equal proportions, we should have forests of timber of which two-thirds would be practically useless. The margin of profit on planting under the most favourable circumstances is necessarily not great; therefore the most careful choice of what is to be planted is of paramount importance. I do not refer to this compilation of the well-known Danish conservator as being worse than the generality of such attempts, but as it is more comprehensive, it gives one the opportunity of making a few remarks upon most of the trees which it is really desirable should be planted. In doing this it may be well to look at them in the order in which they occur.

From the Pine tribe M. Howitz makes seventeen selections, but although many of the species grow satisfactorily in this country, only the first, the Scotch Pine, is known to timber buyers. It is true that large quantities of the Pitch Pine and Weymouth Pine and some others are imported, but if the same species were offered here as home-grown trees the buyers would look very much askance and decline to bargain. Next comes the tribe Abietinæ, of nine species; but out of this the common Spruce is the only one which here would meet with a sale, and this at a scarcely remunerative price. Of Cupressinæ, which embrace a list of ten trees, not a single one is known beyond the range of ornamental planting, and this, with the exception of the Larch, exhausts the entire proposal. We thus see that, of thirty-seven kinds enumerated, we have only three which can really be looked upon as holding out a reasonable inducement, and of these the position of the Spruce for planting large areas is more than doubtful.

Leaving the Conifers, we find amongst the deciduous trees a larger proportion of useful species; but amongst the Maples we can only point to the Sycamore, and this is a tree which is now attracting some attention amongst planters. The demand certainly is not so large as for some other kind, but it is a wood which grows well on a number of soils, and which, from a comparatively small up to a large size, fetches a good price per foot. M. Howitz speaks of this tree as thriving well by the seaside, but on the moment we do not recall it in such situations. London, however, remarks that when grown in a deep, free,

rich soil and in a mild climate, it far outstrips any other species of Acer. It arrives at full growth in fifty or sixty years, but its wood is better at eighty or a hundred. On the whole, in suitable situations and in limited quantities, the Sycamore is likely to be a profitable tree to plant. Of the Horse Chestnut, which amongst others given as a timber tree, we can say little, as beyond its unquestionable place as an ornamental subject it possesses no claim upon the planter. The same, however, is scarcely true of the Alder and the Birch, as, although they seldom grow to great dimensions or reach a very high figure, the former is valuable in boggy situations, and the latter on exposed hills. The Hornbeam, although not an important timber tree, is worthy of being mentioned, and can be grown on cold, exposed soils, and generally finds its way into the market with other trees of a similar class. Running on in the order in which the list is formed, after passing some of the Hickories, which are not known here, our attention is directed to a well-known, but now neglected, tree—the common Walnut. Where the encouragement is to the planter to grow this tree, except for its fruit, now lies, it is difficult to tell, as, notwithstanding its undeniable merits, it appears to have been generally discarded for its more successful rival, the Black Walnut (*Juglans nigra*) of America, which, although never extensively grown here, in favourable situations would be likely to prove a good timber tree, as some large specimens have been raised from time to time. In some respects, we have now to look at a tree which presents as bright an outlook to the planter as any one species commonly grown, viz., the Ash, as it is one of which at present the supply is diminishing and the demand is increasing, and if it does not continue to increase has every probability of being maintained for a considerable time to come. One great advantage of the Ash is, that it can be used at almost any age and any size, and is a wood, when of good quality, that will fetch a good price. Although not largely used, we are scarcely warranted in leaving the Plane out of our selection of what may be reasonably grown for profit, as for some special purposes its wood is prized, and as an ornamental tree it is probably better known to dwellers in the metropolis than any other.

Of the Poplars there are several species, but although there is a marked difference in their wood, in commerce very little distinction is made. From its nature, it is improbable that the produce of any of this species will ever reach a high figure; but as they are trees of quick growth, and will succeed where many others would probably fail, they are more to be recommended for cultivation than many of the highly praised recent introductions. To pass from the Poplar to the Oak may be looked upon as the meeting of extremes, but we do so to preserve the sequence of our remarks.

Five species of Oak are given as being suitable for planting, but in this country the species most common, viz., *Quercus Robur*, is found in the two varieties of *Quercus pedunculata* and *Quercus sessiliflora*. The Turkey Oak (*Q. Cerris*) is also met with, but M. Howitz rightly excludes it from his catalogue, as its properties as a timber tree are not of a character to entitle it to a place. Although to some extent grown as a timber tree, the Willow in its numberless varieties is more popularly known as the source of supply for basket rods, and for this purpose is held by some authorities to be a better paying tree than the Oak itself. Soft and close in the grain and very useful for carving, turning, and similar work, we have the Lime, which, although not over-abundant, has been known in Britain from time imme-

morial, and is a tree which in some situations presents a very fine aspect. The Elm and the Beech, which will about complete the number of the kinds of wood which can be grown in this country for commercial purposes, are too well known to need dwelling upon further, as our purpose rather is to enumerate than to describe.

In doing so, our selection may seem somewhat arbitrary, but we believe it will be found, on careful investigation, that there are few other trees than those of which we have spoken likely to prove fit for profitable growing, and in many places a number of these would have to be weeded out. WOODMAN.

**Russian bast mats.**—About 400,000 mats are annually exported from the port of Archangel alone, and large quantities also reach us by way of the Baltic and Black Sea. The exportation in this way amounts to about 1,500,000 mats a year. The home consumption cannot be given in exact figures, but there is no doubt that it greatly exceeds the quantity exported. The manufacture of mats is mainly a domestic industry. The peasants employ their spare time in the maceration and separation of the liber of the Lime trees into slips and in plaiting the latter into mats, which are purchased wholesale by commissionaires. Lime trees from twenty-five years of age are fit for decortication for the manufacture of mats, and in localities where the Lime is not sufficiently plentiful to supply the wants of the inhabitants in the way of mats and shoes it is replaced by the bark of the Willow and Birch. Indeed, in the government of Kostroma, one of the principal centres of this industry, the Lime forests are already all destroyed, so that the materials to carry it on have to be procured from other districts, for the inhabitants are loth to give up an occupation which has been continued for centuries. The bark is removed in spring or early in summer, about three weeks being devoted to this part of the work. The value of the mats exported to Europe in 1871 amounted to nearly £50,000.

**The wood of *Thuja gigantea*.**—*Thuja gigantea* is, among the trees on the north-west coast, the Indian's best friend, for out of its wood and bark he manufactures endless articles of domestic, hunting, fishing, and warlike economy. Most of their canoes are hollowed out of it, at least in Vancouver Island; and there is a case quoted where a canoe made out of *Cupressus nutkaensis*, in Vancouver, was quite an exception, and indeed the canoe was probably traded from some of the northern tribes, and not of Vancouver manufacture at all. The Indian ropes are also very commonly twisted out of its bark. The tree which I took for *Thuja plicata*, and out of which I happened to see the Indians, just at the time I wrote this letter, twisting ropes, I believe, from after investigation, to have been only a stunted form of *T. gigantea*, and that *T. plicata* is not a separate species, but for reasons which I have given in another place, and cannot now again repeat, is, indeed, only a variety of *T. gigantea*. North of latitude 53° *Cupressus nutkaensis* takes the place of *Thuja gigantea*, and is applied by the Indians to all the useful purposes of *T. gigantea*, and to some others in addition. For instance, at the Matlakalah Mission, on the coast of British Columbia, in about latitude 54° N., where there are fine groves of it, it is sawn into lumber and sent to Victoria, where it meets a ready sale among the cabinet-makers, as it takes a fine polish and works beautifully. Most of the prettily polished discs and little cylinders used by the Indians in gambling are made either from this wood or from that of *Acer macrophyllum*. It is also valuable for ship or boat-building. The wood of *T. gigantea* is whitish, but in its fresh state is yellowish, hence the name "Yellow Cypress" applied to it. It is light, tough, durable, and easily worked. The property of durability it shares with *Thuja gigantea*, and in addition it has a pleasant fragrance. On this account the Russians about Sitka used to call it *dushnik* or "scented wood." It was absolutely at one time exported to China, and returned marked with Chinese



characters, which warranted it as "real Chinese camphor wood," puissant for many purposes, and a sovereign remedy against moths in drawers! In repairing old Fort Simpson, the only log found sound after twenty-one years' trial of those used for "under-pinning" was a stock of this.—M.

### USES OF LARCH WOOD.

WITH respect to the various uses of the common Larch for timber, so much has been said by various writers, that it will not need any very exhaustive account here. The fact of its being a tree which is very largely used on the estate makes it familiar to many. With the exception perhaps of the Ash, it is a tree which can be used earlier in its existence than any other common to this country, as from 2 inches or so in diameter it can be used for poles. At a somewhat greater age it can be turned to use for a great variety of purposes, and notably amongst these comes that of colliery propping. It is rather a favourite theme with some to try to prove that the Larch is being, or will be, ousted from this use; but the note of alarm is, to say the least, premature. For cleanness of growth, and consequent freedom from waste, and also amongst Conifers for durability, the Larch has no equal. Of this colliery owners are well aware, and when a plantation of good Larch is to be had, it will be taken in preference to any other wood. For trees of a size somewhat larger still, the next important demand is for railway fencing. For fencing on estates the wood which would go for collieries, or even smaller sizes, would come in well enough for fencing, as the rails are seldom required to be squared. Some years ago the same was true of railway fencing; but now with most companies it is insisted that all the rails be squared, and for this purpose, to prevent undue waste, trees of a larger size than those which usually go for colliery props are necessary. The class of wood which cuts up well for this also comes in well for ordinary field gates. When Oak is not used, the Larch is the next best material. This is a thing which landowners would do well to take note of, as it has been stated in these columns—and it is a practice which has obtained considerable hold—that many gates are now wholly or partly made of foreign deal. When Oak is not to be had we strongly urge that Larch should be resorted to, as it is a material against which for such purposes the most of the imported woods cannot be held up in comparison. Certain kinds of fencing hurdles, too, can be made from it, but for this the smaller sizes would answer equally well. Ascending again a little in the scale of size, we come to another kind of use, viz., sleepers of various descriptions. If it was obtainable in sufficient quantities and at a competing price, there is no doubt that the Larch is essentially the wood for permanent railway sleepers; but as the numbers required are enormous, and foreign wood which is prepared by one process or another comes to hand more regularly and cheaply, it is much more largely used. Notwithstanding this, however, Larch is used for such work in various places, and on tramways and other feeders to the main lines of railway it is held in considerable favour. Its comparative scarcity in suitable sizes is probably the reason why so many foreign poles are imported for our telegraph lines. If it is not this, it is hard to account for it, as for resisting the action of damp between earth and air, so far as our experience goes, Larch is the more suitable wood. If plantations of Larch really exist in this country fitted for use for telegraph poles, it is certainly a question which should be asked in the coming Parliament why it is discarded in favour of foreign wood. This is not a mere question of sentiment, but a thoroughly

practical one, as if it can be proved that suitable wood is in existence here, but is passed by in favour of the produce of other countries, it is certainly a matter which requires looking into. Perhaps some of our M.P.'s will take note of this.

When the Larch first grew to any size in these islands some experiments were made as to its utility for ship-building. In some quarters strong opposition was manifested to its employment, and although on the whole the results were favourable, it has not been so largely used as may have been rightly expected. For the smaller class of fishing boats it, however, seems to be still in use, and for some purposes in ship-building. In many respects the Larch is an invaluable wood where it has to be subjected to hard usage. For the planking of wagons and carts, for the removal of stones or similar material it is eminently suited, and by some wheelwrights it is used in place of Ash for shafts. In agricultural implements generally it has many uses, and for wheel-barrows and the like it is strongly to be recommended. Indeed, there is a whole host of things on the estate and farm where it can profitably be employed, and with a little judgment there need be little or no waste. For the sides of ladders the smaller poles will come in well: for pillars and supports to many classes of buildings there is nothing better; for rustic bridges, stiles, and fences, when its bark is retained, it is simply unequalled; and where tin-ware has not penetrated, it is well suited for tubs, pails, buckets, and numerous other domestic utensils.

In house-building there appears to be no reason why it should not be extensively used, except, perhaps, that there are woods which could be used in interior house-building in its place which would not be adapted to stand the exposure for other purposes, which the Larch would do with immunity. Its claims, too, as a furniture wood have been urged by some. With this, in a general sense, we can hardly agree, as there are woods in abundance growing in this country which possess the qualities required in a furniture wood in a much greater degree than the Larch. Y.

**Bracken for coverts.**—There are two modes of establishing Bracken, by transplanting and by raising seedlings, the latter way being the best. Now is a good time to transplant, or any time before March. You must, with a full-sized spade, dig up entire sods, enclosing the black underground stems of the Fern, and so transplant in a light loamy or peaty soil. You will not succeed if you pull away the roots, or rather stems, without removing soil with them. Seedlings do much better than transplanted roots, and are in every way more satisfactory. If you will gather a handful of ripe fronds, those with spores (seed) on their fronds now, place them between sheets of dry paper, and keep them dry, the spores will soon fall out. They may then either be sown at once or kept till spring. Make up pots or pans of good loam, rammed firm; sow the spores not too thickly; cover with a piece of glass, place the pots in saucers of water in a cool shady position, and they will grow in three weeks or so. As soon as the young plants are large enough to handle, pot them off singly into small pots, and as soon as they have filled these, give them a shift into 4-inch pots; grow them on rapidly in a house or frame, and by the middle or end of July they will be large enough to plant out permanently. The progress which they make is quite astonishing if liberally treated. Plants in sods always take two years before they recover from removal, even if they do recover, which does not always happen; whereas these seedlings become quite established the first season, and the second season grow into good tufts, ramifying in all directions. A vast number of plants may be obtained from two or three pots. It is not

absolutely necessary to employ pots or pans for common things of this kind. Take a sod of loam, turn it upside down in a saucer of water, and sow the spores all over it, and do not cover at all; they come just as well.—E.

**Willow for powder making.**—The wood of the White Willow (*Salix alba*), the Bedford Willow (*S. Russelliana*), and the Crack Willow (*S. fragilis*), make excellent charcoal, and is much sought after for that purpose. In some cases it is preferred to all other kinds of wood.—E.

### TO THIN, OR NOT TO THIN?

"PLANT thick and thin early" is a common maxim among experienced planters, the reason being that the best results have been attained by this system of tree culture, more especially in the formation of plantations on bare, exposed districts of the country, notwithstanding which there seems to be a school of modern planters who have made the discovery that such practice is wrong, and tell us that if we are to grow trees for utility and profit we must allow the trees to thin themselves, by the strong killing the weak, as is the case in the natural forest. Such advocates should tell us about the texture of the soil, exposure, kinds of trees planted, distance apart, and the elevation where they have gathered such experience, as all this would be useful as a base to enable readers to form a correct estimate of their teaching.

If trees are planted at a distance of from 3 feet to 4 feet apart (not an uncommon practice) and allowed to grow up a mere thicket, I have no hesitation in saying that such a system of tree culture would be ruinous in the extreme. Trees planted at such a distance apart upon soil of ordinary texture should be ready for thinning after a growth of some seven or eight years, and if this is not attended to the side branches gradually lose their vitality, and by the time they are double that age they will exhibit a lot of bare drawn-up poles, with a tuft of green branches and foliage at the top, and a corresponding quantity of small roots below. Such poles may be very useful in districts of the country where there is a demand for stuff of the kind, but will certainly never attain the bulk and dimensions of heavy timber, for the simple reason that they have been deprived of space in early life to extend their roots and branches, by which means they cannot collect food for the full and healthy development of the trees.

Trees derive a large amount of nourishment from the atmosphere as well as the soil, and if we deprive a tree of the greater number of its branches we at once cut off one of its principal sources of supply, and thus curtail to a serious extent one of the appendages afforded by Nature for that purpose. It therefore follows that such practice is in direct opposition to the well-defined principles of vegetable physiology, and consequently cannot be entertained for one moment as a safe rule for general tree culture. I am astonished at writers who propound such a theory, for it can neither be supported by practice, experience, nor observation; at the same time, I may remark that the errors of theory are sometimes dangerous, more especially in cases, like the present, where the advocates try to support their arguments by pointing to the excellent timber produced in the natural forest, and where the hand of man was never employed in its culture and production.

Trees growing in the natural forest are widely different, in many respects, from such as have been planted. In the former case there is always a variety of sizes, so that the tallest can easily crush their weakly neighbours without losing their side branches, and it is only after a series



of years, when the taller trees have become thoroughly established in root and stem, and their side branches meet and lose their vitality, that the fine clean stems are formed for timber. I have, however, found it an advantage, in cases where such trees had lost their leaders by deer or black game, and where several shoots had taken the place of the former at the top, to have such cut off, leaving the best for the future stem. Planted trees, on the other hand, are all about one size, and if they are not to be thinned they should be planted at a wide distance apart, in order to meet the requirements of the case.

J. B. WEBSTER.

#### LAW RELATING TO TIMBER.

WOULD it not be an important addition to the mass of interesting matter which week after week appears in your columns if some account was given as they occur of important legal decisions concerning timber? I should look upon this as an exceedingly valuable feature. At the time of writing some decisions which have been given from time to time occur to me, and as they will serve to illustrate some of the points of difficulty arising out of having to do with timber, it may not be out of place to give them. The first of these was where a well-known baronet was the person next in succession to a copyhold estate. The estate at the time when the proceedings were taken was in the possession of a gentleman seventy-five years of age without issue. The prospective owner moved for an injunction to restrain the then owner from cutting down the ornamental timber. It came out in evidence that the fee simple belonged to the Ecclesiastical Commissioners, and that by custom the copyhold was liable to forfeiture for cutting timber otherwise than provided for by deed, and on the part of the plaintiff it was urged that the defendant had put the property in peril of forfeiture by cutting ornamental timber contrary to the deed. It was further argued and sworn to by several competent witnesses that some of the trees were the finest in the district and were being cut down by unskilled workmen. For the defence it was stated that the trees were merely being thinned to promote the growth of the others, and that the felling was not being done by unskilled persons. The Master of the Rolls, before whom the motion came, in giving his decision remarked that the defendant had power to fell the trees to improve the others, and it had not been shown that he had done more than he was entitled to do. The motion would be dismissed, the plaintiff to pay two-thirds of the costs. Of the circumstances surrounding this case I know nothing, but to a disinterested person it seems rather a delicate point to be satisfactorily decided, as, while if it could be avoided, it seems very undesirable to interfere with persons in possession, it is equally undesirable that valuable timber should be slaughtered. The great question in the case appears to have been whether undue slaughter had or had not been committed, and this was decided in the negative. Another case of a totally different character, but which is scarcely less important, and in which some of the parties concerned were known to the writer, is also worth looking into. The point here decided was one of right of lien. It appears that a firm of timber merchants had purchased from a gentleman's agent a quantity of timber which was to be paid for within four months, and to be removed in six months, unless further time was given. The trees seem to have been principally or entirely Oak. The trees were felled and barked, and the bark was taken away by the buyers. Before however, the timber had been removed and before the time for payment had expired

the firm fell into difficulties. As considerable amounts were due on other purchases, an extension of time was allowed by the vendor's agent, in consideration of the purchasers giving him authority to take certain sums of money due to the firm. This arrangement the head agent repudiated and the firm went into bankruptcy. The trustee claimed the timber for the estate, but to this the vendor demurred. It was submitted on behalf of the trustee that the vendor had parted with possession when he allowed the merchants to take away the bark. This view, however, did not meet the ideas of the judges, and the verdict went in favour of the vendor.

Another case of which I cannot now recall the ultimate result was one where a gentleman's agent agreed to supply a firm with a number of Larch trees of a certain size. The purchasers sent a man down to mark the trees, but as they did not come up to their requirements he declined to mark them. The agent therefore declared the agreement terminated, but to this the merchant objected, and refused to rescind it. They claimed damages, and at the assize court where the case was tried £200 was awarded for the breach of contract. The ruling of the judge, however, was challenged, and, as I have remarked, the final result has escaped me. It will be seen, however, that even in the simple matter of buying and selling trees, and in questions of property in them in holding or succeeding to estates, there is now and again cause for litigation. The reports of the results of such cases in your columns would be of great use in clearing up doubts, and be of real service to your readers who will not care to wade through the whole daily lists in the chance of lighting upon something which may be of interest to them. WILTSHIRE FORESTER.

**Black Italian Poplar.**—The more general cultivation of this Poplar for timber is worthy the consideration of every planter. It will thrive in almost any soil, and attain to considerable size in a very few years, and will grow most rapidly when planted in a deep, moist, loamy soil, and makes most wonderful annual growths of young wood in damp, although sandy, alluviums beside river banks or level flats. The height to which a full-grown Black Italian Poplar will attain is about 120 feet, and this height will be reached in about sixty years in suitable soil and situation. The uses to which its timber is adapted are numerous, and owing to this toughness and lightness it is well suited for various purposes. In localities whence there is easy and convenient means of transit to any of the great centres of industry and manufacture Poplar wood of fair size, from about 2½ feet to 3½ feet diameter at the base of the trunk, will fetch from 1s. 3d. to 1s. 4d. per cubic foot, and frequently a higher price.

**Red Cedar** (*Juniperus virginiana*).—Where seedlings of this Conifer are raised in quantity there is a great diversity to be found among them (quite as much, indeed, as in any Conifer), some varying greatly in colour and others in habit. The most part, however, where grown under favourable conditions form handsome isolated specimens; indeed it is far more worthy of a good position than many rarer kinds, for it possesses the great merit of thorough hardiness. In some the foliage during the winter remains of its normal green tint; in others the glaucous character is retained throughout the year; but in most instances the plant acquires a reddish or brownish hue in the winter months. An additional feature is, in the case of some, imparted by the small glaucous purple fruits that are borne in such numbers as to be most conspicuous; but it is by no means general in the case of large plants, for many do not fruit at all, others but sparingly, while some are heavily laden. A specimen thickly covered with fruit is highly ornamental, the glaucous tint of the berries contrasting as they do in a marked way with the reddish hue of the foliage. There are several varieties of the red Cedar that must be propagated by cuttings in order to perpetuate their distinctive

characters. The best are pendula and glauca, whose prominent features are indicated by their respective names. In Schottii the foliage retains its bright green colour throughout the year, the habit of the plant being more upright and compact than the ordinary kind. The variety Bedfordiana is of an open, elegant character, very bright green in hue, its ornamental qualities being of the highest order.—ALPHA.

#### REASONS FOR AND AGAINST PRUNING.

MUCH has been said and written for and against the practice of pruning trees. The experience of some and the prejudices of others are often of so conflicting a nature and so opposed to each other, that in place of throwing additional light upon the subject it has rather tended to mystify the practice. This arises in a great measure from the injurious effects produced in the timber of trees that have been mutilated (not pruned) by cutting off large branches and limbs from trees that had been neglected in the earlier stages of their growth, and when pruning would have been beneficial in promoting the formation of clean, sound timber free of large knots. I think no practical forester of long experience would advocate the removal of large branches or limbs, as the wood of the trunk would not only be permanently injured, but the expense incurred by such a system of management would be altogether inconsistent with true economy and sound practice. Nevertheless, it cannot be denied that great numbers of trees in this country have been subjected to such treatment, but the reason why we shall not stop to enquire; suffice it to say, that when such timber is cut up by the carpenter, the cabinet-maker, or the turner, and the blemish discovered, each and all denounce the system of pruning. Now, at first sight, one would be led to conclude, from such strong testimony, that pruning was really injurious and ought not to be practised; whereas, the truth is, such trees were not pruned at all, but subjected to irrational treatment by the removal of large branches and limbs at a period of the tree's growth when it should have been allowed to stand unmolested to make timber.

The art of pruning trees grown for timber is in cutting off or pointing rival leaders at the top, as well as straggling side branches, in order to balance the head and direct the growth to the increase and formation of useful timber. By means of early and judicious pruning the bulk of timber is promoted; the trees are less liable to be rent and torn to pieces during a storm; fine examples of which may be seen where the trees have been properly pruned in early life, and where the tree consists of one stem, as such oscillate with the wind and weather the storm unscathed; whereas trees that have been allowed to produce a plurality of stems and strong unwieldy side branches are often torn asunder, and rendered for the most part only fit for firewood.

Trees that have been properly pruned in early life seldom require further attention in this respect after they attain a height of about 20 feet, and it is a matter of no importance whether the leader or branch to be removed has been cut off by the knife, saw, or chisel, providing that the wound has a clean sloping surface to prevent the lodgment of water. Branches that have been torn from the stem by the wind should have the wound neatly dressed by paring off all splintered wood and applying a coat of strong paint or tar to the surface. In pruning leaders and strong side branches, such should be removed by a clean sloping cut with a sharp knife at the base of a lateral twig. A proper knowledge of the pruning and thinning of plantations in the early stages of their growth I consider one of the most important branches of a forester's education.

FORESTER.



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"This is an Art  
Which does mend Nature: change it rather: but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## GARDEN IN THE HOUSE.

## CHRISTMAS DECORATIONS.

AMONG the many old customs fast becoming obsolete may be included that of heavily decorating houses with Evergreens at Christmas. No doubt there are still places where green and variegated Evergreens, berried Holly, Pampas Grass, and Mistletoe are extensively worked into wreaths, festoons, and various devices for decorating entrance halls, dining-rooms, and other places, but according to my experience very little indeed of this is now cared for. I must, however, acknowledge that I have a liking for the good old custom of decorating residences, more especially those in which there are grand entrance halls, and I think some of the happiest hours of my life have been spent in this most congenial employment. The old style of making wreaths and festoons certainly absorbed a considerable quantity of material, and was sometimes, perhaps, rather too heavy, but as a rule it was very effective, which is more than can be said of the modern style in which tape, cotton, wire, leaves, and artificialities play so prominent a part. These painfully neat exhibitions of wasted time and doubtful taste may find admirers, but to me there always appears to be something wanting—something less artificial, or, in fact, more imposing. If there is neither time nor material for making substantial wreaths, &c., I would be content with a few bunches of Holly, Ivy, and other Evergreens grouped over mantelpieces and pictures, and stuck in various odd corners, while any prominent pillars, balustrading, and such like might be prettily wreathed with long pieces of Ivy. Few or no nails are required for fixing these, and all may be put up and removed very expeditiously.

CHURCH DECORATION, however, is now more fashionable than ever, and instead of its being left to the sexton and assistants, this "labour of love" is shared in by numerous lady members of the congregation. It is no part of my business to either commend or condemn this practice, the motive being good if the results are not always so satisfactory as might be wished. Candidly, I long for the return of the custom for the sexton to either repeat the old style of decorating, or at least to be called upon to do something more than nail up numerous devices—long strips of leaves and berries stitched together, ornamented texts, &c., all of which very frequently look lost on heavy columns and in other positions to which they are attached. Days may be spent over the manufacture of these artificialities, and yet the effect be infinitesimal. The larger

the structure the greater need for heavier decorations. Let ladies by all means decorate some positions—say all that is inside the chancel and also the font; but the heavy columns should either bear substantial wreaths of Evergreens, or, failing this, trailing Ivy, or else be let alone. Nor would I permit much beside Ivy to be used for the windows, while every corner should have a group of Evergreens. This style, call it "rough and ready" who will, of decorating the body of a church would not detract in the least from the neater work done by ladies; on the contrary, it would serve to enhance it, and the whole, if well carried out—and I am writing from experience—would gain more admirers than does the present style of decoration. A quick worker or two would soon make a number of wreaths or festoons of Evergreens, and for this purpose abundance of berried Ivy, variegated Holly, Box, and Yew should be used. These are first cut up into lengths, ranging from 6 inches to 9 inches, according to the size of wreath required, and are then bound (not tied with small string) neatly to strong string cut into lengths as may be necessary, and strained across from one nail or staple to another.

POT PLANTS are also largely employed in church decoration, and in many instances with excellent effect, but not when placed in windows with the pots fully exposed and not so clean as they might be. Where groups can be arranged, notably in corners either inside or outside the altar rails, near the pulpit, and in other prominent positions, they are the most beautiful form of decorating possible. For the past ten years it has been my lot to assist in church decoration, more especially with pot plants. These are grouped where they are most effective, care being taken not to hide what should not be hidden. At this season we use plenty of Poinsettias, Calanthes, Cinerarias, and zonal Pelargoniums, brightly-coloured flowers being most appropriate, and with these are employed Palms, Ferns, and *Isolepis gracilis*. Pots in all cases are well hidden either by a fringe of very dwarf or trailing plants, or, failing these, with branches of Box. For the font we provide one or more elegant plants of *Pandanus Veitchii*, and with these, a few white flowers, and plenty of green Moss a pretty effect can in a short time be produced.

W. I.

## Prolonging the Chrysanthemum season.—

At the outset, permit me to say that I know nothing about the late varieties of Chrysanthemums which have appeared within the last two years; my experience therefore is with the ordinary kinds that have long been in cultivation, and of these we grow about one hundred and fifty. We pinch off the points for the last time in the first week in July, and instead of throwing them away, insert them as cuttings—three each in 3-inch pots, placing them in a propagating case under a north wall. When rooted, we shift them entire into 5-inch pots. The soil which we use is good turfy loam, intermixed with a few bones. They are then placed near the glass in a cool house. We give plenty of air in order to ensure stubby growth. Our batch this season is just now unfolding their blossoms, whilst the parent plants have all done flowering. They are about from 12 inches to 16 inches

in height. These successional plants we find most useful for decorative purposes at this festive season.—R. GILBERT, *Burghley.*

**Jessamine in winter.**—Nothing is prettier or better at this season of the year, where white flowers are in demand, than sprays of white Jessamine, and their fragrance makes them doubly welcome. Cuttings struck in spring make good plants by the autumn; but if grown on till they fill a 14-inch or 16-inch pot, if plunged in one corner of a stove and trained up the roof, a great advantage is gained, for, thus treated, they keep on producing bloom during nearly the whole of the winter.—W. A. COOKE, *Holme Wood.*

## NOTES ON RECENT NUMBERS.

**VERONICAS** (p. 608).—Those who have charge of planting by the seacoast should not fail to grasp the value of these shrubs for positions where scarcely anything else will grow. I have seen them, exposed to all the gales off the Atlantic, fine flourishing bushes, able to stand all the storms which have destroyed their would-be neighbours. In short, there are few things that will bear the wind as they do, and the unbotanical portion of the "municipal councils" may disprove their ignorance by insisting on a plentiful supply of Veronicas to embellish their esplanades or marine gardens. Once on the coast of Ireland I found some plants looking more like newly made Oak faggots than evergreen flowering shrubs. I began to fear for their reputation after all. However, the cause of their misery turned out to be, not the fierce tempest blast, but the shorn lamb, which in its peregrinations in search of things eatable seemed to have been seized with a desire to see what was growing the other side of the "ditch" (*Anglice*, stone wall), and accordingly climbed over and proceeded to make, in his hunger and his gluttony, what one would have imagined a doubtfully wholesome repast. I do not know whether he was much the worse after it; certainly the Veronicas were not, and soon shot out again as thick as possible from every twig, showing that one need not fear to prune pretty freely if necessary. Though many of the large-leaved sorts are not generally hardy inland, the smaller-leaved varieties, such as *Traversi* and *Girdwoodiana*, are fairly to be trusted; and a single plant of the former, which was not bigger than a rabbit eight years ago, would now "outsize" more than one sheep, being over 5 feet high and as much across.

**SELECT DWARF CEREUSES** (p. 613).—Now and again one sees a cottage window lightened up by one of the commoner varieties of Cactus with a splendour and brilliancy that can hardly be surpassed in the most extravagant hothouse, but somehow or other they are not in the general run of gardens as popular as one would have expected when one considers the small amount of care and attention they demand. Some Orchids will exist under conditions almost wholly antagonistic to their natural wants, as witnessed by the bits of *Dendrobium nobile* which are not dead in many greenhouses, though they never, of course, do such a thing as flower, but the Cactus, on the other hand, even with the strangest ill-treatment, usually manages to find strength for a bloom or two to show its claim for greater attention. It is not to be expected that people will care to form large collections of these strange members of the vegetable kingdom, though there is more than one garden celebrated for the number it possesses, and though the Cactus house in the gardens at Oxford, for instance, may attract the curiosity of visitors, it is not likely to stimulate them to imitate it at home. Still, there are many varieties which we ought all of us to be glad to possess, and, judging by the woodcut, *Cereus leptacanthus* is one of them. It is not every plant that will stand the hardships (sometimes darkness, sometimes dust) of a



"cottage-window life" in the way that our old friend *Vallota purpurea* does, which may well be associated with a Cactus to brighten a poor man's room where most other things would have little chance left them "to do aught else but die."

*SMILAX* (p. 615) is a very useful thing to cut long wreaths of for decorative purposes, and the stalk being somewhat stiff it will support itself better than climbing things usually do, and does not get limp with heat. For a good contrast to use with it few things will beat the tall-growing prickly wild *Asparagus*, which retains its colour in a room for months after it is cut. Would this latter be hardy out of doors in a dry, warm situation? It, too, has a good stiff stalk, and its pretty light habit would make it very useful if grown in quantity. Where in a greenhouse something is wanted which will not obscure the light, too much *Smilax* and this *Asparagus* might well be planted together. C. R. S. D.

*Sussex.*

## FRUIT GARDEN.

### THE PEAR CONFERENCE.\*

We have received from the secretary of the Royal Horticultural Society the following abridged statement taken from the full report of the Pear Conference recently held at Chiswick, and which is not yet sufficiently advanced for publication. This extract will, however, serve the purpose of disseminating useful information to intending planters during the present season, and it is with this object that the council have decided upon giving it the earliest possible publicity. The report has been skilfully prepared by Mr. A. F. Barron, and we shall look forward with interest to the full report whenever it is ready.

The selection of the present season for the holding of a great exhibition and conference on Pears in succession to that on the Apples in 1883 proved to be especially propitious, the crops of Pears throughout the country being in general very abundant and good. The cold dry summer was not specially favourable for the growth and development of Pears, and in many instances the fruit was much smaller than usual, especially of the earlier varieties. The later varieties benefited greatly by the autumnal rains, and proved in general of a fair average character.

The response to the invitation issued by the council proved of the most satisfactory character, the number of Pears sent in for exhibition far exceeding the most sanguine expectations of the committee, the exhibition being not only great in extent, but in all respect a truly representative exhibition of nearly all the varieties of Pears grown or cultivated in this country. The total number of exhibitors taking part in the conference numbered 166, contributions being received from thirty-five of the English counties, also from Scotland, Ireland, Wales, and the Channel Islands, the total number of dishes of different lots of Pears staged numbering 6350. In addition several large and meritorious collections were received from France, which proved of great interest.

The total number of reputedly distinct varieties of Pears exhibited subsequent to the corrections made by the committee amounts to 650. An audit taken of the whole of the varieties exhibited gives the following result as to the most favoured or popular varieties, *Beurré Diel*,

Counties.	No. of Exhibitors.	No. of Dishes.	Counties.	No. of Exhibitors.	No. of Dishes.
Bedfordshire	1	63	Nottinghamshire	4	173
Berkshire	4	66	Oxfordshire	1	41
Buckingham	4	213	Rutlandshire	1	28
Cambridgeshire	1	13	Shropshire	1	63
Cheshire	2	82	Somersetshire	1	69
Cumberland	2	26	Staffordshire	2	58
Derbyshire	2	294	Suffolk	2	36
Devonshire	5	311	Surrey	17	622
Essex	5	294	Sussex	8	338
Gloucestershire	1	157	Warwickshire	2	42
Hampshire	1	111	Wiltshire	6	176
Herefordshire	7	310	Worcestershire	5	234
Hertfordshire	5	451	Yorkshire	2	69
Huntingdonshire	1	39			
Kent	11	486	Scotland	16	415
Lancashire	2	83	Wales	6	103
Leicestershire	1	53	Ireland	2	30
Lincolnshire	4	121	Guernsey	2	33
Middlesex	19	638	Jersey	1	74
Monmouthshire	1	58			
Norfolk	4	98	Total	166	6351
Northampton	2	72	France	2	262

although only a second-rate Pear, standing at the top of the list, having been exhibited 194 times; Marie Louise being placed second, 155 dishes of which were shown; and Louise Bonne of Jersey, third, 132.

#### LIST OF THE FIFTY PEARS EXHIBITED THE GREATEST NUMBER OF TIMES.

No. of Dishes.	No. of Dishes.
Beurré Diel ... .. 194	Comte de Lamy ... .. 73
Marie Louise ... .. 155	Knight's Monarch ... .. 73
Louise Bonne of Jersey 132	No Plus Meuris ... .. 73
Duchesse d'Angoulême ... 121	Beurré d'Amanlis ... .. 72
Winter Nelis ... .. 121	Beurre Superfin ... .. 70
Passe Colmar ... .. 118	Pitmaston Duchess ... 69
Josephine de Malines ... 113	Uvedale's St. Germain ... 68
Bergamote Esperen ... .. 112	General Todtleben ... .. 67
Beurré Rance ... .. 108	Conseiller de la Cour ... 61
Catillac ... .. 108	Beurré Bosc ... .. 57
Beurré Clairgeau ... .. 106	Thompson's ... .. 56
Doyenné du Comice ... .. 103	Napoléon ... .. 55
Beurré de Capiaumont ... 86	Marie Louise d'Uccle ... 53
Beurré d'Arenberg ... .. 80	Glou Moreau ... .. 53
Vicar of Winkfield ... .. 78	Van Mons Léon Leclerc ... 51
Chauumont ... .. 77	Huyshe's Victoria ... .. 50
Beurré Hardy ... .. 74	Gansel's Bergamot ... .. 50
Beurré Bachelier ... .. 74	Baronne de Mello ... .. 50

In regard to nomenclature, each of the collections exhibited were carefully examined by the committee and corrections made where considered requisite. Errors of judgment may in some cases have occurred, due to the altered appearance which the same fruits often assume under different conditions, &c. Some others may have been overlooked, or their proper labels have got misplaced. Every endeavour was, however, made to secure the most correct nomenclature possible. The corrections made by the committee have in all cases been sent direct to the exhibitors. A pleasing feature noted by the committee was the general correctness of the nomenclature.

On a general examination of the whole of the collections exhibited, and noting the more prominent varieties in each, the following list has been prepared, viz:—

#### SIXTY OF THE MOST PROMINENT VARIETIES OF PEARS EXHIBITED AT THE CONFERENCE.

Alexandre Lambre	Doyenné Boussoch
Bergamote Esperen	du Comice
Beurré Alexander Lucas	Duchesse d'Angoulême
d'Amanlis	Durondeau
d'Anjou	Easter Beurré
de l'Assomption	Emile d'Hoyst
Bachelier	Flemish Beauty
Baltet, père	Fondante d'Automne
Bosc	Gansel's Bergamot
Clairgeau	General Todtleben
Diel	Glou Moreau
Hardy	Huyshe's Bergamot
Rance	Josephine de Malines
Spice	Jersey Gratioli
Sterckmans	Louise Bonne of Jersey
Superfin	Madame André Leroy
Chauumont	Trevo
Comte de Lamy	Marie Benoist
Conseiller de la Cour	Marie Louise

Marie Louise d'Uccle	Williams' Bon Chrétien
Nouvelle Fulvie	Winter Nelis
Olivier des Serres	Zephirin Grégoire
Passe Colmar	
Passe Crassane	STEWING PEARS.
Pitmaston Duchess	Bellissime d'Hiver
Princess	Catillac
Souvenir du Congrès	Gilles à Gilles
Suffolk Thorn	Grosse Calebasse
Thompson	Uvedale's St. Germain
Urbaniste	Verulam
Van Mons Léon Leclerc	Vicar of Winkfield

Of modern Pears or varieties, although not new, which are not yet in general cultivation, the committee made the following selection, which are highly recommended for good quality both in flavour and bearing properties, viz:—

	Season.
Beurré Giffard ... ..	August
Madame Treve ... ..	September
Summer Beurré d'Arenberg ...	"
Clapp's Favourite ... ..	"
Pitmaston Duchess ... ..	October, November
Beurré d'Anjou ... ..	November
Beurré Baltet, père ... ..	"
Emile d'Hoyst ... ..	"
Marie Benoist ... ..	January
Nouvelle Fulvie ... ..	"
Beurré de Jonghe ... ..	"
L'Inconnue (Van Mons) ... ..	"
Duchesse de Bordeaux ... ..	February
Passe Crassane ... ..	February, March
Olivier des Serres ... ..	"

Varieties recommended by committee for growing for market purposes:—

	Season.
Beason ... ..	August
Fertility ... ..	September
Souvenir du Congrès ... ..	"
Marie Louise d'Uccle ... ..	October, November
Durondeau or de Tongres ... ..	"

Of new varieties, the Conference Pear exhibited by Messrs. Rivers and Son (season, October) was awarded a first-class certificate.

In the collections of varieties exhibited from France, and not yet proved in this country, the committee recommended the following as worthy of introduction:—

	Season.
Beurré Dumont ... ..	October
Madame André Leroy ... ..	November
President Mas ... ..	"
President d'Osmanville ... ..	"

No list of the worthless varieties has been prepared, it being deemed sufficient in this report to notify those that are worthy of cultivation.

Without entering into comparison of the merits of the different collections exhibited, it is important to notify this fact—that the cultivation of good Pears is not confined to any particular climate or district of the country. If we take the magnificent examples from M. Cornu, of Jersey, as the result of good and careful cultivation, we have their equals produced by Mr. Haycock and by Mr. Thomas in Kent, and closely followed by Mr. Wildsmith in Hampshire, and Mr. Breeze in Sussex. Many other single examples throughout the exhibition were equally meritorious. No one failed to remark on the excellence of the examples from Lord Chesterfield in Cheshire, or those further north still from Mr. Dalrymple, St. Boswells, Scotland, which were probably the most meritorious of all. Nothing contributed so much to these successful results as good and careful cultivation. As a general rule, the best fruits are produced where the greatest care is bestowed. An important factor in the successful cultivation of the Pear is, as gathered from the returns, in the use of the Quince stock, which, from its close surface-rooting character, is more directly amenable to the attentions of the cultivator.

A general detailed report is in course of preparation, but which will necessarily take some time. This will contain the cultural and other notes supplied by the various exhibitors and the selections of varieties made by them; also a short descriptive catalogue of the whole of the varieties exhibited.

\* Interim report of the executive committee of the National Pear Conference, held in the Royal Horticultural Society's Gardens, Chiswick, October 21 to November 4, 1885. Prepared by Mr. A. F. Barron (secretary to the committee).



## REJECTED PEARS.

THE show of fruit held at Chiswick on the 14th of October must have been a highly interesting one, according to the report in *THE GARDEN*. I wished that I was not so far away, that I might have contributed, especially to the Pears. It is gratifying to see so much interest taken in a free exhibition, with "no award and no recompense to the exhibitors." If so much has been done without any such stimulus, how much might be accomplished another year by a timely notice and liberal premiums for the best twenty, or more or less, varieties of the very finest Apples and Pears?

The remarks (p. 435) are very judicious and to the point, and it is certainly pleasant to hear the question asked, Will the congress place the "Pear question in a more advanced stage than heretofore?" "Will it be the means of bringing into more prominent light any sorts of great excellence of which little is known? One great work to be done, above all others, is the reduction of sorts. Two-thirds of the named sorts of Pears should be expunged. If a list of first-rate sorts suitable for different localities, soils, and modes of culture were drawn up by the committee of the conference, and stamped by the authority of this our representative horticultural society, it would not only have the thanks of cultivators in this country, but our Continental neighbours and American cousins would see then what are considered first-rate Pears." Really, really is this so? Why, the cousins have all along thought that "this representative horticultural society" had already done more, with the aid of the late Mr. Robert Thompson, than any other society in the world. We look upon the several catalogues of the London Horticultural (1830 to 1842) as the very best authority extant, and as having done more to untangle the mystification of varieties and prove their qualities than any institution or individuals up to the time of the issue of the third edition of the catalogue; there it ended. And then you speak of the benefit to our "American cousins." Why, I have fruited, and proved myself, more than 1000 varieties of Pears in the last forty years. I have more in bearing than a hundred kinds, having expunged 700. In 1854 I exhibited at the annual show of the Massachusetts Horticultural Society 365 varieties of Pears, 12 specimens of each kind. I have figured and described in the *Magazine of Horticulture* over 300 varieties of Pears, not one of which but might be called an excellent Pear. There are no Pears in Europe, except those originated so recently that the trees have not had time to fruit, but are growing in our collection. The American Pomological Society have expurgated more than 500 varieties of Pears since 1850, not one of which they put on the list until it has been fruited and proved by one or more members of the society.

I certainly would not say we could learn nothing from such a test as you suggest, but I do know, so far as America is concerned, we do not care to know what are considered first-rate Pears, because we have proved all and already know, so far as our judicial test is capable of knowing, exactly what are not only the very best, but what are the most profitable for market.

I certainly regret that the editor of *THE GARDEN* has not in his possession the fifteen or twenty large quarto volumes of the Transactions of the American Pomological Society, where every variety has been discussed before being added to the list of "rejected Pears," or added to the list of superior kinds, which is repeated in every volume, with the additions made at every biennial meeting. It is the very *index expurgatorius* which you say the public would appreciate,

and, what is more, we have "expurgated" such sorts as Beurré Rance, Passe Crassane, Nouveau Poiteau, Belle de Bruxelles, Citron des Carmes, Crassane, and Doyenné Sterckmans, prominent sorts among the exhibits of the Jersey show, not because they were eatable when one could get no better, but because we have plenty of far more beautiful and delicious varieties. Of course, nobody expects to compete against a Jersey man. There never was yet, in the Eastern States, a Chaumontel raised which weighed half a pound. I once saw a tree in Illinois, on the bank of the Mississippi River, which I thought was loaded with Bell Squashes; but, upon inquiry, I learned they were what we called, one hundred years ago, Pound Pears (the Belle Angevine or Uvedale's St. Germain), all weighing from 3 to 4 lbs. each. That is the climate for big Pears—two months more of summer than in Massachusetts.

I notice in your report of the Jersey Exhibition that the "Doyenné du Comice was very fine. This handsome sort is rapidly rising in favour with growers!" It was introduced into my collection in 1854, and is now, after thirty years, one of our best known, as well as the finest of all November Pears. Twelve specimens weigh 12 lbs. Your correspondent "Cambrian" calls the Beurré d'Amanlis "a magnificent October Pear, and he does not know anything to surpass it in quality." With us it is an ordinary September Pear, only good, not handsome, and cannot be sold in the market for its want of colour. Baron de Mello, he says, is a fine November fruit. It is more than this: it only comes a little short of the Doyenné du Comice. Bishop's Thumb and Swan's Egg are on our list expurg. Seckle (why not spell it right—Seckel?), he states, "is one of our best October Pears," and because it is so, I am sure all our American Pears will do well in your climate.

C. M. HOVEY.

Boston Mass.

**Wrongly pruned trees.**—"S." appears anxious to impress on us the necessity of adopting the modern system of pruning Peaches and Nectarines. It is, I believe, already practised to a great extent, and I should like to ask "S." what advantages it has if under it trees are only able to last twelve or fourteen years, while the system adopted by our forefathers enabled them to keep a tree alive and in a fruitful condition for fifty years. There must be something radically wrong in the treatment if our trees only last one-fourth as long as they used to do, and surely Peach trees on the free growing system require more than 10 feet of space.—E. B. L.

**Prices of Apples.**—When I stated last year that I could purchase good cooking Apples as they came from the trees at 2s. per bag of six score lbs., considerable doubt was expressed whether or not I had made a mistake, but I certainly had not, and I again refer to the subject, for the purpose of stating that the same class of fruit has been considerably dearer this season, though inferior in size. I see by an advertisement in a local Somersetshire paper that good cider Apples are offered at 1s. per bag, a fact which I think shows that in good seasons Apples are much cheaper than distant readers are aware of. In support of this statement I may say that in Devonshire this season for orchards of Apples put up to auction there was not even a single bidder. I myself saw at the beginning of October fine cooking Apples offered at 4d. per 100 fruit, that being the way in which they are sold by hawkers in county towns in the west of England.—J. C. C.

**Vines and Figs together.**—I have a house 40 feet by 12 feet 6 inches, back wall 10 feet 6 inches (inside measure), with glass division, making it into two small houses, each division being heated with a flow-and-return 4-inch pipe. I propose planting one division with Muscat of Alexandria and the other with Alicantes and Lady Downes, to supply Grapes from the end of October onwards. I propose planting the back wall with Figs. What varieties should I put in? If

any improvement on this plan can be suggested, I shall feel grateful. The borders are inside, and the house faces full south.—M. P.

\*\* Your proposal as to sorts of Vines to plant in the two divisions cannot be improved upon, unless it be in respect to the division for Muscats, which would be the better for having an additional row of piping, i.e., two flows and a return. Figs will do but little good on the back wall, unless you are prepared to sacrifice part of the Vine space for the admission of light to the Figs. This plan of growing Figs has been tried in scores of instances, but I have never yet met with a solitary case that could be called satisfactory. Camellias do well in such positions; but I know of no kind of fruit that, for more than a year or two, can be said to prove satisfactory, at least not without sacrificing, as I have said, part of the roof space for the benefit of the trees on the back wall.—W. H.

## FRUIT TREE FAILURES.

ONE is constantly reminded of the failures that occur in fruit culture by the queries which one receives from those who either fail to get their trees and bushes to grow satisfactorily, or, after they have grown, cannot get them to bear fruit. The causes that lead to such conditions may be classed as preventable and non-preventable. To the latter class belong unfavourable soils and bleak situations, or bad climate. But by far the largest class of failures is clearly traceable to preventable causes. First on the list is buying fruit trees and bushes at auctions or clearance lots from nurseries. The longer these latter stand the more worthless they become, for although a few may struggle on and grow into trees, they are but miserable specimens at the best, and stunted and prematurely old trees and bushes are dear at any price. It would be more economical in the long run to buy thrifty young maiden trees and one-year-old bushes, now obtainable at very low rates. These would soon overtake the older ones in size, and be in every way more satisfactory. I am aware that old trees grotesque in shape are sometimes more fruitful than the best trained specimens; but it does not follow that the best way to get fruitful trees is to plant young trees that are deformed. There is also bad planting, that not only does not give trees a chance of recovering, but makes good young trees quickly into prematurely old ones. I refer especially to the practice of digging out holes, just large enough to hold the roots in soil that has not been trenched or broken up, and in soil that is of a stiff clayey character. In such holes a tree is not very different from what it would be in a flower-pot; the roots do not strike out readily, and the top is never healthy or productive. Filling up orchards with the same kind of tree generation after generation, as is stipulated in some leases, is a great mistake; one of the first considerations in the case of annual crops is a proper rotation, and if that be of any value in their case, how much more must it be in that of trees that stand for at least a generation.

PRUNING has much to answer for in the way of producing failures, owing to the apparent impossibility of following a middle course. Extension, pure and simple, is advocated by some, and if carried out in its entirety it simply means letting the trees alone. It captivates those who are glad to get rid of a little extra work, and forthwith the pruning-hook is consigned to the lumber room. After a time, however, this plan is not found to answer, and not only the pruning knife and hook are again brought into action, but the saw is also vigorously plied. I have seen whole cartloads of faggots cut from an orchard at one time, the result being that the trees took several years to recover the shock. Pruning is decidedly beneficial if done at the right time, viz., every year in the case of orchard



trees, and twice a year in that of trained trees. To let trees go entirely unpruned for half a dozen years, and then cut away six times as much as ought ever to require cutting at one time, is the way to court failure.

INJUDICIOUS SELECTION of varieties is another source of failure. I frequently find owners of gardens noting down the names of prize winners at fruit shows, in order that they may obtain the same kinds for their orchards, while in many instances the rosy Apples and clear-skinned Pears which they have been admiring have been grown on trees, in pots, and finished off under glass. The most prolific and useful fruits in cultivation are not the sorts that figure at exhibitions, for the simple reason that it is impossible to get all good qualities combined in one. Safer guides are good fruit tree catalogues that class each kind under its recognised uses.

Other causes of failure might be enumerated, but these are a few that so frequently come under notice as to entitle them to be marked as the rocks on which many an enthusiastic fruit cultivator finds his hopes shipwrecked.

Gosport.

JAMES GROOM.

## TREES AND SHRUBS.

### SELECT TREES AND SHRUBS.

EACH year as the planting season comes round the question with many arises, what is best to plant? Soil and situation must always be taken into account, for, as a matter of course, trees and shrubs that will thrive and look healthy, even if they are the commonest and least ornamental in appearance, are preferable to finer kinds that will not grow freely. Yet, where the conditions are favourable, it is obvious that in ornamental planting there should be enough variety in the form and general appearance of the trees and shrubs selected. Those who are conversant with the merits and demerits of the various kinds of shrubs and trees, old and new, in cultivation often wonder at the length of time it takes to get a desirable tree or shrub enough known to the general public to induce them to plant it. The name of an old variety frequently gets so fixed in the mind of the planter, that it takes a long time before a better and more attractive kind can make its way to the extent that its merits deserve.

It must be admitted that this course is not without advantages. Still, it is possible to carry caution too far in this direction, particularly as it is generally possible to select a site for a tree, the merits of which are unproved, where if it fails it will not be so much missed.

When writing on the subject of desirable trees hitherto I have endeavoured to show the great mistake that has been made by the indiscriminate planting of doubtful evergreen kinds to the exclusion of others of established merit, and of deciduous kinds in particular, which latter should ever be present in greater numbers than the Evergreens. Another thing connected with deciduous trees is that they appear in much less numbers than the Evergreens; consequently, it is well when any that seem to possess merit are available that room should be found for them. The beautiful leaf colouring which autumn brings never fails to please, and there is no reason why, at the beginning of the season, the pale green shades donned by the young leaves of most deciduous trees should not be brought out more effectively by association with vivid colour, such as afforded by some of

THE ACERS. Of these, *A. platanoides* Schwedleri is one of the finest high-coloured-leaved

trees in existence, redder than the purple Beeches, and affording a charming contrast to the olive-green, of which in its various shades there is such abundance in spring. It is a free-growing tree that cannot easily be put in the wrong place amongst green-leaved kinds. This fine *Acer* seems to be little known, but anyone who for the first time meets with it will not soon forget it. *A. Reitenbachii* is another of these fine reddish purple-leaved *Acers* that, independent of their individual merits, bring out the shades of all the green foliage near them. Either of these planted by the side of *A. pseudo-Platanus* Worleyi would give a contrast in colour not easily surpassed. The last-named is a fine variety, not so often met with as it deserves. *A. dasycarpum*, which is one of the best amongst the whole tribe of Maples, should be grown by those who appreciate distinct handsome-leaved trees. In addition to its other merits, it is a very free grower. That these beautiful trees are not more planted seems the more strange, as nearly everyone has *A. Negundo variegatum*, a small and often sickly growing subject that oftener than not gets put where its absence would be more gain than loss. The shrubby Japanese *Acers* have now been long enough in the country to admit of their being more known than they appear to be. Neither are they all fit for planting in every locality, but there is at least one, *A. polymorphum atropurpureum*, that deserves to be in every garden where highly coloured foliage is held in estimation. Its deep, reddish purple leaves are very effective when planted amongst *Rhododendrons*, with which its bushy habit of growth adapts it for being associated.

POPLARS.—Amongst trees that are of a decided fastigate habit in the way of the Lombardy Poplar may be named *Populus Bolleana*, one of the most distinct of all the Poplars. To its elegant spire-like growth must be added the contrast in colour which it presents to trees with ordinary coloured foliage, the underside of the leaves being nearly as white as those of *P. alba*. The golden Poplar, *P. aurea*, the yellow shade of the leaves about like that of the golden Elder, is seen to the best effect when stood near any of the dark-leaved trees, such as the purple Beech, although it and the white-leaved sorts are equally in the right place when beside or backed up by dark-leaved Conifers, like any of the Pines. The all but matchless colour which the leaves of some of the American Oaks assume in autumn is well known to those conversant with ornamental trees, but they have not hitherto been so much planted as they should be.

OAKS.—To the noble foliage of *Quercus nigra nobilis* must be added the beautiful colour which it assumes in autumn; in summer its immense leaves are always attractive. It is a good grower and altogether a desirable tree. *Q. alba elongata*—A very long-leaved variety, distinct in appearance whilst the foliage continues green; in autumn it turns to the richest crimson. *Q. coccinea*—One of the best known of the American Oaks, and one of the finest coloured when it dons its autumn hue. *Q. nigra*—The trilobed form of the leaves of this variety give the tree a distinct character; the leaves are almost scarlet for a time before they fall. *Q. panonica*—The leaves of this kind are medium sized; in autumn they turn yellow. *Q. atropurpurea* has foliage almost as dark as the best purple Beeches. The golden-leaved *Q. concordia* is a fitting companion to the purple-leaved variety, to the purple shade of which the deep yellow foliage of this, the golden Oak, affords a striking contrast. *Q. rubra*—One of the best known and one of the reddest in autumn; massed as it might be in groups at the outer edge of plantations that occupy prominent positions,

it would brighten up everything near it. In fact, much as has been said, and deservedly, about the beauty of the autumn leaf-colouring, still, little of the effects that are to be seen in that way can be set down as more than accidental, and are far from equalling what might be effected in either large or small places by a judicious use of the wealth of materials which the planter now has to select from.

Amongst trees of smaller growth, with deep coloured leaves, that are suitable for positions where the larger growers cannot be admitted is *Prunus Pissardi*; the leaf-colouring of this tree is nearly as deep as that of the purple Beech. Weeping trees are liked by many people, and when judiciously placed they are effective. Amongst the less known kinds of these drooping-branched trees is *Salix rigida pendula*, a distinct and handsome Willow that has the peculiar habit of the leaves being arranged all round the shoots. Young's Weeping Birch is one of the best and most distinct; it is very effective on a lawn where it can stand clear of everything else. *Sophora japonica pendula* is at once one of the most distinct and interesting of all weeping trees. Why so few people grow it is difficult to understand, but if everyone who is fond of handsome trees was to see the beautiful example growing in the Knap Hill Nursery, it may be safely said that not many would be long without it.

THE COMMON HORSE CHESTNUTS are to be met with everywhere, and often in places, such as the immediate vicinity of towns, where they frequently look anything but satisfied with their quarters. But their near relations, the *Pavias*, are comparatively seldom seen, although their smaller growth and the ability of their leaves to bear an atmosphere such as destroys the appearance of the common Chestnuts befits them for being grown where the Chestnuts have an uninviting look.

Of deciduous trees of small or comparatively small growth that are remarkable for the beauty of their flowers or fruit, or both combined, and that are rarely met with in sufficient numbers either in large or small places, may be mentioned several of the *Pyrus* family. Take, for instance, *P. Malus baccata*, the red Siberian Crab; nothing could be more beautiful than its dense wreaths of soft rosy-tinted flowers in spring, whilst in autumn the branches bend under the weight of its thousands of fruit, about the size of and as red as Cherries; the Chinese Crab, *P. spectabilis*, and its double variety, *spectabilis flore-plena*, the last named blooming in such profusion, that the flowers literally hide the wood; *P. Malus pendula* (the Weeping Apple), than which nothing in its way can be more lovely. As regards *P. Malus floribunda*, it is a question whether there is anything in the whole range of flowering trees that combines such elegance of growth with profuse blooming habit; it is hard to say whether it is more beautiful in the bud state just before the flowers open or after they expand. The above varieties of *Pyrus* deserve to be grown in every garden, yet there are many more where the whole are absent than otherwise.

The common Almond (*Amygdalus communis*) has been more generally used by planters, but as much cannot be said of the double-flowered Peaches (*Amygdalus persica flore-plena*), which rank amongst the most desirable of flowering trees.

THE THORNS are everyone's plants, but there is one, Paul's Scarlet, that is far from being in every garden, though its flowers are the most brilliant in colour of the genus. Its habit of growth is more erect, which gives the tree a stiffer appearance than the other varieties of *C.*



*Oxyacantha*. Seen in the condition it was last spring after the roasting it got the previous season, its branches looked as if they were on fire. In large places it should be freely used, and where there is not room for more than half a dozen flowering trees of its size it should be included. Of *Cytisus* (*Laburnum*), *C. Alschingeri* is particularly deserving of notice; its long racemes of clear yellow flowers are very beautiful, and it is quite distinct from the ordinary varieties.

Fine as are the old kinds of *Magnolia*, there are a few of the more recently introduced varieties that only require to be better known to cause their being generally grown. Of these I may mention *M. conspicua*, *Soulangeana nigra* and *M. Lenné*; the first-named has very dark flowers with deep purple outer petals, whilst *M. Lenné* bears purple flowers. Both are beautiful additions to our large-flowering shrubs.

**HIBISCUS** (*Althæa frutex*).—If the few gardens in which these charming plants are present be taken as an evidence of the little estimation they are held in, it may be said they have made less way than any other kinds of flowering shrubs. *H. syriacus* is as old as the hills, and too old-fashioned for many people, but there are now a number of lovely varieties of varied and distinct colours, some with double and some with single flowers, that are most effective in the latter end of summer when everything else in the way of shrubs has done blooming.

These do not by any means exhaust the list of decorative trees and shrubs not nearly so generally planted as they deserve to be. But, in drawing attention to the subject, I have thought it better to confine the notice to a few of those which I consider the most effective rather than give a long list, which would tend to perplex those who may be desirous to plant such as are calculated to give the best results, but are not sufficiently acquainted with the subject to know what to pick out when there are many to select from. As it is, I have no hesitation in saying that there is not a place in the country where enough room could be found for them, that the absence of any of the trees and shrubs here briefly described is not so much loss in interest and effect as compared with that which would exist were they present.

T. BAINES.

**Skimmia japonica**.—Seeing how often we see this little Evergreen neglected, its value is by many overlooked, for when well grown its profusion of bright red berries makes it highly attractive. The conditions most favourable to the *Skimmia* are, a soil that, though not water-logged, is never parched up during the summer and a shaded position, for where exposed to the full sun the leaves acquire a yellowish tinge, thus giving the plant an unhealthy appearance, while in a shaded spot the foliage remains of a deep green hue. Our plants here are this season unusually full of berries, and, being so healthy in appearance, are consequently much admired. A word or two may be needed with regard to the selection of a shady spot for this *Skimmia*, as a position under the shade and drip of trees is not what they require, but rather where, though open, they are shaded from the full sun. We have some doing well on the north side of a belt of shrubs, against the background of which their bright berries stand out conspicuous. When grown in close proximity to other shrubs one thing to be guarded against is that they are not starved by the roots of any stronger growing subjects that may be in their immediate vicinity. An allied kind (*S. oblata*) was some years ago regarded as a most promising berry-bearing shrub, but though it flowers freely, the display of fruit is not proportionate to the show of bloom. The berries, however, that develop themselves are more brightly coloured than those of *S. japonica* and rather larger. Simply as an evergreen shrub, without any regard to its fruit-bearing

qualities, *S. oblata* is most valuable among the class of small or medium-growing shrubs. It is of a free, yet dense, growth, with stout, leathery, dark green leaves, that retain their colour under such exposure as would disfigure many other plants. For this reason it is well suited for furnishing balconies, windows, and such places; the roots, too, being close and matted, eminently fits it for growing in pots. It is a good town plant, thriving well amid smoke and dirt; indeed, I am acquainted with some so situated that appear to be quite happy in their surroundings, though they are the reverse of favourable for plant life.—H. P.

### BERRY-BEARING SHRUBS.

CONTRIBUTORS to THE GARDEN from all parts of the kingdom are expatiating on the beauty of our hardy ornamental fruit-producing shrubs, and well they may, for many years have elapsed since we had such a rich profusion of golden and scarlet drupes and berries. Having myself been a great planter, I have read with much interest the lists which have been published, and while agreeing that the *Holly* and the *Arbutus* stand unrivalled for grace and beauty, there are other varieties and species more worthy of extended cultivation, but to which notice has not been directed, simply because they are seldom met with. Nearly all the berry-bearing shrubs mentioned produce scarlet fruit, and for our dull, cheerless land during the month of December this is perhaps the brightest and best colour; but why not add variety, by planting extensively the yellow-berried *Holly* and the golden fruited *Yew*, *Taxus baccata fructu luteo*? A handsome tree of the first is occasionally met with, but how seldom do we see the second, and yet it is one of the most lovely back-row trees in cultivation. I have just measured a tree heavily laden with its bright golden drupes and find it to be 24 feet through and 14 feet high, and literally covered from base to summit with thousands of golden nuggets glittering in the morning sunshine. In this finely wooded district the blackbirds and thrushes attack the fruit of the scarlet *Holly*, the common *Yew*, and the *Arbutus* almost before it is ripe; but unless they are hard pressed by hunger they do not interfere with the golden-fruited *Yew*. The same may be said of the yellow-berried *Holly*, and as both of them are perfectly hardy and can be easily propagated, the first by cuttings or layers, the second by budding, my object in sending this notice will be attained if I succeed in directing the attention of planters generally to the claims of these two first-class ornamental shrubs.

W. COLEMAN.

Eastnor Castle, Ledbury.

**Abies orientalis**.—Those who are making a selection of evergreen lawn trees should not forget this Spruce. Though it belongs to the section of *Abies* represented by the common Norway Spruce, it differs from it in being a smaller growing tree, with more numerous branches. The branchlets, too, are more slender and droop gracefully, so as to form a highly ornamental pyramidal tree, which is never in the least injured by frosts. The whole tree is more dense than in the ordinary forms of the Norway Spruce and of a brighter green. Another consideration is that where the soil is light and gravelly that this Oriental Spruce is at home. It is a slow grower, but in all stages it is very ornamental.—ALPHA.

**White Laurustinus**.—It may not be generally known that considerable quantities of *Laurustinus* are imported from the Continent every year, many of the bushes being in the form of small standards. The bulk of the imported ones consist of a variety differing from the ordinary kind in the greater purity of its blossoms—indeed, under glass it is quite white, but out of doors the blossoms generally become slightly tinged. It is a very good form of *Laurustinus*, and

one, from the purity of its blossoms, especially adapted for cut purposes, for if a spray be taken before the flowers are too far advanced and placed in water, the still unopened buds will continue to expand and remain in beauty a long time. Another distinct variety of *Laurustinus* is the glossy-leaved *lucidum*, which differs in many well marked particulars from the ordinary kind. The leaves are larger, quite shining, and the whole habit of the plant more robust. The blossoms, too, are larger, but are less numerous than in the type. In hardiness, too, it is not equal to the older one, so that unless in exceptionally favourable spots, it is scarcely worth growing, but still when in a thriving condition it is a distinct and handsome shrub. To increase this kind it is necessary to layer it, for cuttings do not strike so readily as any of the others. The variegated sort is never satisfactory with me.—H. P.

**The Hop Hornbeam** (*Ostrya carpinifolia*).—A large tree of the Hop Hornbeam is most ornamental during the autumn when laden with its female catkins, that resemble so closely those of the Hop as to suggest its ordinary name of the Hop Hornbeam. Its name is descriptive, for it much resembles a Hornbeam in growth. Where allowed plenty of space it forms a noble head of wide-spreading branches, well fitted for an isolated position on the park or lawn. The male catkins are borne early in the summer, and being long and slender do not give any especial feature to the tree, the great attraction being the Hop-like masses in autumn. It is a native of the south of Europe.—ALPHA.

**The broad-spotted Aucuba**.—An *Aucuba* occasionally met with under the name of *lati-maculata* is one of the choicest of variegated shrubs, and quite as fine as a tropical *Croton*. Its leaves are adorned with large cream-coloured blotches, and sometimes the cream obliterates the green. These cream-coloured leaves are not flat, as in the green-leaved kinds, but more or less twisted. It is liable to revert to the normal type, to prevent which a constant use of the knife is necessary. Sprays of this shrub if used for indoor decoration produce a beautiful effect by artificial light, and they retain their freshness for a long time. This is a female variety of *Aucuba*, and when in fruit the bright hue of the berries is especially conspicuous against the cream-coloured foliage and bark, for this latter is in a good example the same tint as the centre portion of the leaf. Seedlings do not perpetuate this variety, so that it must be increased by means of cuttings.—T.

**The American Arbor-vitæ**.—The American *Arbor-vitæ* (*Thuja occidentalis*) possesses the advantage of being proof against even our most severe winters, and, moreover, thrives well in spots that are too damp for most other *Conifera*, for in dry sandy spots it quickly assumes a bare appearance. Under favourable conditions it grows into a broad pyramid of dark green foliage. Like many other *Conifers* when raised from seeds, there is a great difference among the seedlings in habit, rate of growth, and general ornamental characters, some being in this latter respect greatly superior to others. Among these is a weeping form called *pendula*, in which the branches are strictly pendulous with the minor branchlets collected together in dense tufts at the ends, thus giving it a very distinct and striking appearance. So pendulous is it, that when young it is necessary to secure the plant to a stake, otherwise it will sprawl about on the ground without taking an upward direction, but when once the specimen is a few feet high, with the branches all drooping from the main stem, it will then attract attention. This variety is sometimes met with under the name of *cristata*. A couple of golden varieties are pretty shrubs well worthy of association with the golden *Retinospora*. The first is *aurea* or *lutea*, a variety of American origin, also known as *Arbor-vitæ* George Peabody, in which the foliage is of a bright golden yellow during the summer, deepening a little in tint on the approach of winter. The second is *Verbaena*, the foliage of which in the growing season is a good deal deeper in colour than the last named, and in winter assumes a yellowish-brown hue. There is also a variety of American origin of the *alba spica* class in which the shoots are tipped with white. Besides the name of *alba* or *alba spica*, it is also



known as *Arbor-vitæ* Queen Victoria. A pretty little variety is *Hoveyi*, which forms a compact bush with foliage of a brighter green than the others. In compacta the whole plant is more dense than the common kind, and does not attain to the same size. A variety that, especially when young, is often mistaken for a *Retinospora* is *Ellwangeriana*, in which a part of the foliage, more particularly that around the base of the plant, is long and spreading, while the other portion is simply that of the American *Arbor-vitæ*. This is a case in which the undeveloped foliage has become fixed and perpetuated, analogous instances being found in the case of some *Retinosporas*. *T. plicata* differs from the *T. occidentalis* in being much denser in habit, as a rule, strictly pyramidal in form, and with more massive branchlets. Its rate of growth is by no means rapid, while a variety (*dumosa*) is amongst the slowest growing of all Conifers. It forms a little globular mass of thick crested foliage, and is only suitable where miniature shrubs are desired. The varieties of the American are often confounded with those of the Chinese *Arbor-vitæ* (*Biota orientalis*), but apart from the fruits, which differ widely, there are other distinctive features. Another point of difference is whereas *Biota orientalis* and its varieties are among the more difficult Conifers to strike from cuttings (indeed, I never succeeded in propagating the dwarf golden variety *semper-aurea* in this way), the different forms of the American *Arbor-vitæ* root without difficulty.—ALPHA.

## ORCHIDS.

### HYBRID CALANTHES.

NOT more than ten or a dozen years ago the winter-flowering species and varieties belonging to this genus might have been counted on the fingers of one hand. The commonest were the red and yellow-eyed forms of *C. vestita*, the flowering period of which commences in November. Paxton, in his "Botanical Dictionary," describes *C. vestita* as white and crimson, and *C. vestita lutea* as a garden variety, which is a mistake. *C. vestita* and the red-centred variety were sent to Messrs. Veitch, of Exeter, in 1848 from Moulmein, by Dr. Kane, of Exmouth (see *Botanical Magazine*, tab. 4671, where the species with yellow centre is figured and described as *C. vestita*). The red-centred variety is described as *C. vestita rubra oculata*. This was first discovered by Wallich. These and their varieties are the first to flower; but nearly as early, if not quite, is the handsome garden hybrid, *C. Veitchi*, raised by Mr. Dominy between *Limatodes rosea* and *C. vestita*. These as a rule continue in flower up to the end of January.

THE NEXT IMPORTANT *CALANTHE* is *C. Turneri*, which is often described as a variety of *C. vestita*, but in reality is as distinct as a species from *C. vestita* as *Dendrobium nobile* is distinct from *D. lituiflorum*. About thirty years ago Messrs. Veitch received a new *Calanthe* from Java through their collector, Mr. Thomas Lobb, which proved to be distinct from any previous introduction. Of this no technical description was drawn up at the time; hence the mistakes that have subsequently arisen respecting it. The first form of it had pure white flowers and a rosy red blotch on the lip; this Messrs. Veitch named *C. Turneri*. Subsequently another produced pure white flowers, and this was named *C. Turneri alba*. A third variety produced flowers with a reddish purple blotch on the lip, and this has probably become lost to cultivation. Messrs. Veitch regard these three as varieties of one species, and as they introduced and named them, as just related, no other names can be admitted.

THE HYBRID FORMS recently brought into prominence have effected quite a revolution amongst these beautiful winter-flowering plants. Besides

*C. Veitchi*, Messrs. Veitch have raised many other fine varieties, notably *C. Sedeni*, the produce of seeds the result of crossing *C. Veitchi* and the red-centred form of *C. vestita*. Another very fine garden hybrid introduced by the same firm is *C. bella*. This produces a very handsome spike of quite distinct rose or pink-coloured flowers, and was awarded a first-class certificate on the 13th December, 1881, by the floral committee of the Royal Horticultural Society. Mr. P. H. Gosse, of Sandhurst, Torquay, has also raised seedlings from *Limatodes rosea* and *Calanthe vestita rubra oculata*, and one of these exhibited by Sir Trevor Lawrence in December, 1884, at South Kensington, received, as it well deserved, the highest award given by the floral committee for new plants. The plant exhibited owed much to good cultivation; but the magnificent spike of rich rosy crimson flowers with which it was furnished marked it as distinct and superior to any of the forms of *C. Veitchi* yet raised. It was named *C. sandhurstiana*. Another enthusiastic cultivator has during the last few years obtained considerable prominence as a raiser of seedling Orchids—I allude to Mr. Cookson, of Oakwood, Wylam-on-Tyne, who exhibited a group of deciduous *Calanthes* before the floral committee on October 27, the result of crosses between *C. Veitchi* and the different forms of *C. vestita*. Mr. Seden had already raised seedlings from similar crossings, but those sent by Mr. Cookson were so good, that the committee awarded them two first-class certificates. One variety, named *C. Alexanderi*, had the rosy crimson tints of Mr. Gosse's fine variety. Another named *C. Cooksoni* was much paler in colour, but distinct and very beautiful.

THE MOST RECENT EXHIBITS of seedling *Calanthes* were those made by Sir Trevor Lawrence at South Kensington on December 8. They were evidently seedling forms of a similar type to those exhibited in the first place by Messrs. Veitch, and subsequently by Mr. Cookson. Sir Trevor had amongst his plants a lovely pure white form and some very brilliantly-coloured varieties, one of which, named *C. porphyrea*, received a first-class certificate. The flowers were not fully expanded, but it was the richest of the group. During the last year or two *C. Regnieri* and *C. Sanderiana* have been introduced from Cochinchina—two very distinct kinds, and all the more valued because they produce their flowers rather later than the *C. Turneri* group. The above are all winter-flowering plants, and it will be seen that hybrid productions raised in English gardens are in every respect superior to any that have as yet been introduced. Nor have we seen all the beautiful forms that will yet crop up. On the contrary, there is yet a fair and ever-widening field open to the cultivator who will pay attention to hybridising. The evergreen species have scarcely yet been touched. I do not know any hybrids in this section except *C. Domini*, raised by crossing *C. Masuca* and the lovely pure white *C. veratrifolia*. A recently introduced species, *C. natalensis*, might well be brought in either as a seed or pollen-bearer. I have not seen it in flower, but it is evergreen. The flowers are shown to be lilac and white and the lip reddish. It is figured in the *Botanical Magazine*, tab. 6844.

THE CULTURAL REQUIREMENTS of *Calanthes* are not difficult to understand, but plants belonging to this genus must not be treated as if they were *Cattleyas*. If a *Calanthe* has a sickly appearance, and if in the case of the evergreen species the leaves are spotted and pale in colour, it may be found upon examination of such plants that they have been potted in peat with too much drainage. I have on two or three occasions purchased these evergreen *Calanthes* at sales in

indifferent health, and invariably found that they had been potted in the usual Orchid compost, viz., turfy peat, &c. It is a mistake to expect them to succeed in peat; they should be potted much in the same way as ordinary stove plants. Prepare some good yellow turfy loam, and add to it a sixth part of decayed stable manure, some sharp sand, a few broken crocks, and charcoal. The pots ought to be well drained, but it is a mistake to fill them even to the extent of a third part of their depth with drainage. The plants are furnished with thick fleshy roots, and it is necessary to be careful not to break them off during the operation of potting. When well rooted they require a rather liberal supply of water, and it must not be given in dribbles. Sufficient must be applied to thoroughly moisten the compost, and no more until it is again moderately dry.

THE DECIDUOUS SPECIES require very much the same treatment as the others at potting time. These should be repotted just as they begin to grow in February or March. Three or four bulbs should be put in a 6-inch pot. The compost should be firmly pressed round the base of the bulbs, which must not be planted very deeply. They should not receive any water for a week or ten days after being repotted, nor very much until the roots have run into the potting soil. When they have started to grow they require the temperature of a warm stove—that is about 65° at night, with plenty of atmospheric moisture; indeed, this is the secret of large bulbs and strong flowering plants. When it is seen that the bulbs are in course of formation, weak manure water may be applied twice a week until they have grown to their full size. After that water should be gradually withheld, and thus by the time when the flower-spikes show from the base of the bulbs they would be dusty dry at the roots. Very little water is required while the spikes are being developed.

J. DOUGLAS.

**Cypripedium insigne.**—This, in my opinion, is one of the most useful of all our Christmas flowering Orchids. It is as easily grown as a *Pelargonium*, and will root into any rough material. The best place for it from May until September is an unheated frame, allowing the sun to shine fully on the plants, giving them unlimited supplies of water and plenty of air. One plant treated in this way during the summer is 2 feet 6 inches across, and is now bearing forty-three blooms, which remain in good condition for six weeks at least, and are admissible in the choicest decorations.—J. MOIR, *Margam*.

**Calanthe Veitchi.**—This attractive and popular *Calanthe* might well stand in the foremost rank if it could but give up a habit which it has of parting with its leaves just as its flower-spikes are appearing. Coming, however, into flower as it does at this season of the year it makes a pretty display, especially when intermixed with tropical house plants. In the warm Orchid house at the Botanic Gardens, Cambridge, there are now numbers of fine spikes of this *Calanthe* in various stages of development. A basketful of it hanging from the roof at the west end is particularly fine; it has eight spikes, the two largest of which measure more than 3 feet in length, and I counted on them the other day over thirty beautiful rose-coloured flowers. Spikes 6 feet in length and bearing fifty flowers are, however, on record.—W. H.

**Cattleya calumnata.**—We have received through Mr. Sander, of St. Albans, a bloom of this lovely new hybrid *Cattleya*, which has just been flowered by Mr. Measures, at The Woodlands, Stratford. It is the result of crossing *C. amethystina* and *C. Aclandiae*, the progeny being quite intermediate between these species both in growth and flower. The sepals are greenish white, heavily spotted with purple; the lobe of the lip is a brilliant violet-purple, while the rest is bluish white. It was raised by M. Bleu, of Paris, and, according to Williams' "New Orchid Grower's Manual," it flowers twice a year.



## DOWN LODGE, EPSOM.

THIS is one of those pleasant places with which one meets on the breezy Epsom Downs. Until lately it was the residence of Mr. Rokeby-Price, who sent us some photographs of it, and which won a prize in our recent competition for photographs of pretty lawns and gardens. The creeper-covered house and the broad expanse of lawn in front of it make a pleasing picture. "The garden front of the house," says Mr. Price, "is covered with Gloire de Dijon, Maréchal Niel, and old Monthly Roses, besides an old white Rose, a Japanese variegated Honeysuckle, Ivy, and yellow Jessamine. We had, therefore, not only variety of green, but variety of flower colours. The Fern banks (see p. 638) are very effective and much admired. The wire arch was covered with a Hop plant; the walk beyond was a Grass

## ORNAMENTAL HEDGES.

ALTHOUGH hedges usually consist of only one variety of shrub, and although they are considered rather as a necessary evil than an ornament to a garden, there is no really good reason why we should continue to employ only the orthodox material usually classed in catalogues as hedge plants; for however well they may be suited for the purpose where utility is the only point to be considered, it is altogether different when the embellishment of gardens is the object in view; and especially such as are of limited extent, where as great a variety of material as can be introduced is by no means a secondary consideration. In this locality, hedges or screens are one of the first necessities of a garden to break the violent gales that sweep along the coast, not only from the east and north-east, but

and is most ornamental. *Aucuba japonica* also answers well; both the male and female varieties are planted together; therefore the latter produces berries plentifully, and is then very effective. *Berberis Darwini* and *B. stenophylla* are likewise largely used and with excellent results. Broom, both white and yellow, gives a wealth of bloom in its proper season and forms a capital screen. *Cotoneaster microphylla* and *Simonsi* are both pretty when allowed to mingle with other things, especially in summer when the shoots are covered with tiny star-like flowers, or in winter when lined with berries. *Escallonia macrantha* and *E. rubra* rank amongst the very best of subjects for this kind of planting. Both have good foliage, and are seldom without more or less of their rosy bunches of bloom. *Euonymus japonicus* is a grand seaside plant



Down Lodge, Epsom. (Garden front.)

path, terminated by a Birch tree, consisting of three stems. On each side of this walk were old-fashioned flowers—Christmas Roses, Daffodils, Crocuses, Narcissi, Hyacinths, Crown Imperial, white Lilies, Larkspurs, Stocks, evening Primroses, Bachelor's Button, Southernwood, Lavender, Japanese Lilies, Dahlias, Hollyhocks, &c., backed by standard Roses, and then by espalier Pear and Apple trees; and beyond these last were the usual vegetables. Beyond the lawn was a pond, in which we grew Water Lilies and other aquatic plants, but the lawn itself was uninterrupted."

Here, then, is a garden made enjoyable by simple means, adorned with a multitude of beautiful plants, all inexpensive, and requiring but little or no attention. The Fern banks are decidedly pretty; we can well imagine how enjoyable such a mass of beautiful foliage must be in summer:

also from the west and south-west. These greatly injure vegetation by their mere destructive force, and for this reason we find nearly every garden not only enclosed, for safety, by wood or iron fencing, but in addition by a mixed fence of various ornamental foliaged and flowering shrubs to act as a wind screen. These mixed hedges are seldom without flowers or berries, and while perfectly fulfilling their allotted task of sheltering tender plants in the interior, they also add considerably to the general effect. By avoiding the use of shears, and merely cutting out the gross or straggling shoots with a knife, the necessary compact formation is maintained, and the stiff formal aspect of a clipped fence is avoided.

AMONGST PLANTS employed in this locality for screens may be mentioned the *Arbutus*, or Strawberry tree; this flowers freely in autumn, becomes covered with beautiful berries in winter,

and one which may be seen in every garden, large or small; its beautiful variegated varieties, too, are strikingly effective in winter. Hollies, both plain and variegated, also succeed well in the sandy soil of the south coast, and in mixed hedges the variegated sorts come in well, making a dense screen that contrasts charmingly with more graceful and slender plants used for the same purpose.

THE LAURUSTINUS, both common and black-fruited, may be said to be the most conspicuous amongst real winter-flowering hedge plants, and form, either mixed or alone, one of the most ornamental screens that could be devised. Their heads of bloom, just now tinged with rose, will when fully expanded be of snowy whiteness, and very pretty they are during dull winter weather. All the care they require is just a little pruning early in spring. Myrtles are especially valuable



seaside plants, and their scented foliage looks well in hedges, in which they flower freely every year. *Mahonia Aquifolium* is good both in foliage and flower, and well adapted for mixed screens. The foliage puts on a bronzy hue in winter, and the large heads of yellow flowers are succeeded by bunches of purple berries. Roses of the crimson and pink China kinds flower nearly every month in the year, and late in autumn especially they flower most profusely, the blooms peeping out from amongst the surrounding foliage that serves to shelter them from the weather; and when once established they last many years. Sweet Bay makes a fine evergreen hedge plant, and is nearly every year covered with black berries. *Ribes sanguineum*, or Flowering Currant, although deciduous, is well adapted for mixing with Evergreens, its shoots being laden with bloom in spring. And than the Tamarisk, what shrub can be more graceful or better suited for mixed planting, its slender shoots mingling and contrasting well with anything with which they may be associated.

The above is a selection especially well suited for the purpose named, but many others equally suitable might be added to the list.

Gosport.

JAMES GROOM.

## FLOWER GARDEN.

### CARPETING BULB BEDS.

THERE is a great difference between Nature's carpeting and how we do it in gardens. True, we can grow most plants in our gardens equal to those produced in a wild state, but we scarcely ever achieve such results on precisely the same lines. In both its Irish and English habitats we find *Gentiana verna* flourishing in the thick Grass of an ancient sod, but who ever cultivated it in Grass? From Caithness I received sods a few inches in diameter for the sake of the silvery dots of *Primula scotica* held in those bits of earth. In one I counted fourteen interesting and distinct plants, all minute and stunted, made and kept so by the conditions under which they came into existence; but as soon as the balance of those conditions became upset by cultivation there was a rapid change. The short, bristling *Festuca* grew long and soft; Plantains developed spreading rosettes; *Potentillas* had to be weeded out; *Dandelions* would soon have made salading; and various composites struggled for space. And what had I done? Simply placed the little sods in pots, packed them firmly round with loam, the nearest like that of the sod I could find, and plunged the pots in sand. This proves that some things, perhaps all, are greatly influenced by position and climate and altitude—conditions we can often afford to neglect in our gardens for ordinary culture, but when we try our hand to copy the perfections of Nature, we can hardly expect to obtain our aim without studying her laws. Well, what can all this have to do with such plants as we well understand, or imagine we do? I think it has a good deal to do with the subject, and it is because we know too little of it that we fall woefully short in our efforts. We sometimes talk of Mosses as carpeting material; by this some mean *Stonecrops*, others *Saxifrages*, *Sandworts*, and such spreading plants. Now, all these are very different from Grass. They not only offer a different form of fabric, so to speak, but the parts which decay do so in a way and time of their own, and leave the surface in a state quite a contrast to that of Grass; moreover, they grow ranker in a garden than in a wild state.

It is not needful to instance other plants which are often recommended for carpeting, as those just adverted to serve to explain one

point, and that one point in its turn suggests other points which we cannot yet understand.

In gardens we can do a deal that is in accordance with Nature; but in a large sense our gardens are the unnatural abodes of flowers. As a matter of fact, the carpet idea, or natural style, does occur, but in a mitigated degree, on Nature's lines. Some things, I may mention, have run together, and without any aid or control seem to be balanced as regards growth, form, and colour. The Twin-flower (*Linnaea borealis*), *Acæna microphylla*, *Cardamine trifolia*, and *Campanula pulla* appear happy all seen together in a 5-foot patch, and through them sprout seasonably healthy clumps of *Dentaria digitata*, *Sanguinaria canadensis*, *Gentiana septemfida*, *Ficaria grandiflora*, and some *Dodecatheons*. These have existed together for five or six years, but I could not say that in another garden they would behave in a similar manner. The soil in this case is leaf-mould and loam embedded with stones; the slope is to the north, and it dips below the common level. Let any of these conditions be altered, and the balance might be lost. The *Linnaea*, which here forms a pleasing network over the other creepers, not too dense and beset with its round evergreen leaves, might cease to flourish; the *Cardamine* and the frail *Campanula* might get overrun; whilst the *Tooth-wort* could soon grow so strong as to deaden all around it. Viewing the subject in this light ought not, however, to discourage us, but rather draw us on to practise variety, and to experiment with our vast resources. To carpet our gardens so as to last for many years sounds too much like putting one's house in order that we may fold our arms in contentment. Where, however, there is time and willing hands, the carpeting style may be carried out effectually if renewed every two years. This is an easy thing to accomplish, and is only a question of labour.—J. WOOD, *Woodville, Kirkstall*.

— My experience is against using any of the mossy *Saxifrages* or dense growing *Sedums* for covering bulbs, and more especially *Colchicums* and *Narcissi*. The most useful covering I have yet found is the Sweet Violet, which serves the purpose admirably. We have a large extent of sloping bank covered with the Czar Violet, and it fulfils this double purpose admirably, furnishing large quantities of Violets in late autumn and early spring, and clothing over the bare soil at Daffodil time with a very suitable greenery; nearly all our tile-edged walks are now fringed over with Sweet Violets.—WM. BROCKBANK.

### FOXGLOVES.

THE illustration of a mass of Foxgloves growing in a wild condition given in THE GARDEN (p. 607) is one that should lead to the cultivation of these charming hardy flowers far more liberally than is at present the case. As a rule in gardens plants are put out singly, and although a single spike of bloom is better than none, a mass of a dozen or a score of spikes is more attractive, and merits the warmest admiration. If anyone had taken the trouble to sow a goodly bed with Foxglove seed in July they might now have plenty of strong plants to set out in masses just where best suited. Some may prefer to sow seed broadcast in shrubberies and in woods, leaving it to take its chance. That is not always a successful method of establishing a colony, for this reason, that not only will at times much of the seed fail to germinate, but that which does is apt to do so too thickly and the plants are literally starved through want of ordinary space. Foxgloves are easily transplanted at this period of the year, and if spots of ground here and there are properly prepared for their reception, something like design in the massing might be secured.

The fine forms now found in gardens whilst not less hardy than the common wood varieties give such superior results, that it is strange these Foxgloves are not universally grown. Very strong plants will sometimes carry spikes 6 feet in length; their flowers, too, will be large, fine in form, and superbly spotted. If there seems a tendency on the part of the strain to fall back in quality, it is easy to grow in some spot a few plants specially intended to produce seed, and in this way rich markings and good quality will be maintained.

A. D.

**The winter Heliotrope.**—Although this is such a common plant, and one which does not fail to flower more or less even when indifferently treated, I have, nevertheless, before me ample evidence that it will repay a little kindly attention. I have just gathered a handful of its flower-spikes, which are nearly a foot in height, and the flowers upon them emit a grateful fragrance. The plants which produced these flowers were put in a narrow border close to a south wall, with a gravel walk next them. Before planting, we simply took away the gravel and rough material below, and substituted a little ordinary garden soil. In this a row of plants was put during last winter. This is all that has been done to them, and the result is they are now sending up flower-spikes freely, and although not striking, no one fails to admire them, and their sweet scent renders them still more acceptable.—J. C. C.

**Nicotiana affinis.**—This sweet-scented Tobacco plant is quite hardy here. It has been out of doors two winters. There was not much of it to be seen last spring, but when more genial weather set in, it soon increased in size, and began to flower in June. It is even blooming at the present time, and its tall spikes of long white tube-shaped blossoms are almost the only flowers to be seen in one of our borders. The flowers, I think, are sweeter scented now than earlier in the season.—J. MUIR, *Margam, Glamorganshire*.

### EARLY DOUBLE AND OTHER TULIPS.

THESE are neither so numerous nor so popular as the single varieties, to which reference was recently made in THE GARDEN; but some of them are of great value, both for pot culture and for bedding. The best bedders are, Duke of York, dark rose, bordered with white; Gloria Solis, reddish brown, edged with yellow; La Candeur, white; Murillo, pale pinkish, rose and white; Rex Rubrorum, bright red; and Tournesol, reddish bronze, edged with yellow. A few of these are very old varieties, but Tournesol, one of the best, will be grown for many years to come, it is so bold and showy. Murillo, La Candeur, and Rex Rubrorum are later in flowering than the others, and La Candeur is the latest of all. An old gardener whom I once knew equalised the time of flowering to some extent by planting the earliest varieties deeper in the soil than the later blooming ones.

The best double varieties for pot culture are Duke of York; Imperator Rubrorum; a very bright scarlet-crimson form of Imperator Rubrorum without the green tips; La Candeur; Prince of Wales, orange-scarlet, edged with yellow, new and fine; Raphael, rose coloured, one of the finest and very double; Rozen Croon, or Couronne des Roses, rosy carmine; Tournesol; and Yellow Tournesol, a nearly pure yellow form of the foregoing old favourite. Tournesol is the very best for early forcing purposes. Couronne Impériale and Mariage de ma Fille are evidently double forms of the florist's late Tulips, and they are taller and later than those above named. They are well adapted for planting in clumps in borders; but stakes are necessary, as the blossoms, being large and very double, are apt to be bent down by reason of their own weight.

Who can give the origin of the Parrot Tulips? It is said that they represent varieties obtained from



a distinct species. They are of a striking and grotesque character; the leaves are richly and diversely marked, and something like the plumage of a parrot. They are rarely seen in gardens, though they deserve a place there, and as they bloom a little later than the early single varieties, they assist in securing a succession of bloom. The leading varieties are Feu Brillante, brilliant scarlet; Monstre Rouge, large crimson; Mark Graaf, yellow, scarlet, and green; Moustrosa, yellow and red; and Perfecta, striped red and yellow. Then there are some species of Tulips that make charming border flowers, and which, flowering later than the single and double varieties, carry on the floral succession until May. They show off to the best advantage when planted in clumps in the open border in suitable soil. Some of the most desirable species are Clusiana, white striped with red; Gesneriana, large, brilliant scarlet-crimson; Greigi, rich orange-scarlet, yellow and black centre, the foliage spotted with brown; Elegans, rich carmine; Oculis Solis, crimson with black centre; Persica, orange-red, when open bright yellow; Retroflexa, large, clear yellow, the long-pointed petals elegantly recurved; and Sylvestris, a sweetly fragrant species, bearing drooping bright yellow flowers. R. DEAN.

### THE BEST GILIAS.

AMONG the many annuals already in cultivation these deserve a prominent place, not only on account of their large flowers and gay colours, but also owing to the ease with which they may be grown. They do well in mixed borders, where they may be sown early in spring, or if so situated that no fear need be entertained that their seeds will get mixed, they may be allowed to drop, when they will germinate in the autumn, and thus an earlier crop of flowers will be ensured.

*G. ANDROSACEA*, figured in the *Botanical Register* under the old name of *Leptosiphon androsaceus*, is a singularly graceful species, resembling very much some of our annual *Androsaces*, and, like them, flourishing well with us on sunny slopes on the rockery. It grows from 6 inches to a foot high, and has numerous branched stems, terminating in heads of large lilac-purple or white flowers, surrounded by an involucre, consisting of many linear bracts. It flowers in July and August. *G. androsacea* var. *rosacea* is an extremely handsome little plant, forming dense cushions, thickly studded with large bright rose-coloured flowers entirely hiding the leaves. It does well on ledges sown in a little good soil, and not too much exposed to the sun where the soil is not deep. It flowers in June. *Leptosiphon parviflorus* and *Gilia micrantha* are synonyms.

*G. ACHILLEÆFOLIA* OR *MILLEFOLIATA*, a rocky mountain plant, though rather a straggling grower, has fine Fern-like foliage, which makes it valuable even without flowers. The latter, which are produced in August, are deep purple, closely packed in large capitate heads, with protruding black-headed anthers.

*G. CALIFORNICA* OR *LEPTODACTYLON CALIFORNICUM*.—It would be interesting to know if this is still in cultivation. It is quite a shrub, the branches of which are thickly covered with large beautiful rose-coloured white-eyed flowers.

*G. DENSIFLORA* differs but little from *G. androsacea*; the flowers are, however, much larger, more variable, and the leaves are narrower than those of the kind just named. It flowers about July.

*G. DIANTHOIDES* (*Fenzlia dianthiflora* of Continental gardens) is a little species akin in habit to *G. rosacea*. Its flowers, which are lilac, contrast

well with the almost black anthers. Its leaves, which are very narrow, are scattered thinly on the plant. It blooms almost continuously through the summer.

*G. LINIFLORA*.—This is a tall-growing free-flowering kind, introduced by Mr. Thompson, of Ipswich. It grows about a foot high, and produces loose heads, consisting of many large white flowers, with beautiful red anthers. It does well on sunny borders, and is a really useful July flowering annual.

*G. TRICOLOR*.—This is a really pretty species, and when filling a bed a few feet in length and breadth with its prettily cut leaves it is truly effective. Its flowers are light bluish purple, with an almost black ring round the base and a bright yellow tube, some eight or ten of them being collected into a head. The var. *splendens* here represented is a vast improvement on the type. It has larger and brighter coloured flowers and it is neater in habit.



*Gilia tricolor splendens.*

Others not mentioned above are *G. lutea*, now called *micrantha*, *G. capitata*, *G. aurea*, and *G. squarrosa*. K.

*Lotus peliorhynchus* is the long and not too euphonious name of a really distinct and pretty Pea-flowered plant not generally seen. It is in habit like some of the trailing species of ornamental *Asparagi*, but of a hoary or sage-green colour—a tint which somehow never fails to recall the tone of Côté's pictured landscapes. The long trailing shoots bear axillary clusters of crimson-scarlet flowers, something like *Erythrina* flowers, but smaller. Altogether this is a plant worthy of a choice place on rockwork during the spring and summer, even if stock of it has to be kept in a greenhouse during bad winters. It has been figured in the *Botanical Magazine*, and is, I fancy, a South American plant, "*Tico di Taloma*" being its popular name, i.e., "Pigeon's Beak." I first saw it outside at Glasnevin—a beautiful thing! It is also known as *Lotus Bartholletianus*.—B.

**Chrysanthemums in the open air.**—Permit me to thank Mr. Engleheart (p. 607) for the manner in which he has received my method of growing *Chrysanthemums* out of doors as contrasted with his more troublesome and expensive one. His difficulty is the coping on his south wall, which I should consider an advantage. If the border is dug deep and heavily manured—buried below—as I described in the pages of *THE GARDEN*, it will, as a rule, retain a large amount of moisture, and this it will receive,

when the rain comes from south, south-west, or south-east with some wind, as I am sure it often does at Andover as well as here. I would ask Mr. Engleheart to give this method a trial, even on part of his wall, and commence as I tried to point out as soon as he finds it convenient, and report the result next year in your columns. I venture to say there will be far less trouble in watering than when he had them in pots. I have a large vase of twenty varieties now before me as I write cut before the frost set in.—W. J. MURPHY.

## FERNS.

### DRYING FERN FRONDS.

THE difference which exists between the drying of Ferns for purely botanical purposes and the same operation performed with a view to forming a collection is very great indeed. In the first instance, specimens collected and preserved for comparison must possess all the characters which are essential to distinguish one from another. It is therefore indispensable that, large or small, they should be of full size, on which account they often require to be doubled up in the herbarium without the least regard to happy arrangement; and, provided their spores are present, it matters little if the frond which bears them be green, brown, or even black; colour, in the eye of a botanist, is of little value. Entirely different, however, is the work of the ordinary collector who, in his leisure hours, treasures up the most beautiful forms, and in most cases limits himself to them exclusively, judiciously leaving out specimens only possessed of botanical interest. As such collections are, as a rule, made by persons who can gather their specimens at any time, they can afford to wait until the fronds are in the best condition for cutting and pressing, and by so doing and using a little judgment, they may insure the retention of their colours when dry. It is well known that, placed under exactly similar conditions, some Fern fronds will retain their natural colour much better than others. *Trichomanes*, *Todeas*, and *Hymenophyllums*, for instance, seldom become discoloured in drying; in fact, it may be said that generally all thin-textured fronds keep better than those that possess more substance, such as some of the *Aspleniums*, *Lomarias*, *Acrostichums*, &c. The reason for such a result is obvious. In the first place, scarcely any moisture is exhaled during the drying compared with the amount of it given off by fronds of a more fleshy nature. The latter, on account of their thickness, are also a great deal more liable to injury should the weight applied to them happen to be in any way excessive. It is also remarkable, that while the young and tender fronds of some *Adiantums*, such as *macrophyllum*, *rubellum*, *tinctum*, *rhodophyllum*, &c., endowed with the most tender colours, retain them for years without any trouble, others belonging to the same genus are a source of constant anxiety to the operator, and require, besides most careful manipulation, an endless amount of attention to keep a comparatively small portion of colour. In those cases, which, however, are fortunately the exception and not the rule, it is only by repeated efforts and good fortune that one is able to obtain perfect specimens.

In drying Ferns the following rules should be strictly adhered to in order to insure perfect success. The first and most important point is gathering the fronds at the proper time and in a perfectly dry state. They may, when quite matured, be taken at any time of the year, irrespective of seasons, but always in such a state that neither the least condensed moisture nor, in fact, wet of any kind should be on them when cut for press-



ing. The second point, the importance of which is nearly equal to that just adverted to, is the selection of a dry and warm place in which the paper appropriated to drying purposes should be kept between two even boards. Contrary to many people's ideas, blotting-paper, although certainly the best, is not at all indispensable, and need not be used exclusively, as excellent results may also be obtained by the use of newspapers, or indeed of any paper which is not glazed, and will therefore freely absorb moisture, which newly-cut fronds are sure to give off in more or less quantity. In such material we, fourteen years ago, dried with complete success fronds of the delicately tinted *Adiantum rubellum*, *Veitchi* and *macrophyllum*, *Pteris tricolor*, *Athyrium Goringianum tricolor*, young and partially developed fronds of *Davallia polyantha*, and, above all, a magnificently tinged frond of *Adiantum farleyense*, all of which till this day have retained their colours in such perfection as to appear now quite fresh.

Fronds, when once gathered, must not be allowed to shrivel in the least. We find from long experience the following plan to produce the best results. Let a frond, if of large size, or several smaller ones, be put in the paper so as not to touch each other; place between each lot a thickness of two or three sheets of paper, and, when several layers have been thus disposed of, alternately press them gently with an ordinary press, or with a weight, not too heavy, so as not to bruise them, and thus cause a predisposition to discolour. Care must be taken, in laying the fronds in position, to put every pinna and pinule in their proper places, as the aspect acquired by the frond at that period will be afterwards maintained. It is also most important for the purpose of identification that, according to size, either one or several fertile pinnules should, in preparing them, be turned upwards, so as to show the mode of fructification. This will in no wise affect or spoil the appearance of the specimen, and will be found to be of very great assistance when the latter is required for reference. For the same reason it is also necessary, when dealing with species producing barren and fertile fronds of different characters, to dry one of each, representing the development of the plant; if of large size, such as those of certain *Acrostichums*, *Davallias*, *Lomarias*, &c., they may effectually be replaced by portions, varying in size, of these same organs. In the case of *Gymnogrammas*, *Nothochlænas*, *Cheilanthes*, or any other Ferns whose underside is covered with a farinose powder, additional strips of paper, which must be removed when the subjects are dry, put between the pinne, will be found very useful in preventing them from sticking together, which they otherwise are apt to do.

The paper should, until the fronds are perfectly dry, be changed every two or three days, replacing the damp sheets by others either new or previously well dried and aired; care must, however, be taken to see that they occupy exactly the same position after each successive shifting. When the fronds are perfectly dry, but not until then, they should be mounted on cardboard, into which their points, as well as the extremities of their pinne, should be fastened by means of a little gum, which is unnoticed, and gives the Ferns a more natural appearance than can be obtained by any of the other means generally in practice, such as narrow strips of paper, cotton, &c., all of which destroy the natural effects of the specimens thus operated on. Each of these should, moreover, be provided with a label, on which not only the generic and specific names should appear, but also the synonyms, if any, the habitat or country of which it is a native, and the medium

height of the plant under cultivation; all these details may be considered as so much valuable information, upon which one can safely rely in cases of identification, besides being to such a collection the very essence of interest and attraction. After the specimens have been fixed on the cardboard, it is well that they should be protected by a sheet of tissue paper of the same dimensions as the cardboard itself, on which it should be fastened on one side with a little gum. This prevents the fronds, which when dry are particularly brittle, from being injured in any way by the constant friction to which they are exposed through the various uses to which a herbarium may be subjected. We scarcely need add that the specimens must occupy a thoroughly dry place, in which they will remain in perfection for years. It is as well to put a little camphor in the box or drawer in which they are kept, as a preventive against a very minute insect which sometimes attacks the dried specimens, causing great ravages by perforation.—*Field*.

**Viviparous Ferns.**—It may not be generally known that the Killarney Fern, *Trichomanes radicans*, now and then produces young plants on the old fronds. It is now well known that a "short cut" is sometimes made by Ferns in reproducing themselves. Mr. Drury has illustrated this in the *Journal of the Linnean Society* under the name of "Apospory," whereby a young Fern plant is produced from a prothallus developed on the frond without any sexual agency. I once had an instance of apospory on a species of *Hymenophyllum* received from the Royal Gardens, Kew; and more recently thought I had found a like occurrence on the fronds of a Killarney Fern kindly sent to the gardens here by Dr. Charles Ball, but on sending a fresh specimen to Mr. Drury, he tells me it is simply a case of viviparous proliferation, no sign of a prothallus being present. Your correspondent "S." might like to see Mr. Drury's account of apospory in Ferns, and also the illustrative diagrams given by Mr. F. O. Bower. They may be found in the *Linnean Society's Journal*, vol. xxi., April 14, 1885 (No. 136), pp. 354-368.—F. W. BURBIDGE.

#### LYGODIUM SCANDENS.

ALTHOUGH this graceful Snake's-tongue is frequently met with in good collections of exotic Ferns, it is not so extensively used as it deserves to be for cutting and decorative purposes; and yet it is one of the most beautiful, and also one of the most accommodating, plants that the gardener who has much furnishing to do can possibly grow. Mr. Allen, the gardener at Normanhurst, fully alive to its value, has planted it in the back borders of his vineries, and, judging from the way in which it grows and the healthy state of the fronds, it is quite evident it is thoroughly at home in the situation chosen for it. In many gardens we find Vines or Figs languishing or producing very indifferent crops on the back walls of vineries, simply because they do not get sufficient sun and light to ripen the wood and fruit, while the niggardly supply of water administered to the roots favours the formation of colonies of red spider, which speedily spreads to the legitimate occupants trained beneath the roof where it does an amount of mischief, for which the best crops of back-wall fruit cannot compensate. Mr. Allen turns out his plants about 3 feet apart in the narrow back borders, apparently in sandy loam, similar to that frequently used for *Adiantums*, and there he allows them to remain from year to year until they form large stools capable of throwing up an immense quantity of strong shoots annually, often 10 feet to 15 feet in height, by the time the Grapes are ripe in the autumn. The wires to which the young growths are trained are vertical, and some 6 in. to 9 in. apart, as he frequently requires long lengths for festooning pur-

poses; and this distribution over a number of wires while favouring the formation of a most refreshing screen against the wall, enables him to take out here and there one without its being missed. All the plants are cut down close to the soil before the houses are started, and the young growths mount the wires during the time the Vines are under moist treatment. They then gradually harden and ripen with the Vines and Grapes, and retain their fresh, healthy appearance well on into the winter. Although two of the houses had been cleared of Grapes some considerable time before I paid my visit to Normanhurst, the growth of the past season, about 14 feet in height, presented the appearance of an immense sheet of graceful *Lycopodium*. Independently of the value of this graceful Snake's-tongue for decorative purposes indoors, the charming effect which it produces when grown as Mr. Allen knows how to grow it places it infinitely ahead of sickly Figs or miserable looking Vines so often planted to form a poor apology as a covering for unsightly back walls in vineries. *Eastnor Castle, Ledbury.* W. COLEMAN.

## GARDEN FLORA.

### PLATE 523.

#### LARGE-FRUITED HAWTHORNS.\*

THE four Thorns described in these notes form a somewhat distinct group, and for garden purposes may be characterised by their large succulent Apple-like fruits about the size of a Cherry. Although they are more formal in habit than our native White Thorn, they are nevertheless in the first rank of ornamental deciduous trees. The large, handsome, deliciously fragrant flowers are succeeded by brilliantly coloured fruit, and few objects surpass in beauty a specimen of *C. orientalis* laden with its large purple or bright red haws; this species, too, is remarkable for the rich purple tints assumed by the decaying foliage in autumn. *C. tanacetifolia*, as well as the last, flowers freely and bears an abundant crop of fruit. The form of *C. Azarolus*, too, usually met with in Britain, with its light, orange-coloured fruits, is very handsome, and a tree of this at Kew was, until recently, both on account of its foliage and fruit, one of the most conspicuous objects in the arboretum. In spite of the accommodating character of these Hawthorns—they will thrive under a great variety of conditions as regards soil and situation and live to a great age—and their undoubted beauty, they are comparatively rarely seen, except in old-fashioned gardens. It is to be hoped now, that attention is called to this neglect, that planters will make amends and lose no time in procuring trees.

THE TANSY-LEAVED THORN,† though less graceful in habit than our native Hawthorn, *C. Oxyacantha*, is thoroughly well worth growing either on account of its flowers or fruits; the former are much larger than those of the British Hawthorn and even more fragrant; the latter are yellow and as large as a Cherry, depressed-globose in form and often five-ribbed, with ascending or spreading calyx segments. The leaves, which are pinnatifidly cut, are so clothed with greyish hairs as to give a hoary aspect to the tree; the leaf-buds do not burst until nearly all other Thorns are in full leaf; the flowers appear in June. *C. tanacetifolia* is a native of Asia Minor and was introduced in 1789. Tournefort gives a

\* Drawn in Mr. Anthony Waterer's nursery, Knap Hill, Woking, in June.

† *CRATEGUS TANACETIFOLIA*, *Botanical Register*, t. 1854. *MESPILUS TANACETIFOLIA*, Smith, "Exotic Botany," t. 85. *MESPILUS ORIENTALIS*, Tournefort, "A Voyage into the Levant," vol. ii., p. 321 (English edition, 1715).





A LATE FLOWERING HAWTHORN (CRATÆGUS TANACETIFOLIA)







good figure in his extremely interesting book of travels, and the following account of the tree, as he found it on his journey to Angora, is here reproduced: "These mountains produce a fine sort of Azarolier or Medlar tree. There are some as big as Oaks; their trunk is covered with a cleft greyish bark; the branches are bushy and spreading out on the sides. The leaves are in bunches, 2½ inches long, 15 lines broad, pale green, shining, a little hairy on both sides, commonly divided into three parts, even to the rib, and these parts indented very nearly on the edges, pretty much like the leaves of Tansy; the part at the end of the leaf is again divided into three parts. The fruit grows two or three together at the ends of young shoots, and resemble small Apples, of an inch diameter, rounding with five coins, like the ribs of a Melon, a little hairy, pale green, inclining to a yellow, with a navel raised of five leaves, 4 lines long, 1½ lines broad, and indented like the leaves of the tree. We sometimes find one or two of these leaves grow out of the flesh of the fruit, or its stalk. This fruit, though agreeable, is not so pleasant as our Medlar, but I believe it would be excellent if it were cultivated. The Armenians do not only eat as much of this as they can, but do likewise fill their bags."

*C. TANACETIFOLIA GLABRA* has reddish fruit about half the size of that of the type and shining leaves. According to Loudon it was introduced from Germany about 1810 by Messrs. Loddiges, and is, perhaps, a hybrid between *C. tanacetifolia* and *C. Oxyacantha*.

*C. TANACETIFOLIA LEEANA*.—In foliage *L. e's* Tansy-leaved Thorn resembles *C. orientalis*, but the leaves are larger and more deeply cut, and the trees are of a more erect, robust, and fastigiate habit. It is said to have been raised by the late Mr. Lee, of the Hammersmith Nursery.

THE EASTERN THORN\* is a very near ally of the last-named species, from which in some of its forms it is frequently difficult to distinguish. What may be regarded as the type has large purple, five-cornered, smooth fruits, whilst the one separated by Lindley as a distinct species under the name of *C. odoratissima* has red fruits. All have snow-white fragrant flowers, which are produced about the end of May or beginning of June. The foliage, too, varies in degree of hairiness, that of the type sometimes becoming more or less smooth at maturity, whilst in some of the forms the leaves never lose their hairy character. *C. Schradariana* and *C. sanguinea* are names applied to this species in gardens. A native of South-eastern Europe, Asia Minor, &c.

At one time the Sinai Thorn† was supposed to be a native of Morocco, hence the specific name given by Lindley. In the "Flora Orientalis" of

the late Mons. E. Boissier the native country is given as Mount Sinai—Arabia Petraea. It is a handsome little tree with pinnatifid glabrous leaves and somewhat erect branches. The foliage is developed very early in the season, and is retained until late; the fruits, which are scarlet in colour, are much smaller than those of *C. Azarolus*,

sums up its merits as follows: "The tree of *C. Aronia*, next to *C. maroccana* and *C. heterophylla*, is the largest and most timber-like of all the *Thorus*. It grows very fast, makes a handsome head, and on account of the great quantity of Apricot-coloured fruits with which it is loaded, is a suitable ornament for lawns and Grass in pleasure grounds."

G. NICHOLSON.  
Royal Gardens, Kew.

**Diseased Eucharis (A. B.).**—The want of vigour in your Eucharis plants is doubtless owing to the withering of the roots, but what this results from is not so apparent. I have looked carefully for bulb mites, but there are none on the bulbs, roots, or in the soil, nor can I find traces of any insect or fungus. Were the roots injured in potting? or have they been allowed to become too dry? or have the pots been placed too near hot-water pipes so that the roots have been too much heated? Stages formed of strips of wood, with spaces between them, and placed just over hot pipes may be very injurious to plants, as they allow a current of hot and often dry air to reach the lower parts of the pots, which must have a drying and heating effect on the roots that is far from natural, particularly in the case of deep-rooted plants like bulbous ones.—G. S. S.

## INDOOR GARDEN.

### COCHLIOSTEMA JACOBIANUM.

THE genus *Cochliostema* was first established by Lemaire, from a plant introduced by Messrs. Veitch in 1859, and described as *C. odoratissimum*, but which for decorative purposes cannot be compared with *C. Jacobianum*, discovered by Gustav Wallis while collecting for M. Linden, of Ghent. This singular plant, dedicated to General von Jacobi, is an epiphyte from Ecuador, in which the stem is so contracted that the foliage is arranged in the form of a rosette of gigantic dimensions. The individual leaves measure from 30 in. to 36 in. in length, and from 6 in. to 7 in. in width, and are spreading or somewhat recurved and slightly channelled on their upper surface. They are of a uniform light green, except at the margins, which are purplish. The mode of flowering of this plant is as peculiar as its blossoms are beautiful. The flower-stalks, which are about a foot in length, about the thickness of a lead pencil, and pinkish in colour, issue from the axils of the leaves, and as they are produced in succession the plant remains in flower for a period extending from two to three months. The flowers, which are very numerous, are crowded at the extremities of the secondary flower-stalks in a curved, deflexed raceme, expanding from the base upwards. The arrangement of the floral organs is very peculiar, and the flowers themselves are very attractive, the whitish bracts being beautifully shaded with purple.

This plant likes a stove temperature and a liberal supply of water while growing, and from November to March it is rarely out of bloom. It is not so difficult of management that its com-



*Crataegus tanacetifolia glabra*. Fruit, flower, and leaf natural size.



*Crataegus tanacetifolia Leeana*. Fruit and flower natural size.

either eaten fresh or used for preserving. Several varieties are grown, varying in colour and form of fruit. In the *Revue Horticole* for 1856 an exhaustive account is given of these forms, amongst which are described yellow, large red, long red, round red, &c. The one most generally seen in Britain has yellowish fruits. Lindley

\* *CRATEGUS ORIENTALIS*, "Flora Taurico-caucasica, i., 387; Lindley, *Botanical Register*, 1852. *C. ODORATISSIMA*, Lindley, *Botanical Register*, 1855. *MESPIUS ODORATISSIMA*, Andrews' "Botanist's Repository, t. 590. *M. ORIENTALIS*, Poirlet; Koch, *Dendrologie*, erster Theil, 163.

† *CRATEGUS SINICA*, Boissier; *C. MAROCCANA*, Lindley, *Botanical Register*, t. 1835.

\* *CRATEGUS AZAROLUS*, Linnaeus; *C. ARONIA*, Lindley, *Botanical Register*, t. 1897.



parative scarcity is due, for it is easily grown, but to the slow way by which it can be propagated. It never produces seeds, and therefore recourse must be had to suckers, which now and then push from the base of large plants and which when detached soon form independent little plants, by being kept in a compost consisting of two parts peat and one part of partly decayed Sphagnum. For established plants a mixture of two parts peat and one of loam is the most suitable; but should the peat be of a close character, it is then necessary to add a small proportion of silver sand, as this plant evidently dislikes close soil.

### SCHIZOSTYLIS COCCINEA.

THIS beautiful winter-flowering plant is not nearly so much grown as it deserves to be, for as a cut flower to supply spikes of brilliant colour at a time when flowers of all kinds are at their lowest ebb, I do not know of anything to equal, much less surpass, it. I have grown it for many years with varying success, but just now it is making a brilliant display.

In arch, old roots that had stood out all winter were lifted and divided into little bunches and replanted in good kitchen garden soil 1 foot apart each way, and beyond keeping them clean and watering them during the intense drought which we experienced last summer, they had no further attention until the spikes of bloom began to push up in October. They were then carefully lifted with good balls of earth and replanted in an inside Vine border, where they have developed splendid spikes of bloom that are now most acceptable; for, although frost in most winters is but slight here, we have had it pretty severe during these last few nights. When the thermometer shows 12° of frost there is little use in looking for outdoor flowers, and to anyone growing this plant, even in the mildest part of the kingdom, I would say, if you want to see it at its best, either lift the clumps before severe weather sets in, or cover them with cloches or movable frames. Although one may cut a quantity of spikes in mild weather from open-air plants, they never have sufficient flowers expanded at one time to make them really effective, and the colour is not nearly so brilliant or clear as in those raised under the friendly shelter of a glass roof.

JAMES GROOM.

Gosport.

**Ipomœa rubro-cœrulea.**—Everyone who has a stove should grow this on account of its lovely blue blossoms, which, fragile though they be, seem to set the dull cold days of winter at defiance, for now every morning one sees some freshly expanded as surely as in the evening they may be seen fading away; but just as they begin to fade they become suffused with a lovely reddish tinge. This *Ipomœa*, like nearly all the Bindweeds, does well without much attention. We have it under two sets of conditions, and yet it is equally beautiful in both. One festoons part of the roof of the structure in which it grows; the other is in a 6-inch pot. To the last, a few twiggly branches were stuck in the pot for the plant to climb over, and this it did effectually, and it is now beautifully in bloom. Grown in this way this *Ipomœa* forms quite little bushes, which can be shifted about and placed wherever required. Seed of this *Ipomœa* is readily obtainable, and if sown in spring the plants reach a good size before the autumn.

As the pots get full of roots liquid manure given occasionally will be found to be of great service. —H. P.

### CARNATIONS IN WINTER.

A CARNATION is always a highly-prized flower, but it is doubly valuable in winter. The Tree Carnations of thirty-five years ago were plants long and lanky in growth, somewhat difficult to grow, and restricted as regards varieties. Now we have Tree Carnations free growing and yet compact in habit. During the autumn and winter months they should occupy an airy span-roofed house; fire heat should be applied to prevent any ill effects arising from damp and frost, but only for that purpose when absolutely necessary. The plants should stand on raised stages, with some grit beneath the pots, and when the weather is genial abundance of air should be admitted. Water is given when required, taking care not to wet the foliage, as at this season of the year it causes it to spot. The plants should be gone over occasionally, in order to remove decaying

say in October or a little earlier, according to the state of the weather, they should be removed to the house or frame in which they are to flower. A house, as has been stated, suits them best; but I have seen good blooms on plants grown in a cold frame deep enough to admit of the lights being placed on them when required. At all stages of the growth of the plants cleanliness is a matter of great moment; green fly attacks them, and the plants speedily suffer. During the autumn months sufficient warmth must be afforded to enable them to expand their buds; if this is not supplied by solar heat, it should be provided for by artificial means. As regards sorts, the following will prove satisfactory, viz., Bright Phœbus, brilliant scarlet; Burgundy, dark maroon; Cardinal, scarlet; Countess, soft rose; Egyptian, dark maroon; Enchantress, deep pink flaked with dark purple; Field Marshal, deep scarlet, dwarf and excellent; Garibaldi, rosy scarlet; Helena, bright rose; Huntsman, bright scarlet; Invincible, dark maroon; Juliette, deep rose, large, full and very fine; Jubilee, dark, with red stripes; Lady Bramwell, rose, large and fine; Lord Derby, bright scarlet; Lord Roceby, brilliant scarlet, excellent in habit; Mrs. Keen, crimson, large and fine; Mrs. Llewellyn, bright rose, an excellent variety; Mrs. Maclaren, a large and finely marked crimson bizarre; Negro, dark maroon; Seraph, clear deep rose; Vivid, bright scarlet; Volunteer, scarlet striped with maroon; and Worthington Smith, deep scarlet. I may add that the improved varieties of Tree Carnations flower much earlier than the old ones of years ago, and they also yield many more flowers.

R. D.



The Azarole Thorn (*Crataegus Azarolus*). Flower, leaf and fruit natural size.

leaves and to stir the surface of the soil. Tree Carnations, that is the winter flowering race, are propagated by means of pipings nearly in the same way as Pinks. They should be put in in February and struck in heat. By February the "grass" made in the previous summer will have become hard and tough, and well adapted for pipings. They should be put into 4-inch pots, eight or ten pipings being placed in a pot. Use for them a moderately light sandy soil, and then give them a gentle sprinkle with water overhead, and place the pots in a gentle warmth; in three weeks or a month they will be sufficiently rooted, when they can be potted off singly into 2-inch pots, and when established in the temperature in which they were struck, be gradually hardened off. When well rooted they may be shifted into what are known as 5-inch pots, or a smaller or larger size, according to the strength of the plants, and then they can be placed out of doors on a bed of cinder-ashes, where they can remain all the summer, keeping them well washed, and as they send up their main shoots they should be supported by a stake, else there is danger of being broken off by wind. In the autumn,

**Gloxinias in winter.**—I have read with much interest "J. C.'s" remarks on the culture of Gloxinias (p. 553). In his last sentence he says: "I think that those who may never have grown Gloxinias for winter bloom would be much pleased with them." I may state that we have some plants of Gloxinia here at present in full flower; some of them have been used for house decoration for these last three weeks in a room the temperature of which often falls as low as 50°. Most of them have as many as sixteen flowers open at one time, and I may add that they give universal satisfaction.—J. COLTHORPE, Summerville, Waterford.

**Wild Martagon Lilies.**—Mr. Engleheart inquires whether the Martagon Lily still exists in a wild state near Mickleham. In my rambles, so late as 1884, I came upon several spikes of it, in a narrow piece of coppice, on the right-hand side going from Mickleham to Headley, and undoubtedly the spot alluded to, in 1840, by the editor of *The Phytologist*. It is, however, getting scarce. When I first came across it in 1879 it was much more plentiful than it is now. I have also found it in abundance in woods between West Humble and Bookham. This summer many of the spikes have been from 3 feet to 4 feet in height, and have borne sometimes as many as nine flowers.—E. SWINDEN, Dorking.

**Tropæolum azureum.**—It is this species, no doubt, to which "B." refers in his article on *Tropæolum Deckerianum* (December 5, p. 587) when he says: "Who, for instance, now possesses the blue-flowered *Tropæolum* which won for its introducers in 1842 a silver medal from the Royal Horticultural Society?" To this query the reply may safely be—several. I received it two years ago from Messrs. Veitch, of Chelsea, and I know a garden on the Continent in which it is cultivated. It is a very interesting plant, and one which ought not to remain so rare as it is at present.—R. IRWIN LYNCH.



## FLOWERS OF WINTER.

"Now is the winter of our discontent" enlivened by Queen Chrysanthemum, with golden Jasmine, with Holly berries of crimson, scarlet, vermilion, yellow, and orange, and with the buds and blossoms of the Christmas Rose. Here and there the Pyracantha almost sets the walls on fire with its glowing fruitage, and the berries of Cotoneaster gleam out brightly, as the sun catches them, from among their hoary leaves. The soft grey catkins of the Garrya sway and tremble in the breeze, and the red fruits of the Strawberry tree shine out beneath the clusters of waxy flower bells, and as the sun goes down red in the western sky, the slender trunks of the Birch trees shine and glisten like columns of burnished silver against the sombre background of Hollies and the Yew tree's shade. We had 16° of frost the other night, and the ice on the little pond would bear one's weight; but the wind veered round, and up swept the thick grey clouds; then came that best of all endings to a sharp frost—a drizzling rain, and this morning all is bright and sunny and warm, and the thrushes are singing on the topmost twigs of the old Thorn trees just as if spring had really come. How grateful the birds always seem to be after the frost has gone! The white Christmas Roses are in bloom, the great Helleborus altifolius leading the van; then come *H. niger scoticus*, *H. niger* Mad. Fourcade—the Bath variety—then *H. niger angustifolius*, and that swan-like beauty, "St. Brigid's" Christmas Rose (*H. niger inermis* of Barr), is also showing flower, and will linger on in beauty until the first day of February ("St. Brigid's" day in the calendar) ere it leaves us desolate for a year.

Ivy is almost, if not quite, unnoticed in the summer time when the garden is rich in blossoms of many a hue; but now how the glistening leafage is appreciated, and one has time to notice the many varieties. The same is true of the Saxifrages, which are now at their best, while the pale green leaves of Tellima quite rival the Heuchera leaves in ruddy colouring. So also the leaves of the common Mahonia are now at their best, and most useful for filling the biggest of flower-vases are the long-stalked Chrysanthemums and other flowers are placed in them.

Even now, winter though it be, there are signs, many and varied, of the springtide days. The Grape Hyacinths have long been above ground; so also some of the Narcissi, and the slender leaves of the Bride Gladiolus are spearing up among the Alliums by the sunny walls. Here and there the turf is studded with Cyclamen leaves; Crocus and Iris susiana are peeping, and so is the leafage of Galanthus Elwesi, which is always earlier here than the common kinds. Already there is promise of the waxy blossoms of the Japan Allspice (*Chimonanthus fragrans*)—sweetest of all the winter flowers.

Thrice happy at this season are those gardeners who possess a greenhouse or two, or a hothouse where Orchids, Palms, and Ferns may find a genial home. A greenhouse is never more fully appreciated than when filled with Chrysanthemums, scarlet Pelargoniums, Salvias, Cyclamens, &c., at this season, which has, by some

golden Daffodils did they not "haste away too soon" before the hottest of summer days! Emerson tells us "all seasons have their own value full and true," and that it is so, in the garden as in the woods, we all well know. I once listened to a mellow-throated blackbird as it sang in a Thorn tree. Its music was delightful, and I thought it had a richness and variety the thrush could not rival. Now the blackbird is silent, but every fine morning a thrush pours out its gushing melody, and so I now think its song the sweeter of the two. It is so in the garden where each blossom becomes the best in its own season and in its own place.

VERONICA.

**Rogiera gratissima.**—This shrub should be in every garden in which there is a greenhouse; with the same protection as that given to Camellias it flowers throughout the winter in the greatest profusion, its beautiful rosy-pink blossoms reminding one, except in colour, of those of a small-flowered Ixora. Its cultivation is by no means successful. We frequently find it coddled up in warm stuffy structures, whereas a light airy greenhouse is far more in accordance with its requirements. When grown in pots thorough drainage is most necessary; if this is not well secured the plant will not thrive. It is most impatient of stagnant moisture.—T.

The Eastern Thorn (*Crataegus orientalis*). Flower, fruit, and leaf natural size.

unobservant people, been termed "the dull time of the year." For all who have eyes to see and ears to hear it is the reverse of dull or uninteresting. All seasons have their advantages as well as their drawbacks. A wintry gleam of sunshine on the golden Willow wands or the silvery Birch bark is a revelation which only a great painter

The Morocco Thorn (*Crataegus maroccana*). Leaf, flower, and fruit natural size.

## KITCHEN GARDEN.

## CULTURE OF HORSERADISH.

WE have grown this in the manner described in THE GARDEN (p. 593), but have discarded it several years ago in favour of a method by which we can get much larger and better roots. It is remarkable that, although there is such a constant and regular demand for the roots of Horseradish, it is generally grown in some out-of-the-way part of the garden where no other useful plant would exist. In order to grow the finest examples of it, a situation fully exposed to the sun should be selected. In autumn the ground should have a heavy dressing of well-rotted manure, and afterwards be deeply dug and thrown into ridges to become thoroughly pulverised. It would be advantageous to trench the ground two spades deep, the bottom one being turned over, but not brought to the surface unless it has been regularly turned over to that depth, as it will be too poor to produce a satisfactory crop the first year. A sufficient number of thong-like roots from  $\frac{1}{4}$  inch to  $\frac{3}{4}$  inch in diameter, and from 12 inches to 18 inches in length, should be selected. The top, or crown end, should be cut square across, and the lower, or root end, cut slanting, in order to enable the planter to readily distinguish which end to insert in the ground.

All the buds, except a few at each end, should be removed. This can best be accomplished by means of a piece of sacking, with which the roots should be rubbed to within 1 inch of each end. In February, or as soon afterwards as the land is in good condition, it is levelled and marked out into beds 4 feet in width, with 1-foot

can ever hope to reveal. What colour there is in the woods; what mellow lights on the golden-brown Ferns; what subtle depths of shadows among the dark-leaved Pines! How sick we should all become of a world that was all Apple blossoms or Roses! How faint our welcome of



alleys between them. Two rows of plants are placed in each bed, with their crowns towards the alley and 6 inches from the edge thereof. They should be planted with a dibber at an angle of about 30°, leaving the crown end just visible, and 15 inches apart in the rows in zig-zag order, so that they may derive the full benefit of the manure that was applied. When the buds have pushed into growth, all except the strongest one should be removed, together with any roots that may be found. If those roots are permitted to grow, the chances are that it will not make a good stick. It is owing to the close proximity of the plants to the surface of the ground where they derive the benefit of the heat of the sun and to their roots being entirely at one end, so that the sap has to pass through the whole stick or usable part that causes it to thicken so quickly. The

to please anybody; but as regards eating, it is absolutely hard, and has a not very pleasant flavour.—J. C. C.

#### NOTES ON VEGETABLES.

AS VEGETABLES are grown by all who own a garden, and as the time will soon be here when cultivators will have to decide which varieties they intend to grow in 1886, the following brief extracts from my culinary note-book may be of some assistance in helping them to secure the best:—

ASPARAGUS.—1, Reading Giant, strong grower, fine green stems, exquisite flavour, and an excellent variety; 2, Connover's Colossal, large deep green, early, flavour moderately good; 3, Grayson's Giant, a variety of no special merit; 4,

prolific, and good in flavour; 4, Early Mazagan, the earliest, but possessing no other merit; 5, Mackie's Monarch, inferior to Aquadulce; 6, Seville Long Pod, a capital sort for general use, pods long, produced abundantly, and excellent in quality, a profitable Bean; 7, Green Windsor, Beans very green, pods short, not one of the best; 8, Kinver Mammoth, a grand sort, much like Aquadulce, pods long, well filled, and flavour excellent; 9, John Harrison, one of the latest, pods short, inferior to Seville Longpod.

BEANS (Runner).—1, Girtford Giant, a very fine variety with pods the largest of all, very prolific, hardy, good for both a general crop and for exhibition; 2, Old Scarlet, not worth growing; 3, Giant White, a useful kind, and fine in flavour; 4, Champion, superseded by Giant White; 5, Painted Lady, flowers pretty, but pods inferior



Fern banks at Down Lodge, Epsom (p. 629).

crop may be taken up at any time after the foliage has decayed and packed crown upwards in sand or light soil in an open situation, there to remain until required for use. During the process of lifting, all roots suitable for cuttings should be selected for future planting.

Wythenshawe, Manchester.

W. NEILD.

**White Plume Celery.**—I have come to the conclusion that Mr. Muir was quite right when he said last year that this Celery was only fit to be grown as a novelty, for the more I see of it the less I value it. With us it has grown as large as I could desire under the same attention as that given to other Celery; and as regards colour, it is white enough without earthing

Battersea, or the same type, but inferior to Reading Giant.

ARTICHOKES.—1, Green Globe, heads large and fine, very prolific, handsome, and excellent in flavour, decidedly the best, does not come true from seed; 2, Purple Globe, early, small, hardly, useless for exhibition; 3, Jerusalem, a most useful winter vegetable, and confined, as yet, to one variety.

BEANS (Broad).—1, Leviathan, pods from 10 in. to 15 in. in length, not early, not very prolific, but excellent for exhibition; 2, Aquadulce, a very fine Bean, the best of all, more prolific than Leviathan, good both for show and table, and a capital main-crop sort; 3, Green Gem, dwarf,

6, Mont D'Or, a good Butter Bean, prolific, very tender and delicate in flavour; 7, Speckled Beauty, an improved variety of Painted Lady; 8, Haricot D'Algiers, a good type of Butter Bean; 9, White Dutch, inferior to Giant White; 10, Caseknife, identical with White Dutch.

BEANS (Dwarf).—1, July Surprise, a new and promising kind, compact in growth and very prolific, pods long and narrow, good for forcing, and fine in flavour; 2, Canadian Wonder, tallest of the class, not very useful for forcing, but in the open very prolific, pods long and handsome, excellent for main crop, and one of the best for exhibition; 3, Ne Plus Ultra, one of the newer kinds, distinct, early, compact, and prolific, but hardly so good as July Surprise; 4, Osborn's



Forcing, compact in growth, prolific, pods short, capital for forcing in open air behind Fulmer's; 5, Fulmer's Forcing, inferior to Osborn's when forced and not worth growing in the open; 6, Williams' Early Prolific, of no special merit; 7, Longsword, a second Canadian Wonder, pods hardly so long, but, if anything, more prolific; 8, Sion House, moderately good for forcing, discarded as regards open ground culture; 9, Negro Long-podded, does not merit the name, the pods being shorter than those of Canadian Wonder and others, moderately prolific, and good in quality; 10, Dwarf Butter Bean, pods yellow, very distinct, prolific, useless for forcing, but fine in flavour; 11, White Advancer, very prolific, early, and good; 12, Newington Wonder, the same as Sion House; 13, Dun, very inferior, no improvement on the last; 14, Sir Joseph Paxton may be classed with Dun.

**BROCCOLI.**—1, Veitch's Self-protecting Autumn, a first-rate variety, late in the autumn and early in the winter, never fails to come to time, compact in growth, heads fine, and excellent in flavour, a most valuable Broccoli; 2, Gillespie's Early, a very poor sort; 3, Walcheren, unworthy of culture, more like a Cauliflower than a Broccoli; 4, Grange's Early, same in character as Walcheren; 5, Backhouse's Winter White, very hardy, distinct, and useful, growth compact, heads pure white, good; 6, Osborn's Winter, a good kind, which never fails to turn in at the proper time; 7, Snow's Superb Winter White, discarded, too uncertain, sometimes heading in January, at other times not until March, the most uncertain variety I ever cultivated; 8, Frogmore Protecting, fairly good, but inferior to Backhouse's; 9, Penzance, very tender, useful in mild winters; 10, Cattell's Eclipse, very hardy, heads massive, an excellent sort; 11, Lander's Late, extremely hardy, and very useful in April; 12, Late Queen, a magnificent sort, the most useful of all for May, good and true, cannot be too highly praised; 13, Purple Sprouting, very coarse, discarded; 14, Leamington, large, choice, first rate; 15, Winter Mammoth, very large, fine in quality and useful; 16, Carter's Summer, moderately late, heads large and fine; 17, Webb's Perfection, very compact, heads beautiful, and good in flavour; 18, Matchless, excellent; 19, Brimstone, bad in colour, not good; 20, Ledham's Latest of All, no improvement on Late Queen.

**BETROOT.**—1, Dell's Improved, medium sized, handsome in form and excellent in flavour, comes true in colour of leaf and flesh; 2, Pine-apple, inferior in every way to Dell's; 3, Nutting's Dark Red, too large, and inferior in quality; 4, Whyte's Improved Black, no improvement on Dell's; 5, Belvoir Castle, more ornamental than useful; 6, Turnip-rooted, the earliest, and very useful on shallow soils; 7, Egyptian, same as the Turnip-rooted; 8, Improved Black, a good selection of Dell's; 9, Seakale Beet, useful in the case of those who know how to cook the mid-ribs of the leaves, roots useless; 10, Pragnell's Exhibition, fine in colour, a good variety, but with rather too much top; 11, Omega, not equal to Pragnell's, although of the same type.

**BRUSSELS SPROUTS.**—1, Rosebery, one of the old-fashioned kinds, compact in growth, hardy and prolific, sprouts of medium size; 2, Paragon, dwarf, compact in growth and hardy, sprouts excellent; 3, Strymer's Giant, tall in growth, thin sprouting, not very large, fairly good; 4, Aigburth, very large sprouts, but thinly produced, supplies a large quantity of green material much inferior in quality to small sprouts; 5, Otterspool, same as the Aigburth; 6, Reading Exhibition, a fine large-sprouted variety and a strong grower, sprouts handsome and excellent for exhibition; 7, Merritt's, a new

sort not yet distributed, very compact, small hard sprouts thickly clustered from bottom to top of stem, very promising; 8, Dalkeith, a valuable old kind, hardy, prolific, and good in quality; 9, Matchless, a very fine sort of the type of the Reading Exhibition; 10, The Burghley, as much like a Cabbage as a Sprout, not distinct enough, cannot be fairly called a Sprout; 11, French Superior, not so good as Reading Exhibition.

**BORECOLE.**—1, Cottager's Kale, very useful, stands the weather well, and excellent when properly cooked; 2, Abergeldie, very hardy, and good in spring; 3, Asparagus Kale, said to be as good as Asparagus, but we have never found it to be so; 4, Ragged Jack, the hardiest of all, and good after being exposed to plenty of frost; 5, Variegated Kale, very beautiful in foliage, generally used for garnishing, useful as a vegetable after a hard winter; 6, Chou de Russie, very hardy, but poor in flavour; 7, Buda Kale, very good and tender; 8, Dwarf Green Curled, a most useful sort, and worthy of general culture.

Margam Park, Glamorganshire. J. MUIR.

### KALAMAZOO CELERY.

MIDWAY between Detroit and Chicago lies the beautiful city of Kalamazoo, sometimes appropriately called Celeryville. Fifty tons of Celery are sent from Kalamazoo daily during the height of the shipping season. Kalamazoo Celery is famed from ocean to ocean, and is the brand called for everywhere. Shipping begins about July, increasing till the holidays, then gradually decreasing until the crop is disposed of in the spring. Three thousand tons were shipped from this point alone during 1883, and the shipment for 1884 is estimated at 5000 tons. From 1500 to 2000 acres are devoted to this industry in this vicinity, and the production of a superior article has never exceeded the demand. Twenty thousand stalks are easily raised during the season on an acre, and the wholesale price ranges from 6d. to 1s. per dozen. Marsh land has become the home of this luxury, and Hollanders are the main producers. Driving north from Kalamazoo, one passes great 100-acre farms devoted to Celery. The long rows keep their bright green till November, and the fields are unmarred by fences or anything except the cozy cottages of the thrifty Hollanders. The irrepressible Yankee has, of course, bought large tracts and gone into its culture; but the mass of growers cultivate from three to ten acres, raise the choicest article, and make the most money. Too much expensive hand labour is required to justify going into the business on a large scale. Celery can be raised on any marsh properly drained, and it is not necessary that the marsh lie along the mystic waters of the Kalamazoo. Yet it is a recognised fact that specialties cluster here together. Celery growers and shippers have here an association to protect their interests and disseminate information useful to the industry. There are about fifty principal varieties; most popular among them are the White Walnut and Crawford. The points in reference to perfect Celery are soundness, brittleness, and keeping qualities. The seed is sown in narrow rows in hot-beds, and this produces plants for the early crops. As soon as the weather will permit seed is sown outdoors in beds of about a square rod of plants for a square acre of land. Plants are set in May or as soon as their size and the climate will permit.

Open ditches for draining are common, cutting the land into quarter-acre sections, but if tile drains are used, two rows of Celery can be raised in the space taken by the open ditch. The better the marsh is drained the handsomer the crops look in time of drought and the soil can be worked

immediately after rain. Two and three crops are raised off this soil in one season. Onions are put in for the early market; early Celery is set in June and harvested the last of August, and winter Celery is set in September and secured in November. Each crop must be manured; as the soil is so porous, the manurial properties wash down out of reach of plant roots. The Celery is set 6 feet apart between the rows and about a finger's length apart in the row. Onions or some early crop is raised between the rows and harvested before the Celery is ready to hill. Hilling leaves a trench between the rows, along which manure is spread and another row of Celery plants set, and by the time the first Celery crop is marketed the latter crop is grown and needs the soil for hilling. If the season is favourable, another row of plants is set in place of the first Celery crop harvested.

The first and last crops are bleached with soil hilled closely to the leaves, but the intermediate crop is bleached with boards held closely to the plants by bent iron hooks. Boards bleach the Celery higher to the leaves and in quicker time. Celery is trimmed, washed, and tied into bunches of a dozen stalks each. This work in summer is done in a shed built over a stream, in winter in Celery cellars. These cellars are made by digging 2 feet below the surface and boarding up 2 feet above; then on a centre frame 6 feet high, 12-foot boards meet and slant to the ground with windows. The cellar is then banked and covered with manure. They are built 24 feet wide and 50, 100 or 200 feet long, according as they are required to hold 50,000, 100,000 or 200,000 dozen Celery. These are built on upland, as marsh is too damp and cold. When the Celery is first put into the cellar it is green, but bleaches in a few weeks. It is packed closely, standing boards every few feet to prevent heating. The object is to keep it growing. The roof boards of these cellars are used in summer for bleaching the second crop. Another method (says the *Detroit Free Press*, from which this extract is taken) of storing and bleaching for winter is in trenches 2 feet deep and wide, packing as closely as the crop will stand.

### WORK DONE IN WEEK ENDING DEC. 15.

DECEMBER 9.

Fourteen degrees of frost this morning made us anxious about the well-being of Calceolarias, Echeverias, Gnaphalium, Leucophyton, and Violas in cold frames, and Bracken and long stable litter was at once built up round the brickwork, and a thickness of the same over the mats. The same description of covering was also used over the frames containing Strawberry plants, Roses, bulbs, and shrubs for forcing, as well as over Cauliflowers and Lettuces in hand-lights and in the open borders. Soil wheeling to stations ready for top-dressing and planting fruit trees. Grubbing up Hazel stems and trenching ground that is to be laid down as lawn. All roots and worthless sticks, wood and leaves are being burnt as quickly as they can be got together. House duties have been pruning another viney—latest Hamburgs—and the Vines are now having the usual cleansing; after which glass and woodwork will also be washed and walls limewashed. The border is entirely outside; consequently fresh soil and manure can be added to the border at any time before the roots start into new growth. Put in a few more bulbs to force; likewise Spiræas, Dielytras, Rhododendrons, Kalmias, and Roses. Fruit rooms we now keep closely shut up, and on the shelves near the windows the fruit is covered over with soft wasp netting, two or three ply in thickness, as security against frost.

DECEMBER 10.

The frost continues; 12° this morning, and by tomorrow the ice will be in good order for storing, in



preparation for which the ice house has been cleaned out, the drains cleared, and over them a layer of stout Hazel rods, to ensure the drains being kept clear, and over these a layer of straw, and the walls are lined with the same as the ice is pounded down. Gravel carting and wheeling to parts of pleasure ground where new walks or alterations are being done, and also for surface gravelling such parts of existing walks as look shabby through washing by heavy rains or from wheeling over them. As the ground had got too hard for trenching, we began to clip Privet and Thorn hedges, and to turn over our vegetable mould heaps, a sprinkling of salt being put on them to kill insects as the turning was done. House work is much the same as for some time past, namely, cleaning Vines and vineries, and tying late Peach trees to trellis, and keeping all the houses as trim as the shifting about of plants (necessitated by fruit growing being a first consideration) will admit of. Our Strawberry house is at present full of flowering plants—Primulas, Cinerarias, Pelargoniums, Bouvardias, and Tree Carnations, and though the house is now wanted for Strawberry forcing, till Grapes are cut and bottled no room can be found for the plants, so that meanwhile the Strawberries are being brought on in a heated pit and on the early vinery shelves, another half hundred plants having been put in to-day.

#### DECEMBER 11.

This morning our thermometer again registered 12° of frost, and the ice being in capital condition—1½ inches in thickness—all hands have been hard at work and the job is completed in one day, and, what to some may be a surprise, the work has been done without a drop of beer; we give an equivalent in extra pay, and by this means escape the rowdiness that on such occasions is invariably the inevitable accompaniment of beer. Our house is underground, cone-shaped, and built with bricks, and that the house is suitable for ice storage is proved by its keeping over twelve months, even in the hottest summer. The only precaution we take in respect of keeping is to well pound it down when being stored and never to open the house in summer time after 7 a.m., butler and cook being required to give their orders for ice overnight, or else go without till the day following. Except the necessary watering and firing, work in the houses has been quite at a standstill, as all but those on duty in the houses had to help with ice.

#### DECEMBER 12.

Our ice has only just been secured in time, for a thaw set in early this forenoon and still continues. Manure and gravel carting, turning over leaf-soil heaps and mixing up leaves and litter for hot-bed purposes; clipping Privet hedges and burning up garden refuse; swept up coach roads and cleaned up lawn. All the covering will be left on the frames and over vegetables till the frost has quite disappeared, as if the plants are a bit frozen, they will be less injured if left to thaw gradually than if exposed the moment the frost had gone. The houses have all had a thorough clean up and flowering plants picked over, every bit of decay being swept away. Also looked over Grapes and cleared all leaves off Lady Downes and Alicante Vines; they came away readily, that is, without any force, otherwise they would have been left on the Vines longer. Watered Pines; the hard firing of the last few days has dried the soil rapidly, and we do not like them to get dust-dry and thus get checked in growth, else premature fruiting would ensue and the plants have to be thrown away. Closed up early Muscat vinery for forcing; our present temperature will be 50° to 55° by night, and from 5° to 10° more, according to the weather, by day.

#### DECEMBER 14.

The thaw is complete; fine and mild. Recommended our trenching and other groundwork preparatory to fruit tree and shrub planting. Planted some few Rhododendrons; our soil is naturally suited to this class of shrubs, so that all we require to do is to trench deep and work in as much leaf soil as can be spared for the purpose; they would do without this admixture, but my experience is that new roots are made in greater abundance in the leaf soil the first year than in the light loam alone, and con-

sequently the plants start into vigorous growth that much the sooner, but I question very much whether any other advantage accrues from its use, but on this account alone I shall continue its use. Pruning Apples and Plums and tying Raspberries to wires. Put in another batch of Chrysanthemum cuttings, also portions of roots and eyes from stems of Dracaenas in pans of sand that are plunged in a bottom heat of 75°. Uncovered frames containing hardier bedding plants and fully exposed them to the air, and picked off the while all decayed and decaying leaves that had been caused by the long time the covering was on. Fruit room shutters, sashes, and doors were also thrown open to-day to drive out the damp, and this will be repeated every day when the air is moderately dry till all traces of damp that the late frost caused have disappeared. Triomphe de Jodoigne, Beurré Diel, Winter Nelis, Forelle, and Huiyshe's Victoria are the best Pears now ripe.

#### DECEMBER 15.

This has been quite a spring-like day, with several hours of sunshine. Planted a few Pears (cordons) and continued pruning and nailing Plums and Cherries on east and north walls. Planted a few Rhododendrons, and trenched ground for other groups of shrubs that are to be planted shortly. Dug up Asparagus for forcing in manure frames—leaves and stable litter—over which are placed about 4 inches thickness of fine leaf soil, on which we pack the roots as closely as they can possibly be packed, and cover them up with the same material; a good watering is at once given to wash the soil down about the roots, and very rarely indeed is another watering requisite. Plant cleaning and shifting plants from one house to another, according to the requirements necessitated by the commencement of Vine, Peach, Fig, and Strawberry forcing, is about all the work we have been able to get done in the houses to-day.

#### HANTS.

### FRUITS UNDER GLASS.

#### FORCING ORCHARD HOUSE.

When properly prepared and judiciously managed, suitable varieties of Peaches and Nectarines can be successfully forced in small span-roofed houses, and many gardeners who a few years ago pooch-pooched this system now adopt it, for the twofold purpose of obtaining an extra early supply of fruit and sparing their permanently planted Peach houses, which they can start a month later. This gain of a month, where Peach houses are not over-plentiful, is no small advantage, as it enables the cultivator to husband his best trees until the turn of the season, and in many instances it gives him the command of a late house, which he can retard for leading up to wall fruit in the autumn. Moreover, it is now a well-proven fact that fairly-cropped pot trees produce very fine fruit, which comes quickly to maturity, and although it may not be so highly coloured as that which is obtained from trellis-trained trees, it answers the purpose equally well. But in order to succeed, the best early kinds should be selected, potted, and grown under glass for a year or two, to get them well established and thoroughly ripened before they are taken in for forcing. The earliest varieties include Alexander, Ainsden June, Hale's Early, Early Grosse Mignonne, A Bec, Large Early Mignonne, Early Silver, Early York and Doctor Hogg Peaches; Lord Napier, Advance and Stanwick Elruge Nectarines. There are others equally early, but these include the best and more varieties than any private grower can require, as it is much better to duplicate the best than to grow a great number of sorts for the sake of variety. Amateurs and young beginners, unfortunately, too often go in for variety, and I must confess to having been tarred with the same brush; but if I were now forming a new selection, I should pot up a good batch of Hale's Early, A Bec, Early Grosse Mignonne and Early York Peaches, and the three Nectarines named in the above list. If confined to one Peach and one Nectarine, I should choose A Bec and Lord Napier.

*Forcing.*—Assuming that a good stock of the early kinds were taken into a light span-roofed house last month, and have had the assistance of a little gentle bottom heat from fermenting material placed beneath the pots, the buds will now be swelling, and some of

the flowers will soon be showing colour; but caution being the better part of valour in their management, no advance on 45° by night should be attempted until the flowers begin to open, when 50° may be taken as the mean in mild weather, and 5° less when it is severe. Forcing should always be carried on with a circulation of air, and progress should be made by running up a few degrees during the time of daylight, provided the weather is bright and clear, and 5° to 10° can be secured by warming the pipes during the time the ventilators are open. In dark, dull weather it is best to exercise patience and discontinue direct syringing, as too much haste invariably forces the wood buds in advance of the flowers, when the latter either drop or open weakly, and, being imperfect, set badly or fail altogether. On bright mornings the trees may be well moistened with tepid water a few degrees warmer than the atmosphere of the house; the paths, the walls, and the surface of the fermenting material may also be syringed; but great judgment should always be exercised at this dull season, as it is not good practice to have the buds wet at nightfall, neither is it necessary where a good body of fermenting leaves about the pedestals, but not touching the pots, is properly renovated with fresh supplies and turned frequently to set at liberty warmth and moisture.

*Watering* the trees is an important operation, and should always be performed by an experienced person, who is not likely to be misled by the moist appearance of the surface, when perhaps the lower roots are in a fit state for receiving a good supply of water. Early morning is the best time to water, and the supply, whenever it is given, should be thorough, a few degrees warmer than the mean temperature of the house, and in sufficient quantity to penetrate to the roots coiling round the bottoms of the pots and working in the drainage. When well watered, a pot tree may stand several days before it requires another supply; but no rule can be laid down, so much depends upon the size of the pot, the quantity of roots, and the nature of the compost in which the tree is growing. One thing, however, the tyro should set his face against, and that is dribbling or haphazard watering, for, once allowed to become dry at the root, a pot Peach tree is ruined for the season.

*Fumigating.*—When the blossoms begin to show colour, the house will require fumigating once or twice with tobacco paper to destroy green fly, which invariably puts in an appearance before the fruit is set where this operation is neglected. Always choose calm days for smoking, let the trees and house be quite dry at the time, and syringe with tepid water the following morning. Two smokings in the course of ten days generally make the trees quite secure from the pest until after the fruit is set; but three gentle fumigations will perhaps be better, especially if Strawberries have been introduced with the Peaches. If this precaution is neglected until after the flowers open, the crop of fruit will be endangered, if not completely ruined, either by the fly or the smoke, as fumigation that will kill the insects will ruin the delicate organs of the flowers before they have time to perform their office.

*Fertilisation.*—All Peach growers admit that certain conditions are necessary to a good "set," but all do not go about this important operation in the same way. Some set their fruit with the syringe; others, I may say the majority, prefer using the pollen in a dry state. In my experience I have found the conditions most favourable are a moderately dry atmosphere in which the pollen can ripen and expand when it is liberated, bright sunny weather, gentle fire heat and plenty of air, always provided it can be admitted without producing a cutting draught. Another important aid to fertilisation is vigorous root action, for without this it matters little what means are applied, the setting of the fruit will be tardy. When in full flower and the pollen begins to fly off in golden showers, provided with a camel's-hair brush or a rabbit's tail, run over each tree with a light hand, but avoid bruising the tender parts, otherwise injury instead of benefit will follow. Repeat this operation from day to day, always commencing with free pollen-producing kinds like Royal George Peach or Elruge Nectarine, two varieties which should be introduced for this purpose, and



when the brush is well charged pass it over the large-flowered and shy-setting kinds. Many varieties will set freely under the influence of their own pollen; others, notably hybrids of recent introduction, are shy, and will repay careful attention with pollen from some of our good old standard varieties.

#### THE MIXED ORCHARD HOUSE.

Where one house is devoted to the culture of a general collection of fruit trees in pots or tubs, and planted out in the borders, the first week in February is quite early enough to start the trees into growth. As many of these houses are used for other purposes during the first half of the winter, all the pot trees, with the exception of Figs, will now be out of doors, where, unless the climate is unfavourable, they may remain, well protected from frost and birds, until the beginning of the new year. In the south and western counties, this turning out till Christmas is generally admitted as an advantage; but in the north and some parts of the midlands it is questionable if anything is gained by the attempt to make an orchard house perform double duty. Therefore, unless the locality is mild and the remainder of this month is satisfactory, I would suggest getting Apricots, Peaches, Nectarines, and forward Pears into the house as it is cleared of Chrysanthemums and other plants. The house need not be closed unless severe frost and snow render this course necessary, neither need the trees be placed in position for some time to come, but all of them can be cleansed and top dressed during the prevalence of bad weather, and the house can be put in thorough working order. Having washed the pots and ascertained that the apertures are clear and the balls free from worms, lay each tree on its side and carefully wash every bit of wood, young and old, with warm soap water or Gishurst compound, 4 oz. to the gallon of water. Treat planted-out trees in a similar manner and see that none of them feel the want of water. When orchard-house culture was in its infancy, the amateur was advised to keep his trees quite dry at the root through the winter months, and to let the return to new life be brought about upon the half-rations principle. All this misleading advice has long since given way to a more rational system, and we now find pot trees producing the heaviest crops of the finest fruit where the roots are never checked by the withholding of water. Such being the case, I repeat, never allow stone fruit trees to become dry at the root during the time they are leafless and apparently dormant. In winter it is natural to suppose they do not require so much water as they do when in active growth in summer, but the withholding of the moderate quantity which they do require is the cause of the buds falling off when they are ejected early in the spring.

In the arrangement of a mixed collection of trees the amateur will do well by keeping the different sections together. If, by way of example, he grows Figs, Peaches, Apricots, Plums, Pears, and Cherries, and one end of the house is closer and warmer than the other, I would commence with Figs at the warmest end and finish with the precocious Cherry at the other. If Strawberries, the forerunners of much mischief, must be introduced, a light, airy shelf close to the glass will suit them best, but for the present their proper position is a bed of ashes in the open air. Here they may remain until the house is started, and when the time arrives for housing, bodily or in batches, the pots should be cleansed and top-dressed and the plants dipped overhead in sulphur water to free them from spider and mildew.

#### PEARS.

Where glass structures are plentiful and a house can be devoted specially to Pears, as others are frequently met with furnished with Plums and Cherries, the result will be highly satisfactory. In the north of England, notably at Lambton Castle, Mr. Hunter grows magnificent fruit on single cordons trained to wire trellises some 16 inches from the glass and about the same distance apart. The trees on the Quince stock are kept to single stems like vines, and are pinched in true cordon fashion to keep the spurs close at home. Hitherto Pears under glass have been considered quite as impatient of heat and confinement as Plums and Cherries; but Mr. Hunter is of opinion that they will force quite as well as a

mid-season Peach. Nay, more; he has proved to his own satisfaction that Pears set freely under Peach-house treatment and swell their bright, clear fruit to an enormous size. If in the smoky neighbourhood of Newcastle-on-Tyne Beurré Diel can be grown to 29 ozs. in weight, and Pitmaston Duchess equally heavy, what is to prevent growers in brighter and milder districts from surpassing themselves in the culture of a few of the best varieties? A few, I say, as too many fruit growers go into an endless number of varieties—no difficult matter when we look through the bewildering list of excellent or super-excellent sorts which the trade vie with each other in placing before us. Surely the Chiswick Conference, with Mr. Barron at its head, will be able to gladden the hearts of nurserymen, who are obliged to keep so many second-rate varieties in stock, as well as growers, who are deterred from buying, by cutting down the lists of sorts to one-half their present number. If this much-to-be-desired result is the outcome, producers as well as buyers will have good reason to be thankful, for more trees will be planted, and these the nurserymen will be able to supply at lower prices. An abundance of light and liberal ventilation being important factors in the successful culture of choice Pears under glass, a span-roofed house composed of glass and wood from the ground line upwards is in every way preferable to a lean-to. It should be erected in a sheltered, but open, part of the garden, and sufficiently elevated to place out of the range of shade from trees or buildings. All the side lights should be made to open outwards, and a portion of the roof lights to slide or open upwards by means of machinery. Hot-water pipes are, of course, necessary for the production of a dry atmosphere when the fruit is ripening; also to enable the grower to admit plenty of fresh air when the trees are in flower, and a light, buoyant circulation is essential to the expansion and distribution of the pollen.

Trees on the Quince stock, some of them double grafted, are now invariably selected for cordon training, and as all the best varieties can be obtained plentifully furnished with flower-buds, these will be found the most suitable for training under glass. If on the Lambton principle, they should be planted in well-drained narrow borders, composed of rich calcareous loam, running along each side of the house, which, by the way, should face east and west. Each tree will then receive its full share of light and air, and the sun will strike along the ridge during the hottest part of the day.

*Arrangement.*—If closely pinched to keep the spurs at home and husband the sap, single cordons may be planted 18 inches apart—that is, provided they have sufficient head room; but this being limited, double cordons, from 2 feet 6 inches to 3 feet apart, will be found most manageable and profitable. When the permanent trees are planted along each side of the house, there will remain a large portion of the upper part of the roof unfurnished, and as Pears on dwarfing stocks do not grow very fast, this unoccupied space should be turned to profitable account by the introduction of pyramids and bushes either in pots or planted out in rows running alongside the path or paths. If the house is wide enough, I would suggest a narrow inside border, 2 feet 6 inches wide, along each side for the permanent trees; then a path, sunken or otherwise according to head room, and a broad raised bed in the centre for pyramids and bushes. Managed in this way, every part of the structure would be turned to good account, and every supernumerary would be growing into value, as properly root-pruned Pears can be moved for years with impunity, as the cordons in the course of their growth up the trellis deprive them of light and air. When, by reason of the shade, pyramids are no longer profitable, there will remain space for a broad Strawberry shelf beneath the ridge tree. This in due course will have to give way to the Pears, which may be grafted together in pairs at the apex.

*Culture.*—Trees on the Quince stock, it must be borne in mind, require an abundance of rich food and plenty of water during the season of growth, and as the first can be obtained from heavy mulchings of rotten manure, provision should be made when planting for placing a good body on the surface after all is finished. Arrangements for supplying the second will depend entirely upon circumstances; if

from underground pipes, it should pass through elevated tanks, in which it can be aerated and warmed before it is applied to the roots or foliage of the trees, as nothing is more fatal to the fruit of the Pear than drenchings of cold, hard water. The best water for all horticultural purposes is that which falls from the clouds. For syringing fruit-bearing trees with it is indispensable, as it is free from lime and leaves no sediment behind. This, however, cannot always be obtained in sufficient quantity; but there are few gardens in which large tanks cannot be well supplied from properly spouted buildings; therefore wherever these exist true garden economy will be overlooked if the storing of soft water is neglected. Liquid manure, soot, and guano water are powerful agents when judiciously used—the first and third in a diluted state for feeding with, the second for application through the syringe. Soot is an excellent insecticide and a good stimulant when carefully used, but capable of doing serious mischief when applied too strong. Practical gardeners are, of course, aware of this, and always err on the safe side. The amateur may follow their example by filling a bag with, say, a peck of old soot and sinking it in the tank or cistern from which he takes his water for syringing the trees with. When slightly coloured the water will be strong enough and the bag may be withdrawn.

*Pruning* should always be performed during the summer; this, however, is not a heavy, but still it is an important operation, and on this account it should not be neglected. Correctly speaking, it is more a matter of pinching than pruning, and should be commenced as soon as the side growths have made five or six leaves. The first pinching will induce the formation of flower buds close to the main stem and the elongation of other shoots which, in their turn, also must be pinched until the beginning of August, when the weight and strain of the crop will put an end to the production of strong growths. Many people complain of their Pears on the Quince stock positively refusing to make wood, but this very often arises from errors in planting and poverty of soil. In poor soils the stock not swell equally with the graft; the two should then be earthed up above the junction. In all cases the tree should be planted up to the junction, whence roots will be thrown out and kind growth will generally follow. In course of time cordons and pyramids become one mass of spur wood and produce more bloom than they have strength to mature. When this happens, good growers remove a large proportion of the weakest flowers before the petals are developed, but the best time to thin is immediately after the leaves fall.

*Varieties.*—If I was about to plant a large Pear house, there are two things which I should endeavour to avoid. Varieties like Williams' Bon Chrétien and others that do well in the open air in ordinary seasons would not have a place amongst the permanent trees, and varieties that do not stand in the front rank for quality, be they early or late, would not be represented. The first for supplying extra fine fruit might be included amongst the pyramids and bushes; but all the permanent trees should include the cream of the sorts that come in after the flush of September Pears is over, or do not, as a rule, attain their highest perfection when grown under the most favourable conditions in the open air. I would not plant a great number of sorts, but would duplicate the best according to the size of the house, and, assuming that a dozen of each were to be planted, I would place six on each side of the house to be grafted together at the apex when they meet.

As every experienced fruit grower has his own special favourites, a list of sorts which I may name might not suit his requirements, but for the benefit of amateurs, already bewildered by formidable lists, I shall not go far wrong in recommending the following:—

- 1, Gansel's Bergamot; 2, Thompson's; 3, Marie Louise; 4, Léon Leclerc, double grafted on the Quince; 5, Brown Beurré; 6, Glou Morceau; 7, Pitmaston Duchess; 8, Doyenné du Comice; 9, Hacon's Incomparable; 10, Emile d'Heyst; 11, Beurré Diel; 12, Passe Colmar; 13, Josephine de Malines; 14, Winter Nelis; 15, Princess of Wales; 16, Marie Benoist



17, Knight's Monarch; 18, Bergamote d'Esperen; 19, Easter Beurré; 20, Beurré Rance.

Some of the preceding, notably numbers 5, 6, 12, 17, 18, and 19, never attain their full size and quality with me when planted against walls, but all of them are excellent when grown under glass.

Eastnor Castle, Ledbury.

W. COLEMAN.

## BOOKS.

### THE PLANTS OF PALESTINE.\*

THE author of this account of an expedition to Southern Palestine is well known as having taken a part in the Nares Arctic Expedition, and his interesting account of the arctic flora was noticed in our pages soon after its publication. The present expedition was under the command of Professor Hull, the well-known geologist, and left for the interior from Suez on Saturday, November 10, 1883. Mr. Hart's first observations commence at Ain Musa, the starting place for Sinai. Here *Lantana camara* and *Cassia bicapsularis* were showy flowering shrubs. Date Palms of course grew in the little gardens, which also contained various esculent vegetables in sunken beds, so as to facilitate irrigation, the enclosures themselves being fenced with hedges of the Prickly Pear, or *Opuntia*. Different species of feathery Tamarisk trees also occurred near the wells, and the country traversed was of gravel and sand, with occasional outcrops of limestone. Two pretty shrubs noticed near Wady Sudr were *Zilla myagroides* and *Retamna roetani*, the first with pink flowers and glaucous growths, on which the camels feed. The *Retamna* is an almost leafless, pink-blossomed Broom, reaching a height of 6 feet to 8 feet, its flowers being very fragrant. It is interesting as being the "Juniper tree" of the Scriptures, and is abundant throughout the desert region.

A well-known medicinal plant, the *Colocynth* (*Citrullus colocynthus*), trails about on the ground, bearing orange-coloured fruits the size of Mandarin Oranges amongst its rough glaucous foliage. Another economic product, namely, the "Manna of Sinai," was met with, and is the sweet-tasted exudation of a low spinose Leguminose plant, *Alhagi maurorum*. It is used in confectionery.

The most striking peculiarities of the desert flora are a sort of deadened glaucous, dried, or whitened scrubby appearances, sometimes due to aridity and sometimes owing to the presence of woolliness or of scaly outgrowths. Some plants are succulent, and others, again, are characterised by heavy odours, or they exude gummy secretions or aromatic tears. Mr. Hart also points out the fact that, while the *Santolinæ* and *Artemisiæ* are aromatic, as also are most of the upland Labiates, the desert plants are often powerfully nauseous. So far, it is evident that the plants of the desert plains fight a hard battle with the poverty of a nearly rainless district, and Mr. Hart tells us how "Nature rests herself in the desert almost as thoroughly as in an arctic winter." In the latter case she sleeps during an excessive season of cold; in the former her strength is exhausted during a prolonged season of extreme heat and drought combined—dry heat on the one hand, and dry cold on the other.

Having left Wady Humr, the party ascended until they reached a sandy plain called Debbet-er-Ramleh, at about 1800 feet above the sea. It is the largest expanse of sand in Sinai, and here were seen some interesting plants for the first time. The sticky, purple-flowered *Cleome*

abounded, but the fairest prize seems to have been the white *Pancratium Sickenbergeri*, bearing its perfect little Eucharis-like flowers on leafless bulbs. Here and elsewhere many roots were collected, and a beautiful little silvery-leaved Cranesbill (*Monsonia*) was seen in flower. In the high level "wadies" or valleys *Retamna* quite takes the place of *Acacia*, and the showy bracted variety of *Anabasis articulata* had shed its slender twigs, and so looked abnormally like a *Zygophyllum*.

The ascent of Mount Sinai was made from Ain Zuweirah, where Pomegranates, Palms, and "Nubk," or *Zizyphus*, Apricots, and Mallows exist in a poor little garden, and *Gomphocarpus* is abundant near the well.

The ascent of the two mountains of Jebel Musa and Jebel Catherine were made from this place on November 20. On Mount Sinai itself is a convent at about 5000 feet above sea level, and in the gardens here were Cypress-es, Oranges, Figs, Olives, Date Palms, and Grape Vines in cultivation. Near this convent the Maiden-hair Fern (*Adiantum Capillus-veneris*) was seen, and Date Palms exist in cultivation at a height of about 5500 feet. A thick, velvety-leaved Mullein was common, and Labiates, such as *Phlomis*, *Nepeta*, *Origanum*, *Teucrium*, and *Mentha*, filled the air with perfume, and, in profusion, were equal to all other vegetation; indeed, Mr. Hart himself describes Mount Sinai as a mountain of Labiates, just as he at a later date discovered Mount Hor to be a mountain of bulbous plants! That Maiden-hair Fern and several Mosses should have been found on Jebel Musa suggests a pleasant transition from the scrubby vegetation of the desert plains below, and best illustrates the damp coolness of some portions of this elevated region, the moisture being supplied from the heights above by a perennial spring.

A rush was made to ascend Jebel Catherine, and again came the zone of fragrant Mints and Balms, followed by a colony of Mosses near a little spring. Ten species in all were gathered on these two mountains—a most unexpected result. Near the summit Jebel Catherine is little more than "a barren unvegetated rock," with one pleasant exception, the exquisite little *Colchicum Steveni* being found within a short distance of the summit. It had no leaves and bore either one, two or three flowers, but usually one only. The same plant, but with smaller flowers, was afterwards found on Mount Hor.

From Mount Sinai the journey lay to Akaba, and at Wady Elain a grove of Tamarisks was plentifully imbued with an exudation of greyish white pillules or tears of "Manna of Sinai," having a taste similar to nucinate. A similar exudation from *Alhagi maurorum* is known by the same name, as before stated.

Here also a rare Toad Flax (*Linaria macilentia*) and *Cleome droserifolia*, with red-haired glutinous foliage, which "smells like a fox," were found. At a height of 2500 feet to 3000 feet, after leaving the Wady Elain, the granite hills, capped with a stratum of sandstone, were barren to an excessive degree. The two species of *Caparis* (*C. spinosa* and *C. galeata*) were in fruit, which the Arabs eat, even if they do not enjoy. Mr. Hart does not seem to have appreciated the ripe red fruits. He tasted, he says, but as the "skin is mustard and the seed black pepper," he did not carry on the inquiry, from which one may infer that these Caper fruits are the "red peppers" of Palestine. "In marshy places at the head of Wady Elain, amongst Palms and Tamarisks, *Typha angustata* was 12 feet to 14 feet high; *Erigeron Bovei* 6 feet or 7 feet high, well branched,

and with numerous flower-heads; and *Phragmites gigantea* was fully 15 feet in height."

Wady Hessih was found to be covered with withered scraps of vegetation, although later on in the season it is quite a favourite pasture ground for the Bedouin's flocks. Here the "Rose of Jericho," so called, is found abundantly. Some authors have recently questioned the right of this Crucifer to be the "Rose of Jericho" of the mediæval travellers, the claims of a composite (*Asteriscus pygmaeus*) being advanced instead.

At Akaba the Doum Palm reaches its northern limit, and in the little gardens or enclosures of the straggling Arab village Mr. Hart found *Zizyphus*, *Lawsonia* (Henna) Palms, Tamarinds, Figs, and several kinds of Melons. Mount Hor (3500 feet) was one of the points made by our travellers, and it was found to be very rich in plants. Many of the Jebel Musa composites and Labiates occurred here, but the greatest observable increase was in the Monocotyledons. Upwards of twenty species of bulbous plants were seen here, whilst on Mount Sinai one only occurred. The arborescent vegetation of this mountain is confined to the summit, or nearly so, and consists of a Bladder Senna (*Colutea Halepica*), a Turpentine Tree (*Pistacia palestina*), and *Juniperus phœnicea*.

At Petra two new species were discovered, namely, *Galium petrae* and *Daphne linearifolia*, and the new *Boucerosia aaronis*, a near ally of the Cape Stapelias, was discovered on Mount Hor, about a mile from Petra, and again lower down the slopes. In low marshy jungles near the Dead Sea the luxuriance of several British plants was very remarkable. Rushes reached 7 feet or 8 feet in height, *Inula crithmoides* 4 feet to 7 feet high, *Lycopus europæus* 5 feet to 6 feet high, while the tops of gigantic plants of *Lythrum Salicaria* stood fully 14 feet above the ground level.

One Iris was seen in flower (*Xiphion palestinum*), a fragrant species, with pale blue or lilac and yellow blossoms. In some places *Colchicum montanum* occurred in great plenty, with white or pale mauve flowers; so also *Asphodelus ramosus* and *Cyclamen*. Mr. Hart tells us that all the larger-growing bulbs seem to be devoured by the wild pigs, with which the country abounds, as the uprooted soil shows, although where they hide during the daytime is not so clear. One of the most showy of all the flowers is *Anemone coronaria*, which Canon Tristram thinks is the real "Lily of the Field." Another familiar plant, *Ranunculus asiaticus*, much resembles it, and a showy bulb is *Sternbergia macrantha* with its great golden blossoms.

Jerusalem, 2400 feet above sea level, has a mild climate compared with most of the plateaux sub-region. The Date Palm, though not a native nor able to ripen its fruit, can exist, one well-known tree illustrating the fact. The Prickly Pear is naturalised. Olives, Apricots, Grapes, Tomatoes, and Figs thrive well around Jerusalem, but Oranges, Lemons, Bread and Water Melons will not, although ripening their fruit at Jaffa. Apples, Pears, and Strawberries have all failed, while Nectarines and Pomegranates grow well. At Marsaba in the courtyard of the convent, is an old Date tree said to have been planted A.D. 490; the most evident point of interest seems to be the fact of its producing seedless or stoneless fruits.

These extracts do not give anything like a full idea of the extent and variety of Mr. Hart's collections and exertions, but from what has been said it will at once be evident that he is something more than a mere botanical traveller. In the work itself all the species collected are

\* "On the Botany of Sinai and South Palestine." By H. C. Hart, B.A., in Transactions Royal Irish Academy. Williams & Norgate, London. 1885.



arranged systematically in due sequence, there are two plates and a route-map, and the interesting notes of the expedition are pleasant reading, affording a remarkable instance of what ability and energy can effect under difficulties trying alike to body and mind.

F. W. BURBIDGE.

### THE ORCHID GROWER'S MANUAL.\*

WHEN a book has reached its sixth edition, as this has, it is generally so well known, that no comment upon it is needed; but this "Orchid Grower's Manual" is so different from any of its predecessors, that it deserves special notice. Indeed, it has been so much enlarged, that it might with justice be called a new book. Its plan is different from that hitherto followed, combining as it does practical and technical knowledge in a way that has not before been carried out. In short, it is not too much to say that it is the most comprehensive manual of cultivated Orchids that has yet been issued in the English or any other language. As in the former editions, the introductory chapters are confined to practical details of cultivation, and as Mr. Williams is well known as a skilled Orchid grower, his advice may be implicitly followed. After the cultural instructions, which, by the way, have been extended, and comprise excellent illustrated chapters on raising seedling Orchids, follow descriptive notes of all the cultivated Orchids of general interest. This list comprises no fewer than 1470 species and varieties, and is brought up to the present date, or at least within a month of it. The descriptive account of each plant is clear and concise, and not exaggerated. The authority for the names of each plant is given, as well as the chief synonyms, together with references to works wherein occur illustrations of the plant. The native country, when known, is stated, and in the case of hybrids their parentage is added. The season of flowering and any particular point connected with the culture of each plant is included in the description. The work is copiously illustrated by about 150 engravings, and the "get up" leaves little to be desired. Many will, however, we think, be of our opinion, that it would have been better had it been less lumpy; a larger page would have greatly improved its appearance.

**The Vegetable Garden.**—This work, a translation of Messrs. Vilmorin's "Les Plantes Potagères," has just been published by Mr. John Murray, Albemarle Street, and is without doubt the most comprehensive book ever produced on garden vegetables. It contains over 600 pages of letterpress and upwards of 650 illustrations. Of this important work we hope to give a more lengthy notice shortly.

### PUBLIC GARDENS.

#### THE DOG QUESTION IN THE PARKS.

A GREAT deal of correspondence has appeared in the daily papers within the last few days in reference to the order of Col. Henderson with regard to dogs. I think the indignation expressed in these letters evidently comes from those who are in the habit of keeping dogs in London, and who object to having their favourites muzzled or the option of leading them with a chain. I am not one of those, and I fancy there are a vast number, like myself, who look upon this police order as one of the very best and most judicious that has been issued for a long time, and when I read, as I did this morning, that already upwards of 7000 dogs have been captured by the police, I

think this fact speaks volumes for itself. For some time past dogs have been a perfect nuisance to all pedestrians in the streets and parks in London, and I am sure that all those who are in the habit of walking about every day, as I am, must fully appreciate the value of this order, and earnestly thank Col. Henderson for the same.—AN OLD INHABITANT, in *Times*.

### NOTES OF THE WEEK.

**Odontoglossum Rossi majus.**—Two extremely pretty forms of this Orchid have been sent to us by Mr. Crawshaw from his garden at Rosefield, Sevenoaks. One is the rubescens variety, which has a delicate lilac flush over the sepals, petals, and lip. The other flower is remarkable for its large size, the pure white labellum being over 1 inch across, while the sepals are unusually broad, the two side ones being nearly all white, the three outer so heavily spotted with chocolate-brown as to obscure the light ground colour. Mr. Crawshaw also sends a three-flowered spike of a *Cattleya* of the *guttata* section, but different from the ordinary type, and, without comparison, we cannot say what it is.

**Cattleya Trianae Dodgsoni.**—This variety is universally admitted to be among the aristocracy in the great tribe of garden Orchids, and no one would dispute it after seeing the superb specimen of it which is now one of the chief attractions of Baron Schroeder's garden at Egham. It is different from all other forms of *C. Trianae* on account of its colour. The sepals and petals are pure white, and so is the lip, except about two-thirds of its lobe, which is of an intensely deep violet-erimson margined with pink, with a dash of yellow extending into the throat. At first sight one would take it for a variety of *Mendellii*, but of course no one sees that variety at this season. The *Dodgsoni* variety is very rare. There will be a succession of *Trianae* varieties for some months to come at The Dell. Among the *Cattleyas* in bloom now is the pretty little *C. bulbosa grandiflora*, with compactly formed deep lilac flowers.

**Cattleya triophthalma.**—This is one of the lovely series of hybrid Orchids which have had their origin in the Royal Exotic Nursery, Chelsea. It was produced, we believe, by crossing *C. superba* and *C. exoniensis*. The progeny of two such plants as these is, as may be supposed, extremely beautiful, and yet distinct from either parent. It is now in flower at The Dell, Egham, and the plant bears a spike carrying no fewer than six flowers, each as large as those of *C. superba* and of much the same shape. The colour, however, is paler in the sepals, and the lip, which has a body colour of brilliant carmine, is adorned with pencillings of crimson and a broad blotch of white, with just a suggestion of lemon-yellow beyond it. In growth the plant most resembles *C. exoniensis*. This grand variety is in excellent health, making bigger bulbs every year, and each season develops finer spikes.

**White Lælia anceps.**—There are now several so-called white varieties of *Lælia anceps*, but still there is only one that can really be considered to be a true albino, and this is the *bonâ-fide* alba which we had the pleasure of seeing in flower the other day in Baron Schroeder's garden at Egham. It is, as may be imagined, a chastely beautiful flower, as free from colour as if chiselled out of ivory; while in the other white-flowered varieties of *anceps* there is generally some coloured streak or flush that diminishes their purity. The flower, too, is quite as large and fine as that of the *Dawsoni* variety, though the side sepals may not be as broad. It is one of the earliest to flower in The Dell collection, for, with the exception of some plants of the ordinary form of *anceps*, the other varieties are yet in bud only. Presently there will be a grand show of this Orchid alone. Of the much-coveted *Dawsoni* there is a specimen unfolding half a dozen flower-spikes; another of *Barkeri* with a dozen or more; then there are the intermediate varieties, which are equally charming. Truly this *Lælia* has but few rivals among its tribe, and flowering in the depth of winter one appreciates it more.

**Cypripedium Leeanum superbum.**—Of all the Eastern species of Lady's Slipper Orchids this, in

my opinion, surpasses them all. It is a hybrid between *C. Spicerianum* and *C. insigne* Maulei, but its flowers eclipse even the best forms of the parents. It possesses the refined form of flower of *Spicerianum* and combines with it the beautiful colouring of *insigne*. The flower is larger than any *Spicerianum* I have seen; the upper sepal is snowy white, except that it has a band of green at its base, and is freckled prettily with carmine-purple. The pouch and side sepals are of a ruddy tinge, which is in fine harmony with the other tint. This is the description of the superbum variety, for there are two *Leeanums* in the field, and one is much inferior to the other, although they are the produce of the same parents. The superbum was raised at the Royal Exotic Nursery, Chelsea, and we saw it in bloom during the past week at Baron Schroeder's in flower with a most select company of Lady's Slippers, such as the best forms of *insigne*, *Spicerianum*, *vexillarium* (a cross from *Fairie-anum*), and *Haynaldianum*.—W. G.

### OBITUARY.

WE have to record the death of Mr. R. P. PERCIVAL, the well-known amateur grower of Orchids, which took place last Monday at his residence, Cleveland, Birkdale, Southport. Mr. Percival had scarcely exceeded middle age, being only about 50 years of age. His chief hobby in Orchids were *Cattleyas* and *Lælias*, of which he had got together an enormous collection. The beautiful new *Cattleya Percivaliana* is an appropriate plant to perpetuate his memory.

### QUESTIONS.

5436.—**Ataccia cristata.**—Correspondents write to say that they find great difficulty in procuring this plant, and therefore any reader who knows nurserymen who have it will oblige by informing us.

5437.—**Cymbidium aloifolium.**—Can any reader of THE GARDEN tell me how to flower successfully this *Cymbidium*? I have a well established plant of it which showed for flower twelve months ago, but never came to anything. Now it is again throwing up two strong bloom-spikes. It is in the stove house, and was kept moderately dry for about six weeks before showing for bloom.—A SUBSCRIBER.

5438.—**Roman Hyacinths failing.**—I have for many years grown Roman Hyacinths most successfully, but this season I have not 20 per cent. of bloom. At planting time the bulbs were all apparently sound and of a good size; they were treated with the usual care, but the result is a crop of small foliage. My seedsman does not seem to understand the cause of failure; I will therefore feel obliged if any of the readers of THE GARDEN can account for it.—S. H. J.

5439.—**Bitter Cucumbers.**—I shall feel extremely thankful for any information that can be afforded as to the cause of bitterness in Cucumbers. The variety, which is Telegraph, was sown the first week in August, and planted out in a bed on bottom heat. The compost was maiden loam from an old pasture, with a little leaf mould and a little well decomposed manure added. The plants are growing in a three-quarter span-roofed house, in which Melons and Cucumbers have been grown for these last ten years. They have borne a good quantity of fruit of good quality until the last three weeks, when they have become bitter. I may add that the house is a long distance from the fire, and is much exposed to winds north and east, and I have to be very economical in fuel. The maximum temperature is seldom above 60°, and the minimum heat frequently as low as 45°. I attribute the bitterness to want of heat; but I am told I am wrong.—READER.

### LATE NOTES.

**Fungi (J. S.).**—The name of your fungus is *Helvella crispa* one of the edible series. Your examples are deformed, possibly by the frost.—W. G. S.

**The testimonial to Dr. Paterson** is, we hear, to be closed on Christmas Day. Intending subscribers should, therefore, send their contributions before that date to Mr. R. P. McCAGIE, *Bridge of Allan, N.B.*

**Diseased Carnation buds (Sub.).**—If you cut one of the elongated buds in two longitudinally, you will see that instead of consisting of the usual petals, calyx, and bracts, it consists only of green bracts placed one within the other. What has caused this monstrous growth we do not know. Such buds cannot produce flowers, but it would be well to let some of them grow and note the result.—W. G. S.

**Planting bulbs (Stirling).**—You had better perhaps wait till spring, seeing that the situation is so damp. In the meantime, however, the bulbs might be put in boxes of soil, in which they will make root-growth; and in planting, about March, be careful not to injure such roots as may have been made. It is a good plan to break up the boxes so that the bulbs may be easily got out.

**Names of plants.**—*W. R.*—1, *Crocus cancellatus*; 2, *Iris stylosa*; 3, *Maxillaria picta*; 4, *Begonia insignis*.—*A. K.*—*Asparagus virgatus*.—*J. M.*—1, *Cypripedium insigne albo-marginatum*; 2, *Cypripedium insigne Maulei* (good form); 3, *Odontoglossum crispum* (Alexandra).

\* "The Orchid Grower's Manual." By B. S. Williams, Upper Holloway, N. Sixth edition.



## WOODS & FORESTS.

### SHOULD WE PLANT NOW, OR WAIT?

BESIDES making the enquiry of what to plant, it may be well to look a little into the question of whether the present is the time to plant. I do not mean by this whether this is the proper season of the year, but whether the general condition of affairs is favourable or unfavourable to the enterprise. In one respect, where landowners are in a position to spare the capital the present time is opportune, as nursery stock and labour can be had on very reasonable terms. Certain it is, that it is useless to wait for any indication in the rise of prices in wood, as where a generation at least must pass before the trees are ready for market, the conditions prevailing to-day will have no effect whatever. Whether the fact of land being depressed in value is a factor of importance is somewhat doubtful. In one way it may induce the landowner who cannot let his land to plant, but in another this very circumstance may become dangerous, as it may lead him to devote land to wood which under normal conditions may be more usefully turned to account in agriculture. By many it is looked upon that the state of things now existing will never alter materially, and that the freeing of most commodities from duty is the proximate cause of the present low prices, that land in this country is permanently deteriorated in value, and that raising corn and timber can be never again profitably undertaken. Such views are altogether short-sighted and one-sided, as stop our great lines of international communication from war or any other cause, which, though we do not desire, is by no means impossible, and see what would be the result. Duty or no duty, if supplies are stopped or seriously diminished, our home means of production, though now slighted, would become all-important.

To-day, the tendency all goes towards laying our arable to grass. A few years hence necessities may cause just the reverse practice to be followed, and what would be true of grass land would be true of wood. Therefore, although, for the reasons of cheapness of stock for planting and abundance of labour, the present time is very favourable for planting undertakings, the mere fact that land does not at present pay to cultivate should not induce the owner to devote it to wood if in other respects it is suitable for cultivation. With respect to Grass, if the necessity should arise for breaking up what has of late years been laid, no great loss will ensue, but with planting wood the case would be different, as not only would the cost of planting be lost, but the difficulty of clearing would have to be contended with. This may lie in "the dim and distant courses of the future," and the occasion may not occur at all, but a little looking ahead is not always a loss, and it may not be so in this case.

The fear may be groundless that such land is likely to be planted, but as the feeling which sometimes approaches disgust at the present state of things may occasionally warp the judgment and lead to decisions which would not have been come to under other circumstances, such a word may not be altogether without its worth. As events progress and the issues become more and more complicated, it demands a large amount of patriotism to look them steadily in the face and proceed with the eminently useful, but nevertheless uncertain, business of planting; yet, for such as are content to glean comfort from the history of past crises, and courageously look to provide a source of revenue for the next generation, with the reservations

which have been spoken of, a better time than the present will be hardly likely to occur.

D. J. YEO.

### REPORTS OF TIMBER SALES.

Now that the season for timber sales has come on, a few words as to the way in which reports may be made useful and intelligible may not be out of place. Many reports come to hand with a mere statement of so much money per lot without reference to situation, quality, and measurement. As has been before pointed out, such accounts are practically valueless, except to the owner, as they afford no data whatever as to the prices obtainable for timber in the district. However carefully a report is compiled, it must necessarily convey an imperfect idea of the real result, but much can be done to elucidate it. One very important thing of which particulars should be given is the situation of the estate with regard to rail or water, or the distance in miles and the character of the road, whether level or hilly. Another thing is to give the measurement of the really saleable timber as nearly as can be. A cause for dissatisfaction to the owner, and a matter which misleads the public, is when this is not observed. The actual amount of return for the timber may not differ from a high price being quoted and a low measurement given, but in other cases where the real price is given and the actual contents also, the comparison of price against price is then unfair, as it gives the impression that in one district a relatively much higher price is obtained than in another, whilst virtually they are much the same. These things have been referred to from time to time, and it is well they should be kept to the front, especially just now. At the best, no very great returns can be expected this season, but it will be well to know as nearly as may be the actual truth. Ash and Larch will probably be the woods most in demand, as heretofore. Elm and Oak, unless very good and large, are not likely to meet with a very strong call, but good Sycamore and Beech will most likely be wanted. With regard to the two latter, it cannot be too strongly insisted that they shall be placed in the market before being, or as soon as, felled.

J. N. B.

**Undergrowth beneath Beeches.**—The Beech, it appears, is one of the tyrants of the forest. The Birch and similar trees will allow things to grow under their shade, when the Beech has the mastery it has the tendency of exterminating all beneath it. This may partly arise from its dense foliage and the deprivation of light from the other trees, and partly from its beggaring the soil of its necessary constituents. The Beech is not, however, the only tree which does this to a greater or less degree. The struggle between the Beech and the Oak is generally long and stubborn, and in the majority of cases the latter disappears. In large Beech woods which are obviously of natural growth it is somewhat perplexing when one notices the almost absolute absence of every other tree, as it looks very much as though they had been intentionally planted by the hand of man. The knowledge, however, of its predominating habit in congenial situations makes the difficulty easy of solution.

**Beech and Hornbeam hedges.**—The Beech makes a tolerably good hedge from the mass of twigs it sends out when it is kept back by pruning, and the Hornbeam is somewhat similar in this respect, and may sometimes be used for hedges with advantage. One recommendation of these is the facility with which they can be grown, the manner in which they bear pruning is another, and their fitness to grow on somewhat poor land is an additional one. If it is desired, Thorns may be mixed with these trees, but as the Beech and Hornbeam are more rapid growers they will sometimes overgrow the Thorns, and choke them altogether. Where Haw-

thorn will not grow, the Alder and Willow may be pressed into service. The pliable nature of their branches admits of their being intertwined.

**Forming dead hedges.**—A dead hedge is formed by cutting stems of Thorns into 3 foot or 4-foot lengths. Bundles of these are mixed with smaller twigs, and compressed so that they adhere together. A person with a spade, working on the line which the dead hedge is to occupy, takes up a sod or spadeful of earth, and a bundle of twigs being handed to him, he places the butt end of the bundle in the hole made by the spade and leaning against the earth thrown out. He then lifts another sod of earth and places it upon the butt end of the first bundle, compressing it firmly with his foot, and in this way he forms the line of the fence.

### HOME-GROWN V. FOREIGN FIR.

SOME people would have us believe that it is cheaper to buy up foreign Fir for uses where the home-grown kinds would be equally suitable than it would be to have the latter sawn up. This we cannot understand. If foreign wood reached the estate where it has to be used at the price it sometimes goes at at our London sales, and the home-grown wood fetched anything of a price for other purposes, there may be some explanation of the belief.

Neither of these conditions, however, exist, as on the average, before such deals, battens, and scantlings as are required can reach the estate, they will stand the purchaser in 1s. 2d. or 1s. 3d. per cubic foot at the least. The class of material we refer to is such as would work in for roof timbers, joists, and the like in house building of the cheaper class, or for stalls, stables, or many other buildings wanted on the estate. Setting this down as a point to work to, we will look a little into the other side. According to reports which from time to time reach us, it appears that Scotch and Spruce Fir in many places will not sell for more than 4d. and 2d. per cubic foot respectively. Taking the middle price at 3d., and allowing 3d. per foot for haulage—which merely from one part of an estate to another for this class of wood is too much—we get it to the saw-pit or saw-mill at 6d. per cubic foot. The cost of sawing would of course vary according to the sizes, but, as has been before stated in these columns, on the average it would work out at another 3d. Thus, together with the selling price, an ample allowance for haulage, and a fair allowance for sawing, we have the sawn material at 9d. per foot, as against 1s. 2d. or 1s. 3d.

Notwithstanding what is said to the contrary, there is a margin between the two, and the grower gets his wood off his hands. The facts are not new, and in substance have been given in our columns from time to time. No satisfactory answer, however, has been given why it is, in the face of this, foreign wood is still preferred. One or two paragraphs have appeared where the writers say that the workmen are prejudiced against its use, but certainly this is no sufficient reason.

Where saw-mills do not exist, the old plan of pit sawyers can be resorted to, and although it has almost passed into a proverb that this class of workmen, from the variety of their methods of measurement and their different prices for work, will be sure to get more or less an advantage over the employer, a little experience will be a sufficient safeguard that no very great difficulty arises from it. We know estates where the Scotch and Spruce Fir are used up in this way, and only the better class of joinery wood purchased at the nearest port. In our view it is a great mistake that this practice is not much more largely followed. It is hardly probable that local consumers of wood will be inclined to purchase and



use material that the grower has not faith enough in to use himself. Besides the material benefit, therefore, from using wood grown on the estate, the moral effect on local consumers will not be small, as if such see the owner of the estate employing his own produce for his own purposes, they will not be slow to buy and follow his example. It may look that such a supposition is purely imaginary, but with this we cannot agree, and if the use of our home-grown wood is to become general, employment, like charity, must begin at home. Prejudice or no prejudice, for scores of purposes where imported Fir is now used, our British grown species are equally good, and the fact of their non-employment can only be accounted for by the apathy which exists about it. If there is any valid objection, we should like to hear it expressed. As things stand, one set of advocates or the other are hopelessly in the dark, and the sooner doubt upon this is cleared up the better it will be for all concerned. We have stated as concisely as possible our reasons for believing that the general practice is at present unsound, and it will be as interesting to us as it can be to any of our readers if any additional facts can be brought forward to prove where our reasoning is at fault.

#### CUTTING UP WOOD FOR FUEL.

ALTHOUGH firewood is looked upon as the least valuable of forest products, it is really the most essential one and the first sought after. In this country where coal is cheap and abundant the use of great quantities of wood is not so necessary, but to one who has been accustomed to a fire composed wholly or partly of wood a coal fire will appear very dull. At the present season the addition of logs of wood to the fuel supply is especially welcome. Whether it is more economical to burn wood and coal, or coal alone we do not now intend to discuss, but as wood is an indispensable factor in a cheerful fire it will be well to consider a little the best ways to prepare it. The particular plan followed will, of course, to some extent depend on the kind and quantity of wood available. Most of our hard woods will make good firewood, but some, of course, better than others. Some writers on the use of wood for fuel object to it on the ground that it entails much labour to get it into small enough masses to be readily burnt, but, as has been well remarked by others, the work is not nearly so onerous as that of obtaining coal. In the latter case the miner has to descend out of the reach of the light of day and the pure air. On the other hand, the woodman has the great advantages of working in the natural light and breathing the pure air of the woodlands. That wood cannot be used for fuel because the task of its preparation is laborious may therefore be dismissed at once. By judgment, however, the labour may be lessened. Of all implements for the preparation of wood for fuel the axe without doubt ranks the first, and in the hands of a skilled manipulator it is astonishing the amount of fuel which can be prepared in a short time. In the hands of the inexperienced much will not as a rule be done besides chopping the log it is intended to burn into a vast number of small chips, at a great waste of exertion and getting a healthful flow of blood through the veins. For most people there is something very fascinating in the use of the axe, but it is surprising how very few are really skilled in handling it. In this country especially this is true; with the backwoodsman, who has to depend on his own arm for his supply, the conditions are different, as the necessities of his position generally render him an adept. In this country in preparing firewood the axe generally follows in the wake of the saw. This latter tool, though the more difficult to put or keep in working order, is often the more easily used of the two, and now that of late years such a great variety of kinds of saws, from the handsaw, through the range of the one-man cross-cut to the heavier saw with double handles for two or more men, have been made, each can without difficulty select the one most suited to their particular work. These, of course,

are those worked by hand power, but in many cases even for preparing wood fuel the steam circular saw comes in very opportunely to minimise manual labour. With logs of firewood not more than 4 inches or 5 inches in diameter, much may be done in a day by a handy man with a common handsaw, sharpened and set especially for the work. Very much, however, depends on this sharpening and setting, and, whether used by the handy man or by the amateur, it will well repay the trifling outlay of having it seen to by a qualified man. The real labour, as any one who has tried it will know, lies in the cross-cutting part of the business, as the subsequent rending by the axe is really the easy and delightful part of the task. The ease of this, however, varies with the kind of wood and its freedom or otherwise from knots. For logs somewhat larger than these, the one-man cross-cut, a saw with larger teeth and with handle constructed for using both hands simultaneously, will be found very suitable, and for logs still larger the ordinary cross cut worked by two men will have to be employed. In most of these cases the axe will perform the final operation of splitting into sections, but where the wood is too large the beetle and wedge will supply its place. For a quantity of wood enough to keep an engine and bench going for two or three days it may answer to have the cross cutting done by steam, and the subsequent rending may be performed as opportunity offers. Whether this can be carried out to advantage will depend upon whether an engine and bench can be readily hired, but we know several places where the plan has been successfully adopted.

#### THE PROPOSED FORESTRY SCHOOL.

SOME writers, I see, are taking exception to the remarks I made some time since, in these columns, that the training of foresters in a school would have the tendency of producing too much uniformity amongst the students, and that it would be likely to turn out men of pattern-like similarity. These ideas are looked upon as being frivolous and ridiculous, but I believe there is ground for the apprehension of the danger. As an argument against this, it is implied that men of great diversity of attainments are turned out from the same school. That this sometimes happens I admit, as there are certain characters who will push their way, however unfavourable their surroundings may be; but, as a rule, I believe—I am now of course speaking of elementary schools—that the school leaves its marks behind, and that there is often a great amount of similarity in the scholars educated under any particular régime. This, however, is not so important, as the same objects are aimed at, and one set of rules will be equally applicable in all cases. In teaching or learning forestry the conditions are essentially different. It is a thing which cannot be learnt by rote, and what would be correct practice on one particular site would be radically wrong on another. For this reason I am inclined to believe that as good results would be obtainable from a system of pupilage with practical foresters as from the elaborate routine of an educational establishment. It must not be overlooked that if a student possesses individuality, it will show itself as well in one case as another; and if a number of men who were intelligently practising under diverse conditions communicated the results of their practice and observations to each other, a more thoroughly sound knowledge would be gained. If all the observations required in the science of meteorology were attempted to be taken at one station, it would not be likely to advance much. In a certain sense there is an analogy between this and forestry. The conditions do not change so rapidly, but they are scarcely less numerous or less widespread. I know but little of the societies which have been formed with the purpose of advancing the state of knowledge with

regard to forestry, but, properly constituted, there seems to be in these more of the elements of what is necessary to diffuse practical information amongst those concerned than would be the case in a school which would cost a large sum of money to maintain.

Hitherto the only real argument for the establishment of a school seems to be the fact that Comte de Vasselot was chosen for the forests at the Cape. It certainly does seem a little humiliating that no competent Englishman could be found for the post, but where the openings are so few it cannot in itself be a sufficient reason for instituting a school. So far as the purely theoretical part goes, if our gigantic educational machine cannot now supply it, there must be something radically wrong; and, as I have before urged, where there is individual talent for the particular work it would show itself without the aid of the school. A school cannot make brains, and unless the prizes are sufficient, men of intelligence will not go in for a profession. All cannot succeed, but where the inducement is enough, numbers will enter the lists and here and there one will rise to eminence. To wait for a school is grasping at the shadow and losing the substance. The time is now our own, and if men are wanted let young foresters take it to heart. There are plenty who laud what has been done by schools of forestry and forest schools in various places, yet there are other equally competent authorities ready to condemn the systems in vogue. To every question there are two sides, and to that of whether a school of forestry is or is not wanted, there is the same room for a difference of opinion.

J. N. BLUNT.

#### THE DETERIORATION OF TIMBER.

BECAUSE, as "Yorkshireman" rightly says, Sycamore timber often lies about a great deal, he seems to think I have overstated the extent of damage it is subject to. This, however, does not follow, as there can be no doubt that great loss is annually sustained from the way in which timber after it is grown and felled is allowed to lie about. Much of this is due to circumstances, as the weather will not always admit of removal and the teams cannot be in every place at once. If it was as easy to deal with these things in practice as it is on paper, the evil would soon be overcome; nevertheless, as arrangements could sometimes be altered and the timber most susceptible to damage attended to first, no harm will be done by bringing it to notice. There can be no doubt whatever, with the same kind of timber, that the condition of the tree when felled, and the position in which it is allowed to remain afterwards, will make much difference in the time it can lie with immunity. Admitting this, there are, notwithstanding, certain kinds of trees which can be safely left any reasonable length of time, and others, if the hazard of loss is not run, which must be dealt with at once. Amongst these, when colour is the great point, I certainly include the Sycamore, and if it does not come first in this respect it certainly occupies an important place. For most of the purposes which "Yorkshireman" enumerates as being the principal ones in the northern counties a little discoloration would not be so important, but for furniture purposes, for which it would probably fetch a better price, the preservation of its natural appearance is all essential, and a few days' exposure to damp when sawn would be enough to disqualify it for use. Because corn remains in the fields week after week during a wet harvest it does not necessarily follow that it becomes useless. Deterioration, however, takes place and enough loss in price may result to absorb any



profit there may be in growing. We know, of course, it would be ridiculous to assume that timber generally would spoil as quickly as corn, but relatively the same conditions hold good, as if from any cause it is so damaged that it cannot be turned to account for the best uses, it will have to be sold at a lower figure. The two other trees I look upon as especially requiring care in this way are the Beech and the Ash, and of these two the Beech will most readily go wrong. Poplar also is a wood which requires a certain amount of looking to, but as it does not go bad so quickly in the tree and is not so valuable, it does not compare with the first three. In the case of the Ash, much damage results from the action of the sun and air in splitting it up into sections, and this goes on much faster when the bark peels off. I do not, of course, mean that the tree ever absolutely falls into pieces, but as the openings run in the line of the medullary rays, it makes it of little good for cutting into planks. Amongst the common conifers, perhaps, the Spruce spoils more quickly than any other; but as this almost invariably goes for common purposes, and will lie without risk for a considerable time, there is no comparison between this and the other trees spoken of.

Of the trees least influenced by lying about, the Oak and the Elm are good examples. With respect to the first-named, with the exception of the sap wood, a few years more or less generally makes but little difference. The Elm is not so indifferent as this, but it is a tree which in many places will lie a surprising length of time without any material damage. Trees of the common Walnut, too, I have seen lying about for years, and, with the exception of the sap-wood, as in the Oak, which was quite useless, the wood seemed to be as sound as on the first day after it was felled. The Larch, too, we know, will stand a lot of neglect, but poles and young trees, of course, suffer much more quickly than matured ones. It would be easy to continue the enumeration of instances of the difference of trees in this respect, but I have, I hope, said enough to show that my remarks upon the Sycamore were well grounded. In the course of my experience with timber, I have been so much impressed with the amount of waste occasioned by trees being allowed to lie about too long—and the merchant is quite as often responsible for it as the grower—that, as a general rule, I am certain when a tree has been felled it will pay the seller much better to close with the first offer, if a fair and reasonable one, than to keep his wood lying about for any length of time in the hope of getting a higher bidding. D. J. YEO.

**Cutting down a Thorn fence.**—The Thorns should be cut down with a few inches of the ground by means of a heavy cutting knife, or, when the stems are strong, the axe. In using the cutting knife the hedger stands in the ditch with his right hand towards the Thorns, and cuts upward with a back stroke. This stroke must always be made obliquely upwards, as if it were cut downwards it would shatter the lower part of the stem, and allow the damp to get in and injure it. When the axe is used the workman stands in a different position, with his left hand to the hedge, and uses both hands in making the stroke, which is in the same direction as in the other case. The axe, however, is only resorted to when the stems are very thick and old and the knife will not penetrate sufficiently.

**The Swiss Stone Pine (Pinus Cembra).**—The Swiss Pine, though a slow-growing tree, especially when young, has, nevertheless, a distinct value which should be more frequently taken advantage of by planters who have but limited space to deal with, but who desire to plant effectively without having resort to trees which in a few years become very large. The particular merits of this tree consist in its habit

of growth, which is erect with a very straight stem. Even when the tree has attained to a height of 25 feet or 30 feet, it remains perfectly clothed to its base with branches arranged with beautiful symmetry. It may be likened, in fact, to a well-grown Wellingtonia in shape, but less spreading around its base. This Pine is so hardy, that it is advisable to introduce a few examples in connection with all upland plantations where Spruce, Larch, &c., are employed. This tree has a peculiar habit of turning its leaves towards the shoots which bear them, and are thereby better able to throw off heavy falls of snow. Its wood, being so soft and free from grain, is in general use in the manufacture of Swiss wooden carvings, this peculiar suitability having, it is very probable, given an impetus to the trade.—W. E.

### NOTES ON THE LIME.

FROM a planter's point of view the Lime cannot be over-estimated, though it should be borne in mind that it is ill-suited to exposed situations, whether upon hills or in places liable to violent winds. Often when planted in such exposed places the trees lose their leaves very early about the end of summer, owing to drought, &c., during arid seasons. In all fairly sheltered places they are admirable for quick growth, and for shelter to gardens—kitchen gardens more especially—are far to be preferred to the Elm so often employed, owing to the fact that, whilst they rapidly form heads, the roots do not spread and injure all other crops around to a tithe the extent the roots of Elms do. Two other facts may be advanced in their favour in connection with planting around dwellings or within the limits of gardens. The leaves are of a delightful green in spring, and these are shed freely and with a rapidity beyond those of most other deciduous trees, which are advantages from a tidy point of view. Again, both in the matter of beauty and fragrance, what other equally hardy and free-grower can vie with the Linden?

Lime-tree timber is a fairly good marketable commodity. The wood is used for tuning-boards to pianos, lasts for shoes, and shoemakers' cutting-boards, called "tables," are made from it; whilst for purposes of carving it is invaluable. Windsor Castle, Chatsworth, the library at Trinity College, Cambridge, &c., all bear good witness to the fact. Nor is there a more convenient wood for the use of the large class engaged in the industry of toy carving and manufacture, though in this latter instance the Germans far excel the British. Gardeners' mats, bast, &c., are made from its outer and inner barks, an industry peculiar to the peasants of Russia, who strip the green bark from the trees, soak it in water for a given time, and plat into the mats, which are so useful both in gardens and to upholsterers. This mat-making is an industry which might well be followed here in our own country.

As regards growing the Lime for profit, it would appear that those who can wait a similar time to what is necessary with other timber trees, and taking the market price of this wood into consideration, quite as good results accrue as in connection with other kinds. Of one fact no doubt need exist, and that is, Lime trees planted somewhat thickly in moderately good soils grow upward, straight, and big-boled, quite free from side branches. Plantations exist in the country with splendid straight stems from 80 feet to 100 feet in height; one such I know within seven miles of the Bank of England, the timber comprising which would bring in a large sum of money.

The Lime does not succeed well within the margin of town smoke or atmosphere, though in suburban districts it thrives well, and appears to

enjoy the shelter the rows of houses afford, showing no injury from the draughts so invariably associated with street channels, and the fact that it sheds its leaves rapidly being certainly in its favour in such places.

Probably next to layering, the easiest way to propagate our European species and varieties is to cut down sundry young trees to the ground line, when numerous strong shoots will spring up. Then, if a mound of soil be placed amongst them some 8 inches deep, they root readily therein, and in about three years form excellent young trees for removal and transplanting.

W. EARLEY.

**Changes which trees create.**—Apart from the influence of trees upon the general climate of a country, which has over and over again been proved to be very great, trees play a very important part in ameliorating the extremes of temperature in a local sense. Many of what are now our most enjoyable country seats but for the presence of trees would be little better than bleak and comfortless downs. In situations where hills and valleys alternate, much may be done by a judicious selection of the spot where the dwelling is to be placed; but even then, without the presence of trees, the site is never complete. The charm of what are now some of the most lovely spots in these islands would at once vanish if they were deprived of their trees, and not only their charm in a picturesque sense, but in that of bodily comfort. To one who has dwelt upon a more or less bare and wind swept upland, the sense of comfort in the removal to a spot sheltered by clustering woods will be very grateful and more eloquent than the most fluent description. In considering the best use which can be made of trees for shelter, the conditions existing must, of course, be taken into account, viz., whether the house is already in existence, and the trees have to be arranged to produce the greatest amount of shelter in harmony with the necessities of the landscape, or whether the trees and woods are already growing and the position of the house has to be determined upon from these. In the former case, for climatic reasons, the situation and alignment must be determined on to give the greatest resistance to the prevailing winds. In some cases other circumstances may interfere with this, but it is not often, with proper arrangement, such difficulties cannot be overcome. Other pens have condemned the practice of dotting trees about inst ad of throwing them into suitable masses, as an offence to the eye, and if it is desired to defeat the end of obtaining shelter from trees, this objectionable system will be the sure means of doing it, as trees so planted can be of no appreciable use for the purpose. As in the landscape, so for equalising heat and cold, trees and woods are required, and must be grown in masses. In some parts of the country, although not the coldest, the winds, which are generally most unpleasant on account of their strength and prevalence, are the west and south-westerly ones. From these some shelter is most desirable, but as, on the other hand, the afternoon sun shines from this direction, some discrimination is necessary that in cutting off the effects of the wind the sun is not excluded as well. There is no reason, however, why the advantage of both should not be gained, as by the suitable arrangement and selection of subjects there need be no great difficulty in the matter. Masses of woods, too, to the north and north-east, where the situation is not otherwise protected, are of very great value, and if they consist of considerably greater areas than those in the other aspects, the benefit will be so much the greater. The north-west aspect, too, if possible, should not be left exposed, as from this point of the compass anything but clemency in the weather is often experienced. In fact, the only quarter which can properly be left unprotected by woodland in one form or another is that lying between the south-east and the south-west, as although now and again rough weather comes in this direction, the sunshine and warmth so greatly predominates, that no obstacle should be placed there to obstruct the access of these indispensables to health and enjoyment.



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"This is an Art  
Which does mend Nature: change it rather; but  
THE ART ITSELF IS NATURE."—*Shakespeare.*

## THE WHITE NELUMBium.

I was quite pleased with the white *Nelumbium* flowered at Wemyss Castle and figured in THE GARDEN (p. 427), first, because it reminds me of my great surprise at seeing just such a lovely flower at the Great Exposition in Philadelphia some few years ago; and second, because it brings to notice a magnificent class of plants—the *Nelumbiums*—white, rose coloured, and yellow, the last our well-known native species growing so abundantly in Michigan, that a friend sent me a quart of the Chinquapins (so-called where they grow) or nuts, being quite as delicious to eat as the sweetest Chestnut. As I said, it was at the Exposition that I first saw a white *Nelumbium*. As I strayed around among the endless groups, examining the exhibits of all the different States and foreign nations, I passed through the curious Japanese department, and here, in front of the small, but unique, Japanese building, which comprised, perhaps, a piece of grass 20 feet square, were two little circular pools of water, some 3 feet in diameter and apparently 12 inches deep, in one of which was the *Nelumbium*, which I had never seen growing before; and to my astonishment I noticed that it had, in this small basin, with only a few small leaves, thrown up a flower-stem which was sufficiently advanced to show the snowy white petals. My curiosity was greatly excited, but as I noticed the attendant could not speak English I thought it useless to ask any questions, but left with the determination to come again the next day, though I had already made my arrangements to leave the city. Early and eagerly I hurried to the Japanese department in the morning just in time to see the flower partly open, and a beautiful sight it was; I have never forgotten it. With only a few moments to spare I now accosted the attendant without ceremony, and asked him if it was for sale, hoping that I could secure it, but "no no sell" was all I could get out of him, and taking a reluctant farewell look at the elegant blossom, I darted from the spot with scarcely time to reach the train in which I was to leave. On my return home I wrote to friends to ascertain what became of the plant, as the time of the Exposition was nearly up, but I never heard a word in regard to it, or of a white variety, until the notice of the Wemyss Castle one appeared in THE GARDEN. Whether this plant attracted the notice of some plant lover, and was purchased or was lost, is only a matter of conjecture, but my impression is that somebody secured it, and perhaps the Wemyss plant came from Philadelphia.

There is no doubt that it is not at all uncommon in Japan, but if water plants are as little grown in gardens as they are in England or America, one would probably have to search every town and city in Japan to find it out of its native habitat, which is probably in some of the country streams, just as the *N. luteum*, which few people ever saw or even know anything about, grows in greater or less abundance in various localities in the west, from Michigan to Mississippi, and east as far as New Jersey. This reminds me to ask some botanical correspondent of THE GARDEN if the *Nelumbium* of China can be the same as the *N. speciosum*. Many years ago,

when my niece, Mrs. Burlingame, visited Pekin with her husband, the Chinese Ambassador, she thought she could not bring me a more acceptable present when she returned than some seeds of the superb Lily which she had seen growing abundantly in the Pekin river, where in winter it was frozen over as hard as our own rivers. These seeds were packed in the pericarp of the *Nelumbium* or Lily flower, and, as I have it before me now, it is in the shape of a small goblet, measures 5 inches long, 2½ inches wide at the top, and one-eighth of an inch in thickness, tapering to the stem. This pericarp is tastefully embossed and laquered over, being a beautifully proportioned, long, vase-like ornament. It was filled with nuts or seeds of the Lily, packed in cotton, just as I have it this moment, minus the nuts, which I planted. But I did not succeed in raising a plant, as, so long ago, I had not given much attention to growing aquatics, and did not know, or had forgotten, that the seeds retain their vitality twenty years or more. Can this be the same as *N. speciosum*, which has a pericarp no different from *N. luteum* of which I have half-a-dozen filled with seeds? C. M. HOVEY.

Boston, Mass.

**Helleborus lividus.**—Perhaps I ought to apologise for again referring to the individuality of this plant as distinct from *H. trifolius*; but since my notice in THE GARDEN (p. 608) yet another testimony has come to hand, testimony which all must respect. Canon Ellacombe has kindly furnished me with an extract from the catalogue made by his late father of the plants grown in Bitton garden in the year 1832. Amongst these are numbered "138, *Helleborus corsicus*; 171, *H. lividus*; 1279, *H. trifolius*—Paris." No botanist would suspect Mr. Ellacombe of making a distinction without a difference. Canon Ellacombe assures me that he never had any doubt of the truth of Sweet's plate, and adds, "I never saw the flower, but I have had the plant; it is probably tender." Now if, as I believe, *H. lividus* came from the neighbourhood of Nice, it is quite possible it might be tender, and hence its disappearance from our English gardens. I cannot help thinking that these facts may have some interest not only for those who voted in favour of *H. lividus*, but also for the opposition.—T. H. ARCHER-HIND, South Devon.

## NOTES OF THE WEEK.

**Water Lilies.**—We may call attention to Mr. Frank Miles' article on Water Lilies, given in another place in our present number. He is one of the very few who have collected and experimented with these most interesting and very beautiful plants, and the account which he gives of his experiments in hybridising and seeding them is both valuable and instructive. Mr. Miles' success, too, is the more remarkable, seeing that he worked under great difficulties, for while he resides chiefly in London, his Water Lilies grow at Shirehampton, near Bristol; and having to travel upwards of 100 miles, every now and then, to attend to his flowers says much for his enthusiasm in regard to them. Moreover, of all flowers *Nymphæas* are the most difficult to intercross. The seed, while ripening, has also to be kept from the depredations of fish, which destroy the pods. The results are, however, encouraging, and if Mr. Miles can originate some beautiful hybrid Water Lilies, his work, uphill though it has been, will not have been undertaken in vain.

**Cypripedium niveum.**—This lovely little Orchid may be induced, or perhaps it is more correct to say it sometimes of itself flowers in mid-winter, although midsummer is the season when it generally blooms. We have, during the last week, seen several specimens of it bearing perfect flowers, the last being at Kew, where we were surprised to see a fine healthy plant flourishing in a very shady moist position in the East Indian house, for the general belief with respect to the treatment adapted for the *Cypripedium* is, that it must have a position near the glass, and as much light as possible without direct sunshine. There is

another important item concerning this plant, namely, its preference for pure loam with a little silver sand, instead of the mixture suitable for the majority of Lady's Slippers. Such, at all events, is the conclusion we have arrived at after seeing it tried in various ways in different gardens, the finest specimens we have seen having been grown in fibrous loam and silver sand. If we had no more than 10 feet of space to devote to tropical Orchids, this *Cypripedium* and its cousin, *C. concolor*, should be found room for. Growers on a large scale should note this tendency in *C. niveum* to flower in mid-winter.

**Toxicophlæa spectabilis.**—The bunches of white Jasmine-like flowers, deliciously fragrant and borne in almost every leaf-axil by this tropical African shrub, are especially valuable at this time of year. The nature of the plant is of that kind which requires only very ordinary attention to keep it in health and induce it to flower freely every winter. By growing young plants on, pinching the points out of the shoots as often as is necessary to form a nice well-furnished bush, a specimen 4 feet or 6 feet high and the same through may be obtained in about three years from cuttings. There is another good point belonging to this plant, which is, the freedom with which large cuttings strike root if put in in September, and invariably these same cuttings flower profusely in the following December. We have seen admirable little table plants in some of the London nurseries which had been grown on this plan. Last year, too, at Kew there were some nice specimens, as well as a batch of the younger plants, all flowering freely, and now we observe there are several of the large plants of both *T. spectabilis* and *T. Thunbergi* bearing big crops of flowers. This last-mentioned species is, however, a long way inferior to its companion.

**Crinum erubescens.**—A large growing *Crinum* belonging to the American section, the plants of which have thick, succulent stem-like necks and the bulb comparatively small, neck and bulb being somewhat like St. David's emblem, the Leek. The leaves are as large as those of *C. augustum*, to which it also bears a close resemblance in habit and in strength of flower-scape. But whilst *C. augustum* has large, graceful, pink and crimson flowers and remains attractive for several weeks (the plant we noted on p. 562 as being in flower at Kew is still bearing blooms), *C. erubescens* produces its flowers in a compact umbel, over a score being packed in between the pair of large papery bracts which envelop the buds. About eight flowers are expanded together, each one lasting five days. The tube and segments of the flowers are pure white, the latter spreading, rather narrow, and measuring altogether about 2 inches across. The filaments are erect, as long as the petals, and coloured purple on the upper portion. A delicate fragrance is given off from the flowers, especially at night. There are several plants of this *Crinum* now in flower in the Palm house at Kew, and for such large structures this and similar species of *Crinum* are of exceptional value, as they thrive most satisfactorily where many stove plants would fail.

**Anthurium Andreanum.**—A perpetual flowering Aroid this proves to be, for we see its large naked-looking, but richly coloured, spathes at all times of the year. In this respect it is superior to *A. Scherzerianum* itself, though, of course, the latter when it does bloom puts André's *Anthurium* in the shade. Then we have the hybrid *A. ferrierense*, the product of a cross between *A. Andreanum* and *A. Roezli*, and which also flowers all the year round. It is, therefore, worth while to have these two free blooming kinds specially as winter flowering plants. In a stove where the atmosphere is constantly moist they both thrive and flower perfectly. We have seen the climbing variety (for it seems beyond question that two distinct-habited plants are known as *A. Andreanum*, the one with a scandent stem, the other acaulescent, its leaves being tufted as in *A. Scherzerianum*) very happily attached to the stem of a tropical Tree Fern, up which it grew most naturally, and had an at-home appearance, which is lost when the plant is in a pot. A temperature not less than 65° at night in mid-winter is necessary for both these *Anthuriums*, a fact to which we call attention because we have seen cultivators fail with them when trying to preserve them in a lower temperature.



**Christmas flowers.**—For these there is always a brisk demand. A well-known plant grower at Cheltenham told me the other day that he has cut the following this week: 800 white Chrysanthemums, 300 *Eucharis amazonica*, 3000 Christmas Roses, 200 white Camellias, 500 Roman Hyacinths, 200 Arum Lilies, and large quantities of Azaleas, Narcissi, Bouvardias, Orchids, scarlet Pelargoniums, and Poinsettias.—J. MUIR, *Margam, S. Wales.*

**Violets failing to colour.**—In May last I planted a quantity of Marie Louise Violets in a frame well exposed to the light, but shaded from the noon-day sun. They grew freely, and began to bloom profusely in October. The blossoms were large and good in colour at first, but they gradually became paler, until now they are almost the same colour as the leaves. There are thousands of buds on them of this shade, and there does not seem to be any immediate prospect of their becoming brighter. Our usually rather sunless winters have been more so than ever of late, and I attribute their want of colour to a deficiency of light. In another season I will plant some of them in a position where they will be exposed to the sun, when sun there is, all the year round, and I think this may induce them to colour better.—J. MUIR.

**Crystal Palace shows.**—The horticultural shows to be held at the Crystal Palace in 1886 are fixed for the following dates: Spring exhibition of plants and flowers, March 26 and 27; great summer exhibition, May 21 and 22; grand exhibition Roses, July 3; fruit exhibition and national Dahlia show, September 3 and 4; great autumn fruit show, October 6 to 9; Chrysanthemum exhibition, November 5 and 6. Schedules will be ready early in January, and may be had on application to Mr. W. G. Head.

**Photographs of good plants.**—We have some idea of illustrating Mr. Baines's book on "Greenhouse and Stove Plants." Should any of our readers possess really good photographs of fine specimens of these plants, we should be very grateful if they will allow us to see them with a view to engraving them.

## FRUIT GARDEN.

### THE PEAR CONFERENCE.

THE question, "Who reads an American book?" was asked some years ago by an English reviewer. So far as the horticulturists and pomologists of Great Britain are concerned, the question appears just about as pertinent to-day as it was twenty-five years ago. With the catalogues of the most pronounced English nurserymen before me, I do not find the names of scarcely any of our fine fruits, and so far as the reports of exhibitions are carefully read, I do not see that they are even shown. Apparently our choicest American fruits are as little known in England as they are in Patagonia. At the hardy fruit show of the Royal Horticultural Society, October 10, which THE GARDEN says was as "representative an exhibition as could be wished," I find the names of but two American Apples—the Melon Apple and Peck's Pleasant. And not even one among all the Pears.

Now, here are the names of only a very few of our American Apples, several of which find such a ready sale in Liverpool and Covent Garden:—Baldwin, Newtown Pippin, Porter, Cogswell, Early Harvest, Early Joe, Fameuse, Spitzenberg, Harvey, Hubbardston Nonsuch, Jonathan, King of Tompkins County, Lady Sweet, Northern Spy, Ortle, Peck's Pleasant, Primate, R. I. Greening, Roxburgh Russet, Bough, Bellflower, Winesap, Wagener, Washington Strawberry, Williams' Favourite, Yates, Cayuga Redstreak, Wine, and Melon, Apple. These are the popular market varieties selected from over four hundred, many of which are quite as good, though not so large and handsome. I have fruited over four hundred varieties.

In 1844 I visited Mr. Rivers at Sawbridgworth,

and asked him to select me fifty varieties of the finest English Apples, which I wished to compare with our own. They were planted in the spring of 1845, and every year have borne a poor crop. Not one of them is scarcely worth gathering. I could not hardly give them away when the finest fruit is selling at 6s. per barrel. Among the kinds I had from England and France were:—

Cockle Pippin, Hughes' Golden Pippin, Gouseberry, Pitmaston Russet, Winter Peach, Pearson's Plate, Hormead's Pearmain, Wormsley Pippin, Hoskreiger, Pine-apple Russet, Gros Api, Pomme d'Ete, Russette de Caux, Api Noir, and similar kinds. The ground was covered all the autumn with Pitmaston Russets and Cockle Pippins. Mr. Rivers made a note in the invoice that most of the above kinds "were sent in lieu of some kinds ordered," which I had selected from the plates in the *Pomological Journal*.

And so it is with Pears. Here are the names of varieties unequalled, most of them, by any others:—

Abbott, Adam, America, Bloodgood, Boston, Brandywine, Buffum, Clapp's Favourite, Columbia, Dallas, Dana's Hovey, Dix, Edmonds, Edwards, Elizabeth, Fulton, Hannas, Heathcot, Howell, Hull, Ott, Huntington, Kingessing, Kirtland, Lawrence, Lodge, MacLaughlin, Merriam, Moore's, Moyamensing, Muskingum, Swan's Orange, Pratt, President, St. Crispin, Sheldon, Seckel, Tea, Tyson, Mr. Vernon, Washington, &c., and among foreign Pears Beurré Hardy, B. Superfin, Paradise of Autumn, Manning's Elizabeth, Beurré Giffard, Des Chasseurs, &c.

As early as the year 1823 Mr. Thos. Andrew Knight, the president of the Horticultural Society, sent to the late Mr. John Lowell, one of our most intelligent horticulturists, a variety of Pears, Apples, and other fruits, including his seedlings, with a kind letter, in which he expressed "his strong attachment to our country and his intention to send us some of the best new fruits." The list comprised "trees and scions of ten new varieties of Pears," and among them were the Urbaniste, Marie Louise, and Napoleon, the Black Eagle, Elton, Waterloo, and Downton Cherry, the Coe's Golden Drop Plum, and the Downton Strawberry. In 1825 Mr. Knight sent another package, among them Keen's seedling Strawberry, these creating quite a *furor* among Strawberry cultivators.

In 1832 and 1833 Dr. Van Mons, of Belgium, sent to Messrs. Kenrick, Manning and Dearborn, scions of a great number of Pears, but unfortunately all of them perished, and it was not until the spring of 1835 that a single package fortunately arrived in good condition. About seventy-five named kinds grew, and sixty seedlings under numbers. But in 1836, through the kindness of M. de Wael, who came to Boston, a package was secured containing one hundred and fifty named kinds, upwards of one hundred and twenty-five seedlings all under numbers, and seventy kinds without either name or number. Dr. Van Mons' letters are deeply interesting, showing, as they do, the obstacles which he had to contend with; such as the total destruction of his nursery twice, without even allowing him to cut scions, driven from his home, and seeking refuge where he could. All these scions were placed in the hands of Messrs. Kenrick and Manning to grow. Of course many did not survive, but all that did were fruited, proved, and exhibited, and described in the *Magazine of Horticulture* at that time, and in later years all the best were described with coloured plates in the "Fruits of America."

In 1844, I visited all the nurseries around Paris, and from M. Jamin I selected every Pear, of any merit, in his large collection at that date.

From M. Langelier, of Jersey, sixty varieties From MM. Papelece, Van Houtte, and Van Geert, of Belgium, I gathered several hundred more, and, later, from M. Leroy, I selected through his intelligent assistant, M. Despartes, who visited America, every variety in his collection, so that from Scotland, England, France, and Belgium I had nearly one thousand kinds; and about two hundred natives gathered from all parts of the United States filled up my collection. All these trees were planted 6 feet apart, on the borders of the walks, throughout my grounds, reaching in a single line about two miles. They have grown well and produced abundantly, with the exception of such kinds as do not have much natural vigor and are irregular or shy bearers, as some of them are. The season has been favourable, dry in summer, but abundant rains in September and October, and the later Pears were never larger or finer, or the crop much greater. Since 1863 I have gathered upwards of 30,000 bushels of Pears.

It may appear somewhat egotistical to recount these facts, but it seems to be the only way I can show you, that the objects of the congress, laudable as they are, affording the grand opportunity to compare and study the characteristics of the various kinds exhibited to all English cultivators, offer little other than the gratification of seeing the remarkable specimens which indicate superior culture—to us American cousins, who, as I have endeavoured to show, have come together from the remotest parts of the country, including California, every two years for 38 years, to exhibit these fruits, discuss their merits, reject the bad, classify the good, recommend the finest, and publish in twelve large, handsome quarto volumes the results of their deliberations.

What would be pleasing to us would be a report of all the varieties exhibited, with the names under which they were shown; the exhibiting names, and the comments of a representative committee, upon their relative merits, in the cooler climate of England; the position in which the tree stood; whether espalier, wall, or standard; whether on the Quince or Pear stock; whether the Quince has not thrown out adventitious roots of the Pear, and any other particulars relative to their growth.

Here, all our trees are standards (the dwarf rooting on the Pear), and hence have not the advantages which often occur to wall or espalier trees in cold or unfavourable seasons. Such a report would be interesting, and I hope it has not been neglected.—C. M. HOVEY, *Boston, Mass.*

—In looking over the report of the Pear conference in THE GARDEN (p. 624), I was very much surprised to find that the county of Dorset is entirely ignored. True, my collection was the only contribution from Dorsetshire, but as it contained 113 dishes—and as it was one of the most extensive in the show, and absolutely the largest exhibited by any *bona-fide* gardener—it could not have been overlooked on account of its insignificance. This is, I trust, the only omission made, as I can assure your readers that the time and attention taken up by these exhibitions is very considerable; and when it is undertaken solely for the good of horticulture, it is scarcely fair to be left out in the cold altogether. At any rate, such laxity on the part of the authorities at Chiswick, in their first report, is not calculated to inspire us with much faith in the ultimate results of the undertaking.—W. G. PRAGNELL, *Sherborne Castle, Dorset.*

**The Mulberry.**—Why do not people think more of this fruit than they do? We know of few things better than a perfectly ripe Mulberry, and yet the tree is neglected. Even where the Mulberry happens to grow well, it is seldom cared enough for to secure the ripe fruit, which is allowed to fall on the ground. The tree is such a good bearer, too, and so beautiful in form or in foliage, that it has a double claim for place and care.—R.



## MIXED FRUIT HOUSES.

WHERE there are sufficient houses for every kind of choice fruit, including Grapes, Peaches, and Figs, there is little or no need for any great amount of scheming and contriving in order to get fruits fit for use when wanted. The case is, however, very different when houses are limited as regards numbers. In *THE GARDEN* (p. 625) a correspondent asks for information as to how to make the most of two small fruit houses, and especially as to the advisability of growing Grapes and Figs in the same house. Sound advice on the subject is contributed by "W. H." (p. 625), but he rather throws cold water on the scheme. The question is, must "M. P." grow Figs in his houses? If, as in our case, Figs must be forthcoming and in good quantities for several months of the year, then I should say by all means make the attempt. I can prove that it is a comparatively easy matter to grow them along with Grapes, always provided the latter are not unduly favoured. As "W. H." rightly observes, Figs have been tried on the back walls of numerous vineries with but poor success, simply because the whole of the roof has been closely occupied by the Vines, the excessive shade thus caused being unfavourable to the well-doing of any kind of fruit underneath. The difficulty is how best to secure as many Grapes as possible without spoiling the Figs underneath. It has long been my opinion that the Vine rods are in most vineries disposed more closely together than is either wise or profitable, and that if we would be content with fewer rods or Vines these would produce heavier crops of better Grapes, which, besides being better finished, would also keep much longer than when crowded. Modern structures are of a very different character from those erected by former generations of builders. Now-a-days houses are constructed with the idea that the more glass and the less wood there is used the greater satisfaction will be given. For my part I would prefer to have charge of somewhat old-fashioned houses rather than very new ones, the former being warmer in winter and not so hot in summer. Five years ago a new house was erected here specially for forcing Figs, but we found that we must either lightly shade the roof or else grow some kind of climber to act as a partial shade. The choice lay between Roses and Grapes, and the latter were preferred. Six strong Vines were planted in a house 30 feet long, one being placed at each end and the remainder 6 feet apart. The house is 12 feet wide, the front  $5\frac{1}{2}$  feet high and the back wall 12 feet high. Four large Figs in pots were planted in the centre of the house and the back wall was nearly furnished at once with a number of Fig trees brought in from the open walls. Both wall trees and bushes are remarkably prolific, and we had plenty of luscious fruit from them from the early part of June till the end of August, a few also being gathered at intervals for several weeks afterwards. But what about the Grapes? some will ask. Well, these were not high class, though some were included in prize collections of fruit, and next season I am confident we shall have them in larger quantities and much better in quality. Had we not been obliged to withhold water at a time when they wanted large quantities of it they would have been satisfactory enough, but the Figs were decaying in a mysterious manner just as they were ripening, and checking the water supply appeared to check the decay. To succeed with Grapes and Figs together the

ROOTS MUST BE SEPARATED, especially seeing that the Figs soon fill the borders with a network of hungry fibres, and against these the Vine roots cannot hold their own. This I well knew before

the Grapes were planted, but, owing to circumstances beyond my control, we could not separate them from the Figs, neither could we form an outside border for them. If "M. P." or any other reader of *THE GARDEN* makes the attempt to grow the two together, let me recommend them to confine the Vine roots to the front of the house, or else plant them in an outside border. This division may consist of a  $4\frac{1}{2}$ -inch brick wall, and a width of border from 4 feet to 5 feet is ample—better, in fact, than a much wider border, in which the roots are not easily controlled and are frequently out of the reach of much of the manure, liquid or otherwise, that may be intended for them. Temporary divisions, as I have frequently found, will not prevent Vine roots from leaving a border; neither will it exclude Fig roots. Then, again, the soil that suits Grapes and the very liberal treatment which they must receive, especially when rooting in a small border, is altogether unfavourable to Figs, causing them to grow much too luxuriantly to be fruitful. Were we obliged to plant Figs in a rather rich compost, provided, say, for some other kind of fruit, the preference would be given to pot plants, the pots being cracked, but not removed at planting time, their purpose being to check a rapid spread of the roots and consequent gross top growth. This plan we have tried in two different Peach houses, and with very good results.

THE COMPOST which we collected for the Fig house just described consisted of equal parts turfy loam and garden soil, and to this was added mortar rubbish at the rate of one barrowload to three of soil. This comparatively poor mixture causes the Figs to form sturdy, short-jointed growth, which annually produces much more fruit than we think it advisable to attempt to ripen. A top-dressing of short manure, faced over with fresh strawy manure, affords a certain amount of food to the roots, and also checks rapid evaporation, and plenty of water and liquid manure, as required, completes the treatment, which in this respect differs but slightly from that needed for Vines, both liking a fair amount of heat in the earlier stages, and plenty of air when ripening in autumn. Figs in pots, under liberal treatment, yield good crops of fruit, and these being plunged in a bed of leaves or manure in the centre of a lightly shaded house will not interfere with the roots of the Vines in the border underneath, nor shade the Figs on the back wall. We, however, prefer to plant out, especially if the Vine border is separated from the Fig border. Brown Turkey is the most popular Fig in cultivation, and under glass none, in my estimation, is more delicious. Both the Brown and White Ischias succeed well, especially in pots or as bushes, and these rather small sorts are much prized by most people. Castle Kennedy grows to a large size, but is not at all good for eating, and, besides, it cracks badly. Brunswick is of good quality, but it is a shy bearer.

PEACHES AND GRAPES may also be grown together most successfully. I could point to several places where they are doing well under the same treatment, but will merely mention that Mr. Austin when at Ashton Court used to cut some of his finest show Grapes from strong Vines planted in a Peach house. In this case a single rod was trained along the house nearly over the pathway, and this did not unduly shade the Peach and Nectarine trees on the back wall, nor interfere with those in the front. That is where the secret of success lies. If Peaches are principally desired, the Vines should be few in number, and may be planted at the front and thinly trained up the roof, say not less than 6 feet apart, and 8 feet preferably, or as at

Ashton Court; or, again, as I found some here, planted between the Peach trees on the back wall. They will fill up various odd corners that the Peach trees will either never reach or be several seasons in doing so. If they ultimately injuriously affect the Peach trees, then they must be removed; but even if they have only been fruited two or three seasons they will have been more than remunerative. At the same time if it is remembered that the borders have a double strain on them, and are properly fed, besides being renewed occasionally, both kinds of fruit may go on together satisfactorily for many years in succession. It is the neglect of these simple precautions that sometimes leads to a condemnation of the practice. When Peach and Nectarine trees are planted against the back of a three-quarter span-roofed vinery, the Vines ought not to be less than 5 feet apart, and should not be trained beyond the apex of the roof. A good example of this method of growing Peaches and Grapes together comes frequently under my notice, and both kinds give the greatest satisfaction. This year the trees have ripened well, and fruit buds are quite as plentiful as can be desired. In similar and all other mixed houses where the Vines are trained overhead it is advisable, or, I should say, imperative, that rather close stopping be practised in order to avoid an excess of shade underneath. One, or at the most two, joints or principal leaves beyond the bunches are ample, while the majority of the sub-laterals may be rubbed out and the remainder pinched at the first joint. It is true, plenty of fully-developed foliage is of great value in the proper maturation of heavy crops, but I have seen plenty of well finished Grapes hanging on laterals that were stopped at the first joint beyond the bunches, and one of the finest bunches of Black Hamburg exhibited this year had no foliage beyond it when growing on a malformed lateral.

TOMATOES are frequently grown in both Peach houses and vineries, especially till such time as the trees and vines have fully occupied their allotted space. In some cases they are fruited in pots and boxes, and prevented from rooting into the borders, but more often they are allowed to root through, thus inducing a strong, yet very fruitful, growth, the plants continuing in full bearing till late in winter. These, again, must have a fair amount of light, or they will refuse to set good crops, and it must also be remembered that they will greatly impoverish a fruit-border; this, too, generally happens when the trees or vines are in full bearing, and the results are disastrous. This is no imaginary evil, as I have seen Peach and Nectarine trees shed their buds and others badly infested with red spider, and therefore incapable of perfecting their crops; while Grapes have shanked badly or have coloured wretchedly owing in each instance to the near proximity of strongly-rooting and gross-feeding Tomatoes. Better be satisfied with moderately heavy crops from plants confined to pots or boxes than run the risk of spoiling permanent crops, or may be the trees and vines themselves. From the foregoing it will be seen that I would not discourage mixed fruit culture in houses, but it should not be attempted or practised in a hap-hazard fashion.

W. I. M.

**Citrus trifoliata.**—In the *Revue d'Horticulture* there have recently been some remarks on the probable usefulness of this little Citron as a hardy fruit-yielding shrub, or as being at any rate capable of yielding through hybridisation a valuable race of hardy Oranges. Does anyone know of a specimen of this plant growing out of doors without protection in England, and fruiting annually? There are several



plants of it out of doors at Kew, and these generally flower every year, but they do not fruit. There can be no two opinions as to the value of this Citrus if it could be made to fruit freely as well as flower without protection in England. It is a compact shrub, bears healthy, evergreen, trifoliate leaves and bunches of Orange-blossom-like flowers, which under certain favourable conditions are succeeded by handsome bright yellow fruits as large as Plums. Even in the temperate house at Kew, where the plant is of course protected, and where it grows and flowers, no fruits are produced, and we know of other similar instances of this plant standing out of doors, but never fruiting. Perhaps some of our correspondents can afford the required information respecting this interesting little Citrus. It is often spoken of as *C. triptera*, a synonym.—B.

### NEGLECTED FRUITS.

**THE NUT.**—Although in this county, Herefordshire, we have 40,000 acres of land devoted to the culture of Apples, Pears, and other fruits, and thousands of acres of coppicing in which the common Nut grows wild and produces prodigious crops, we hardly ever see the Filbert and Cob Nut under systematic treatment. A few old trees, sometimes a row of veterans, may be met with in a shaded part of the garden, or perhaps in the shrubbery, where they receive very little light and hardly any sun, but as for training, pruning, suckering, and top-dressing, these operations are totally neglected if they are ever thought of. In Kent, where the climate is undoubtedly much better than ours, and even as near as Reading, Cobs and Filberts are systematically grown, and yield paying crops; and yet we have dry, loamy soils and sloping banks on which the common Nut is quite at home. But no one seems inclined to plant the better kinds, which would make equally good coppicing if the Nuts were not so plentiful and valuable as those grown in some parts of Kent. Of this I have my doubts, as we have deep, heavy soils which produce excellent crops of Hops, and where these and the common Nut arrive at maturity surely the Filbert would well repay the cultivator. It would not of course do to plant for profit on all soils, but we have hundreds of acres of warm land resting on the igneous and sandstone rocks now yielding very little either to the owner or occupier, and it is upon these formations that I would suggest planting.

**PROPAGATION.**—Cultivators can, if they feel so disposed, obtain all the best varieties direct from the nurseries ready for planting, or they can raise their own stock from seed, suckers, or layers. Seedlings are not, however, recommended, as they do not always come true, and for market purposes none but the best should be grown. Suckers or layers should therefore be depended upon, and it is not yet too late to set about forming a plantation, although early autumn is the best time to detach the suckers from the old stools. When strong suckers are taken away from the parents, they should be sized and planted out in nursery rows 3 feet apart and 18 inches from plant to plant. Some shorten them back at the time of planting, but the best plan is to defer this operation until they have taken to the soil, and cut them back the following autumn.

**LAYERING** is performed in the autumn, and the young plants are generally fit for taking off twelve months afterwards, when they also may be sized, that is, divided into two qualities and planted out in nursery rows, not only to gain strength, but to be shortened back and trained before they are transferred to their permanent quarters. Meantime the ground on which they are to be planted, if rough and in an uncultivated state, should be broken up and cropped with

Potatoes to bring it into suitable condition. If poor and thin, I would pare, burn, and trench in the ashes; if deep and heavy, an extra quantity might be reduced to ashes by burning, as the Nut revels in burnt earth and produces an abundance of short fruitful spurs without the aid of rich manure. When the ground is clean and fit for

**PLANTING**, the trees may be placed 12 feet apart every way, care being taken that they are divested of all suckers before they are put into the ground. All side buds from the base up to the collar should also be kept in check, otherwise these and the underground suckers combined will carry off the sap which should pass through the main stem into the branches, when the trees will become mere grovelling bushes as we now meet with them in a semi-wild uncultivated state. Indeed, keeping the trees free from suckers is one of the most important points in the cultivation of the Filbert. In course of time, if the soil is not naturally rich enough, manure of some kind should be given every year as a top-dressing, and the ground should be dug and cropped between the rows until the branches exclude the sun and light and render this mode of culture unprofitable. The ground should not, however, be disturbed near the stems, neither should the old foliage be raked off, as it forms an excellent mulch for the active roots, which soon find their way to the surface.

**FORMATION OF THE BUSHES.**—Every bush should stand on a clean single stem from 12 inches to 18 inches in height according to the strength of the young growth when it is cut back at the end of the first year. This upright growth furnished with buds from the ground line upwards must be allowed to push plenty of shoots during the second year, as wood and foliage induce the formation of healthy roots. Suckers must not, however, be allowed to grow, and if any of the young shoots near the ground show signs of becoming gross they must be pinched for the benefit of those situated above them. This manipulation will, at the end of the second year, result in the production of untrained bushes not unlike young Currant trees with from six to ten shoots started from the main stem. When all the leaves have fallen at the end of the second year the knife must again be introduced, this time to trim the stems a foot or so upwards from the ground and to thin out any shoots that will not be required in the formation of the future tree. If above this point five or six evenly balanced shoots remain at command, they must be tied out to training sticks equidistant from each other, or, where a few trees only are under training, a small hoop may be introduced to give them the goblet-shaped set outwards—the best of all forms for letting in light and air and simplifying future pruning. It may be assumed that some of these shoots will be longer and stronger than others; if so, they must be shortened back to favour an even start in the spring, and this operation must be repeated every autumn until the bushes have reached the height they are intended to attain.

**PRUNING.**—When, by judicious shortening in the autumn and pinching in the summer, a goblet-shaped tree, say 6 feet in height, has been properly formed and well furnished with spurs, future pruning will be a simple operation. The tree being monoecious, pruning should not be commenced until the male catkins are present, for without a plentiful supply of these the female flowers which appear later will not set. The buds which produce the female flowers being somewhat larger and bolder than the wood-buds, there can be no mistaking them, and as quantity and quality of the fruit depend

upon the even way in which every branch is closely furnished with spurs, hard pruning has always been recommended, for the two-fold purpose of keeping the spurs close at home and preventing the growth of a quantity of useless spray. The Kent growers train and prune until their trees look like so many bare Pea rods stuck together, and notwithstanding the fact that all other growers bow to the men of Kent, I venture to think just a little taste of the extension system in their fine county might be attended with a more profitable result. In the colder county of Hereford the small goblet-shaped trees should be tried first, and if they answer, the branches might be allowed to extend until the bushes attain 8 feet or 10 feet in height. No departure must, however, be made from the orthodox mode of dealing with the spurs, as it is to them we look for fruit. These should always be pruned back to a blossom-bud as early in the spring as they can be discerned. When the laterals or twigs which sometimes run out a few inches and set a blossom-bud at the end have borne fruit, they should be cut back to within two buds of the stem every autumn, and in course of time a number of spurs may also require cutting out, or thinning, to let in light and improve the quality of the fruit.

**GATHERING AND PRESERVING.**—Filberts may be gathered for immediate use as soon as the husks turn brown, but for keeping they should be allowed to hang until they begin to fall from the trees. Then on a fine day they may be picked and placed thinly on shelves in an airy store-room to allow the succulent parts of the husks to part with their moisture before they are stored for the winter. Boxes or barrels are sometimes used for this purpose; but the best vessels are large earthenware jars or clean flower-pots, as they retain a more even temperature, and can be made secure from the attacks of mice where these destructive little rodents are troublesome. Nuts being subject to a mould which soon destroys their flavour, a little salt is generally sprinkled over them as they are put into the jars; but unless the store-room is perfectly dry, and can be kept at an even temperature, the salt is apt to dissolve, when the remedy becomes as disagreeable as the disease.

**INSECTS** do not often attack the nut, and the trees are free from diseases. Sometimes the nut weevil (*Balaninus nucum*) pierces the tender shell of the young nut, and lays a single egg inside. The maggot feeds upon the kernel until it is full grown, when the nut falls, and it eats its way out, buries itself in the ground, and enters the pupa state. In the succeeding summer it reappears as a small moth, and follows up the work of destruction. When the nuts begin to drop prematurely in August, perhaps earlier, sheets should be spread underneath the branches, when a gentle shake will detach most of them; they can then be gathered up and destroyed. If the trees are neglected until many of the nuts have fallen, the surface soil should be removed and replaced with fresh compost. The worst enemy in wooded districts is the squirrel, and as few people like to destroy these graceful little fellows, small plantations may be closely netted to keep them in check until the nuts are fit for harvesting.

**VARIETIES.**—The varieties of nuts are not numerous. Pomologists describe ten, and select five as being the best for general culture. These are: Cosford, early, thin shelled, and prolific; Lambert's Filbert or Kentish Cob, an abundant bearer, the best of all nuts, requires keeping a long time to bring out the true flavour; Pearson's Prolific, very dwarf, prolific, and excellent; Red Filbert, thick shell, kernel



covered with a red skin; White Filbert, shell thick, kernel covered with a white skin. The Purple Filbert is as good as the Red Filbert, and its red-purple foliage renders it ornamental in the shrubbery.

W. COLEMAN.

*Eastnor Castle, Ledbury.*

### PEACH FORCING.

THERE is a vast difference between the forcing of Peach trees permanently planted out and that of other flowering shrubs, &c., in pots, for in the case of the latter one season only is involved, while in that of the Peach the perfecting of the current year's crop is only a portion of the work to be annually performed. Success or failure in one year depends materially on the attention which has been bestowed in that immediately preceding it, and, moreover, permanent health and fertility have continually to be kept in view. While the fruits of one season are swelling and ripening, suitable shoots must be encouraged and receive proper attention with a view to their constituting the fruit-bearing wood of the following year, and it is imperative that such wood be thoroughly ripened, especially in the case of Peach trees intended to be forced early. Annual forcing, by causing an early growth, also encourages an early ripening; consequently, the resting period amounts to nearly the same, but takes place at a different time of year from what it does with trees taking a natural course. These are merely reflections, but they help to call attention to facts that would otherwise be in danger of getting overlooked. It is a mistake to start Peach trees too early, particularly in localities where fogs are prevalent, and the month of January is more noted for the absence of sunshine than the reverse.

THE FLOWERING PERIOD must be looked forward to from the first, and if this takes place in dull, unfavourable weather, the difficulties attending the transfer of pollen and subsequent impregnation are very greatly increased. Success or failure in Peach forcing not unfrequently depends almost entirely on the nature of the weather when the trees are flowering. It is therefore better to retard this season if possible for a few days or even weeks if an unfavourable atmosphere can be foreseen. Peach trees should be started for the earliest crop some time during December; in districts where January is likely to be unfavourable in respect of conditions that have been already referred to, the latter end of the month should be chosen rather than the beginning. The trees are very readily excited, and heat must be most cautiously applied until after the fruits begin to swell. A mere closing of the ventilators will generally be sufficient at first, and a night temperature not exceeding 40° to 45°. This may in mild weather be maintained without fire heat, and it is best to avoid the use of the latter for a time, if possible, by having a ridge of fermenting material instead, and partially changing it when the heating power recedes. To avoid breaking buds off it is important that all tying and necessary cleaning of the branches or any part of the house should be completed before the latter is closed for forcing. A good watering should also be given, especially if the borders are inside and have not been subjected to autumn rains from removal of the sashes and consequent exposure being impracticable. Syringing sufficient to moisten the buds and cause them to swell is recommended for practising the early part of each afternoon until the flowers begin to expand, when a drier and more airy atmosphere should be maintained. In houses that are closely glazed a little top air should be kept on, at least in mild weather, as Peach trees dislike above all things a close

atmosphere—the result of improper or too little ventilation. By the middle or end of January the flowers will begin to open, and it is highly important that proper attention be given to airing and the admission of all the solar light available during this critical period, the night temperature being also raised, but not more than 5°, *i.e.*, from 45° to 50°. This had better not be rigidly maintained if it involves the use of much fire heat, as it is at least more likely to be injurious than beneficial, and a few degrees less heat by night, should the weather be severe, will not be likely to cause much harm. Each morning, a little before mid-day, it is advisable to shake the trees somewhat, in order to distribute the pollen, or a dry rabbit's tail drawn lightly over the flowers will be instrumental in effecting the same purpose, and so assisting fertilisation. So soon as the fruits are set, heavy syringing with tepid water through a garden engine should be commenced to dislodge decaying flowers and prevent red spider establishing itself. Peach trees rarely escape the attack of this insect, especially when fire heat has to be used, and it is generally seen first on branches or leaves in near proximity to hot-water pipes. Early airing, when necessary, and early closing every day should be practised from the stage last referred to onwards, in order that all possible sun heat obtainable in early spring may be utilised. As the season advances a night temperature of from 50° to 60° should be maintained, and if air is given freely, but with judgment, on mild days, and cautiously supplied when cold winds prevail, there is little need of fear from sun heat. Waterings will generally be necessary when the fruits are set, and afterwards at intervals of from two to four weeks.

THINNING THE FRUIT.—If anything like a good percentage of the fruit sets properly, considerable thinning amongst them becomes necessary, and this may be commenced so soon as it can be seen which are likely to take a lead. The object should be to thin so that what fruits are left permanently shall be distributed as evenly as possible over the tree's surface from the lower to the upper branches, and be situated on the upper side of the latter, so far as circumstances admit. Consequently, the first thing will be to remove, a few at a time, those not exposed to light, others from the weakest shoots, and reduce where they are too much crowded in one place. Thinning the fruits on large trees requires the exercise of much judgment, as the general health and capabilities of each tree individually to perfect a heavy or only a light crop must be taken into account. Although it is advisable to leave some few fruits as a provision against those failing to stone properly, the practice must not be too extensively carried out, or the evil of imperfect stoning might be thereby encouraged in consequence of the crop being unduly heavy during the stoning period. Besides, it is useless to weaken trees by leaving on maybe dozens of fruits to stone, that it is well known must be removed by the time the second swelling begins. At this last named stage the final thinning must be made in accordance with experience and judgment in individual cases, as before stated.

DISBUDDING AND TRAINING of the young shoots are also most important operations in connection with Peach forcing, and are those requiring more or less attention from the time the shoots can first be handled between the finger and thumb. Here, again, the object of the work must be properly understood and be kept in view, otherwise it can be but improperly executed. Peach trees fruit, not entirely, but principally, on the ripened wood of the previous year, and the aim must therefore be to encourage the best placed shoots

for the year next following in a sufficient quantity to fill the available space; remove a large portion of weak and misplaced ones entirely, and pinch the others when they have about six leaves, if situated so as to be required only for encouraging a circulation of sap to the fruit of the current year. Overcrowding must be avoided, and it can best be attended to and prevented by a proper system of disbudding, which also contributes to a superior quality in the wood throughout, because of the better equalisation of the sap and exposure to more light and air. All the lower branches require the most attention; it is a general rule to find plenty of good wood amongst the upper ones. In dealing with large trees that have nearly or quite reached their limit, the inexperienced may wonder how sufficient space can be found for so much new wood each year, but there will always be a quantity to cut out as well. Weak and superfluous shoots may be removed almost at any time, but replace them, by all means, with better and stronger ones, so far as there is room for them to remain eventually. To keep fruit-bearing wood as near as possible to the main branches, one of the strongest shoots near the base of a side branch should be left to develop to the desired length; the other nearer the top should be kept pinched, and also greatly reduced by disbudding. There are plenty of instances where two fruit-bearing shoots are near each other, and both cannot be allowed to perfect fruit the one year, nor will there be proper space for them to remain the following season. In such a case one should be allowed to fruit with the intention of cutting it clean away afterwards, while a shoot should be encouraged from the other to eventually occupy the place of both the originals.

Disbudding should be frequently attended to until it is no longer necessary, in preference to reducing too much foliage at one time, and all the shoots intended to be preserved should be kept tied in wherever there is space from the time they are of sufficient length. As soon as the second swelling begins the fruit should be fully exposed to sun and light by tying any leaves to one side that might otherwise prevent this. Plenty of air must also be given night and day, the ripening season of first-class Peaches being rarely earlier than June, and warm weather is usually then experienced.

On this important subject much more might be said, especially as many practitioners prefer a somewhat higher mean temperature and many other details of management different from what has been here recommended. It is not, however, advisable to generally recommend what may be an absolutely safe method in the hands of experienced cultivators, yet quite the reverse where the conditions are otherwise. Head gardeners, for many important reasons, very frequently attend to thinning, disbudding, and training Peach trees themselves. This plan is in all probability most satisfactory to all concerned; but an explanation of the principle on which the work is being conducted, and the end in view, should be given occasionally to the subordinates charged with the ordinary work attending forcing and general cultivation, in order to increase their interest and encourage a deeper study into the proper mode of management. Young gardeners, too, should inquire into the reason why certain things are done, and they will find much to interest themselves with and to learn amongst Peach trees. The forthcoming forcing season will afford many an excellent opportunity, of which they should take due advantage.

J. G. K.

**Lilium giganteum seed.**—I have a quantity of seed of the above of this year's saving. It is a pity to throw it away. I shall be happy to send some to any of your readers who will send me their names and addresses. — FREDERICK TYMONS (Glc.), Cloughran, Co. Dublin.



## NOTES FROM THE CONTINENT.

## MILDEW CONQUERED.

THIS is the title of an article in the *Moniteur d'Horticulture* which summarises a report published by M. Prillieux, Inspector of Agriculture, of experiments made in the wine-making district of Mâcon. Lime and sulphate of copper have been found a certain cure for the mildew in the vineyards there, the discovery of their efficacy having been made in a curious and accidental manner. As is the case wherever vineyards exist, pilferers are sure to abound, and the Grapes are stolen even when in a quite green condition. As a deterrent it has for some time been a custom to syringe the Grapes, as soon as they came to a certain size, with lime water and sulphate of copper wherever the Vines were near the highway, so that whoever eat Grapes thus dressed were sure to be attacked by colic. It was remarked by a grower that all the Vines which had been thus dressed were quite free from mildew throughout the season, and he therefore conceived the idea of employing the mixture on a large scale, the result being extremely satisfactory. The solution is thus prepared: From 30 pounds to 50 pounds of lime and sulphate; each are dissolved in a barrel containing about 100 gallons of water. The operator dips a small heath broom in the liquid, and walking backwards sprinkles the Vines. About 14 quarts do 1000 Vines, the expense being a little over £1 an acre. As mildew is undoubtedly one of the principal drawbacks to the successful culture of Grapes in the open air in this country, I have thought that the above details might prove serviceable. If mildew is grappled with as soon as it appears, it does little or no harm, and it rarely comes a second time in the same year. If a Vine becomes smothered with mildew, it gets so checked as to require a season to restore its bearing powers.

## APPLE JULES GAUDRY.

If the coloured plate in the *Bulletin d'Arboriculture* is true to nature, this Apple is one of, if not the finest-looking kind ever raised. Quite two-thirds of the fruit is coloured with red, very nearly approaching scarlet, the remaining portion being rich yellow. Should this Apple prove to be a hardy, vigorous, reliable variety, it must find favour with growers for market, as I know of no kind largely grown at the present time which has such a taking appearance.

## PEACH ALEXIS LEFERE.

This comparatively new Peach appears to be rapidly gaining favour amongst French growers, especially with those who grow for profit, and there is but little doubt that in a short time it will occupy a foremost position amongst Peaches. It is not only a large, handsome kind, but possesses that vigour and fertility without which no fruit can ever attain permanent popularity. All who have not yet grown this Peach should give it a trial. A proof of its reliability is the fact of its adoption, after the customary trials, by the French Pomological Society. Another Peach "adopted" at the same time is Alexandrine Mas, raised by M. Mas, and described as being tolerably large and of good quality.

## MARKET GARDEN PRODUCE.

In connection with a fruit show, an exhibition of market garden produce was held at Antwerp last September. This exhibition was not confined to local or even to Belgian growers, but was thrown open to Dutch and German market gardeners, a fact which naturally added considerably to its attractions. Those who were competent to form an opinion declare this exhibition to have been one of the most interesting ever held on the Continent, the exhibits being exceptionally fine.

This is not to be wondered at, seeing that Continental market growers, like those in this country, are specialists, and whoever devotes a lifetime to the culture of some half-a-dozen kinds of flowers, fruits, or vegetables, will naturally grow them to perfection. For this reason it is to be regretted that exhibitions of a similar nature are not frequently held in this country. They would certainly prove attractive; and there is no reason to doubt that the London market growers would take advantage of the opportunity thus offered of exhibiting their specialities. A noteworthy feature in the exhibition above referred to was the exhibits contributed by the various market gardeners' societies. In almost every centre of market gardening industry in Belgium, Holland, and in some parts of France the growers combine to form a society, the produce furnished by the members being exhibited in the name of the society. In this way many good things are shown which otherwise would not be, as a small grower would seldom be at the pains of sending his produce to a long distance, and it is easy to understand that very fine and complete collections can be brought together in this way. The opportunity is also afforded of comparing the produce of various districts; it is simply a contest between market garden districts instead of between individuals. At the large annual exhibition of the French National Horticultural Society much encouragement is given to market growers to compete; and I note that in the schedule just issued of the show to be held in Paris in May of next year, almost thirty classes are devoted exclusively to market garden produce. Amongst these is one for the finest collection of plants grown for market in bloom, another for a collection of foliage plants suitable for market culture, and another of fifty plants of a varied nature which have been specially grown for market. There is also a class for fifty distinct kinds of Strawberries in pots, and others for vegetables of recent introduction, or which have been raised within the last five years by the exhibitors, and which are likely to be of commercial value. Something similar to this would certainly add much interest to our large metropolitan flower shows.

## SEEDLING FRUIT TREES.

The late M. Tourasse, of Pau, who was occupied for many years in the raising of new kinds of hardy fruits and flowering trees and shrubs, adopted a method whereby their fruiting was much accelerated and which dispensed with the labour of grafting as ordinarily practised in the case of Pears and Apples. This method consisted in transplanting the seedlings every year, each time cutting away the tap root, which, in conjunction with liberal culture, is said to cause the formation of fruit buds in the third or fourth year from sowing. M. Tourasse asserted that the labour of transplanting was far less than that involved by the raising of the necessary number of stocks and the grafting. Unfortunately, M. Tourasse died just as he seemed to be reaping the reward of his labours, for the numerous seedling Pears which he raised and now undergoing trial are said many of them to be of good promise. They are in good hands, and if they should fulfil the expectations formed of them, they will be heard of in due course.

## BELGIAN FRUITS.

Under the heading of "Fruits du Pays de Waes" (fruits of the Waes country), M. Burvenich writes as follows in the *Bulletin d'Arboriculture*: "This district is essentially agricultural. The French agriculturist Couteur, in making allusion to the minute cares which the peasants there bestow on their crops, terms their agriculture 'gardening with the plough.' A large

amount of fruit is grown there which is sent by rail through Antwerp to London. It is principally local varieties that are grown; they are ordinarily of medium quality, but hardy and productive. The culture of Plums, both the large kinds and the Mirabelle, brings in a considerable amount of money. In the way of Pears the following are most largely grown: Langestelen (long-stalked Pear), fruit medium size, pyriform, highly coloured, footstalk very long, ordinary quality; Maas' Pear, a variety raised by M. Maas at Thielrode; and Moedernatte, much valued on account of its earliness, which is its only good quality. These three kinds, all of inferior merit, are gathered before they are ripe and are sent in July and August to England. Double Philippe.—This well-known Pear is as much grown in the Pays de Waes as in the province of Antwerp and is largely exported to England. Kaemolen.—This variety has something of the aspect of Bonne Louise d'Avranches, but it has not its good quality, and ripens in the month of August. It is principally grown on the banks of the Escaut, in the environs of St. Amand. Other kinds grown in the Waes district are Poire d'Amand, the Poire Figue (Fig Pear), and the Poire Sucrée (Sweet or Sugar Pear). The varieties of Apples grown there do not call for any particular mention. They consist mainly of such well-known kinds as Reinette du Canada, Rambour d'Automne, Rigconnet, Court Pendu Plat, Bellefleur de France, and Bellefleur de Brabant. The varieties Kottekop, Rubens, and Blokoppel, which are in season in January and December, and are much grown in the environs of Baasrode, have much affinity with the kind called Streeping, and which is wrongly named Rambour d'Automne in Flanders. In the new plantations we note much progress in the choice of Pears. Such kinds as Poire de Tongres, Conseiller de la Cour, Beurré Bosc, Beurré d'Amanlis, Bonne Louise d'Avranches, which contain first-rate quality with fertility and hardiness, are beginning to be appreciated."

## IMPORTED FRUITS.

It will probably strike many readers of THE GARDEN as strange that so much fruit of an inferior quality should be imported into this country. Time after time it has been stated that in a fairly plentiful year much of the fruit grown within but a few hours' journey by rail from the London market cannot be sent there, because the prices realised are so low as to leave little or no surplus after all expenses are paid. Nevertheless, a vast amount of Pears are annually sent to us from Belgium. They have a journey by rail to make, and then a sea voyage, and although it is expressly stated that they are of an inferior quality, they must evidently realise fair prices, or their culture would never have developed as it has done. It will be noted, however, that all the Pears above mentioned as being so largely grown for export are very early ripeners, so that they come to our markets some time before they are glutted with our own produce; and it is well known that it is the early and late keeping Apples which command the best prices. It is the midseason kinds, which do not keep well, that are so often a drug in the market. One great fault in this country, indeed, appears to be the want of selection and the growing of too many varieties. As regards Pears, why do not our growers try some of the early ripening American kinds of which Mr. Hovey recently gave a list in THE GARDEN? and why cannot we grow those varieties which the Belgians cultivate so largely specially for our markets?

## BIGARREAU CHERRY, ABBESSE DE MOULAND.

Vast orchards of this Cherry exist in the neighbourhood of Eysden and Gronsvelde, and it is



also extensively grown around Tongres, St. Trond, and in Belgian Luxembourg. The origin of this variety appears to be unknown, although several places contend for the honour of being its birth-place. A commonly accepted tradition, however, is that it took its origin in the convent garden of Mouland, the abbess thereof, being an enthusiastic gardener, causing it to be propagated. However that may be, it certainly is a very old kind, as the numerous plantations of old trees testify. No known Cherry tree attains such large dimensions as this, some of the most ancient being veritable giants. The fruit has the true Bigarreau flavour, but is almost black in colour. It comes large, is of excellent flavour, remains for six weeks on the tree in good condition, never becoming spotted nor cracking, from which defects few Cherries are exempt. The flesh is solid, crisp, and very sweet, the juice being highly coloured. It bears transport well, and for this reason alone is valu-

Sir John Pakington in the reign of Henry VIII., but having been much damaged during the civil wars the lodge and banqueting portion, erected in Queen Elizabeth's time, were enlarged by the addition of four wings, and from the way in which it was enlarged it presents a picturesque and unique appearance, having angle towers projecting diagonally from the four corners of the square block, and surrounded by lofty pyramidal roofs. It is built of red brick with stone dressings. It commands fine views of the surrounding country, extending to the Malvern, Bredon, Abberley, and Clent Hills. Although this is such a noble house, the garden grounds about it are not of proportional extent, but what garden there is is quite in keeping with the main character of the place. There are broad expanses of lawn which should always accompany a fine building, and the tree growth is magnificent, particularly in the park, which consists of 250 acres, and

Jones, of Quarrybank, Malton, among a series of others for which he won prizes in our recent photographic competition.

#### NOTES FROM QUEENSLAND.

BRISBANE, the capital of the colony, on the river of the same name, is a lovely town, with broad streets, grand buildings, and beautifully kept and laid out gardens. But the chief point of interest is the botanic garden, under the management of Mr. Pink. On entering the south gate, there extends along the river bank a beautiful line of Araucaria Bidwilli, the Bunya-bunya of the natives. In the Darling Downs district, where this tree grows wild, the cone or seed vessel is used as food. The Araucarias in question rise to a height of between 30 feet and 40 feet, and seemingly are as healthy as on their native



Westwood Park, Droitwich. Garden front.

able from a commercial point of view. A peculiarity of this Cherry is that the fruit does not come to its full size until the tree has attained an age of ten or twelve years.

*Byfleet.*

JOHN CORNHILL.

#### WESTWOOD PARK.

LORD HAMPTON's fine old residence at Westwood is one of the numerous important places that are scattered about the north-west midland districts, and which are within an easy distance of Birmingham. Lord Dudley's magnificent place at Witley Court is in the same neighbourhood as Westwood, besides a host of minor places, mostly all of great age; indeed a characteristic feature about all these large midland residences is their antiquity. Westwood possesses historic interest; for generations it has been the home of the Pakingtons. The house is said to have been built by

contains some grand Oaks and other trees. The lake, too, which is between 60 and 70 acres in extent, is a fine feature in the place. The lawns and shrubberies represent the usual kinds of modern coniferous trees, among them being a specimen of the Spanish Silver Fir (*Picea Pinsapo*) 40 feet high and 33 feet through. There is also an Araucaria some 35 feet high, and a Wellingtonia 44 feet. The walls of the mansion are draped with creepers, such as Magnolias, Pyræanthas, Ampelopsis, and the garden is made gay in summer by means of thousands of bedding plants.

In the fruit garden Pears are extensively planted, as the soil is so well adapted for them. The vineries are built entirely of iron, copper, and glass, and Mr. Long, the gardener, considers that they possess a great advantage over wood structures. Our illustrations were reproduced from photographs sent to us by Mr. G. Fowler

mountains. On a side path were some workmen busy laying down asphalt, which Mr. Pink asserts makes more economical walks than gravel, inasmuch as they are not so liable to get damaged under heavy tropical rains. In a natural dell there rises majestically a fine circle of *Bambusa arundinacea*, which acts as a shade and wind-break round a lake, in the centre of which appears a little island clothed with Palms, Pan (banads, Tree and other Ferns, and other fine-foliaged plants. A neat fence, consisting of wire netting (erected round the water for safety's sake), was completely taken possession of by the little *Ficus repens*. Seats under the Bamboos are much frequented by visitors. Indian Azaleas, planted in masses here and there, seemed in excellent health. Of Dahlias, Mr. Pink pointed out some of the single sorts which he had just received a short time before my visit; they were not in flower, but sturdy, and promised to bloom well.



Without a plentiful supply of water and manure it is difficult to bring these flowers to perfection here. *Amorphophallus giganteus* was in grand condition; hybrid *Rhododendrons* seemed a little stunted; and *Sterculia rupestris* (Bottle tree), with its curious stems, was not so thriving as in its wild state.

IN THE ROSE GARDEN was well represented not only species, but also varieties, Hybrid *Perpetuals* of course predominating. In the centre, trellising is erected for the support of climbing varieties, mixed with other plants of a rambling character, such as *Honeysuckle* (*Lonicera japonica*), *Solanum jasminoides*, *Stephanotis floribunda*, *Bauhinia scandens*, &c., the gem of all being the *Bauhinia*, which was literally covered with pale flesh-coloured and highly perfumed flowers. Next in order comes the

FLOWER GARDEN, done on Grass, a variety which stands the drought well, the Couch or *Durba* Grass of Hindostan (*Cynodon Dactylon*). The beds were gay both with foliage and flowers. Amongst bright-leaved plants were *Coleuses*, *Alternantheras*, *Amarantus tricolor*, and *Celosias*, and amongst flowering plants *Geraniums* (well represented and growing splendidly), *Balsams*, *Heliotropes*, and *Verbenas*, the latter quite at home, and reproducing themselves in abundance from seed. In some semi-circular plots skirting the path were grand plants of *Allamanda Hendersoni* and *nobilis* trained to stakes; in another of these plots the Liberian Coffee was in excellent condition. It has a pretty style of growth, being pillar-like and dark green ornamented with red berries. In the next plot, and presenting a wonderful contrast to the Coffee, was the black Tea (*Thea Bohea*), which was very stunted, and seemed to be suffering from drought or want of nourishment.

THE ARBORETUM, a conspicuous feature belonging to these gardens, contained many rare species and varieties of coniferous plants, but all the fine examples of *Cunninghamia lanceolata* were dead, owing to the drought. On a wet piece of the lawn was a fine specimen of Weeping Willow (*Salix babylonica*), and not far off a British Oak. *Aloes*, *Yuccas*, and *Cacti* were plentiful in beds on the top of a dry bank. In a border were in excellent health such grand plants as *Cycas australis*, *C. media*, *Dion edule*, *Cocos plumosa*, *Lagurus saccariferus*, *Hyophorbe Verschaffelti*, *Oreodoxa regia*, *Phoenix australis*, *Chamaerops humilis*, *Sabal umbraculifera*, *Jubea spectabilis*, and *Macrozamia spiralis*.  
St. Fort, Dundee. S. F. CONACHER.

### FAN BOUQUETS.

I AM not a little surprised that these pretty arrangements have met with opposition, and now plead for them as being of all floral ornaments most useful at concerts, theatres, or conversations—indeed, in all assemblies where a fan and a bouquet are generally utilised.

Last May—Orchid Conference time—I went into a florist's shop in town to purchase a few flowers for a friend who was to go with us to the theatre. A bouquet would have cost me a guinea at the least, but the attendant, seeing me hesitate, at once said, "We mount these common Japanese fans or screens very prettily for from 5s. to 10s. 6d.," and so I bought a couple, which were far better appreciated than an old-fashioned "family-jam" sort of bouquet in a "paper collar" would have been. I am afraid those who have opposed the idea of "fan bouquets" have done so without fully considering the matter, perhaps without having ever seen how tastefully the Japanese fans of Bamboo and paper can be dressed out in foliage and odd blossoms by dainty fingers. Of

course there are times and places wherein even the old stereotyped "mushroom" bouquet may be preferable, but for all assemblies where fans and bouquets are the rule, surely a combination of the two would be infinitely more convenient?

I do not think the "fan bouquet" either better or worse than the "bouquet proper;" both alike are most artificial and artistically bad! Whoever saw an artist sit down and paint a Covent Garden bouquet lovingly for its own sake? It belongs to the artificial, not to the art side of good gardening. But we do find men like John Ruskin, Fautin, Alfred Parsons, H. Moon, and others who willingly devote all their ability or genius to the thoughtful study of one beautiful spray of flowers! Hence it is that myself and others hope for the time when all the "shoppy" array of lace, ribbons, paper collars, and other frippery now connected with the "arrangement" of lovely blossoms shall be swept away and a better taste formed, and beautiful flowers loved for their own sweet selves alone. I have often wished that each one of an assembly of women would bring a simple stalk or spray of the one flower which they liked best in their garden instead of the "hodge-podge" or "olla podrida" which the modern bouquet really is! If Nature is greater than art, the sooner our bouquetists return to simplicity the better; but if artificial floral confectionery is to be tolerated at all, do not let us condemn the "fan bouquet," which really has a reason to be, a use as well as beauty to recommend it to our friends, the ladies.

LEX.

### FLOWER GARDEN.

#### MY WORK AMONG THE WATER LILIES.

To begin with *Nelumbos* or *Nelumbiums*, the sacred Lily of the Buddhists as opposed to the *Nymphaea* Lily of the Nile, the Japanese variety is *Nelumbium nuciferum*. Of this Mr. Maries told me there were some twenty varieties in Japan, including a little dwarf red one. A friend over there sent me one spring, about seven years ago, a box containing the twenty varieties. They had been packed in Moss, and some were alive and growing. Altogether I had seven, and could only keep one through the next winter, and knew then for the first time how these plants die during the winter, not from frost, for they were in a cellar and some in a greenhouse, but for some obscure reason. The remaining plant I put in spring, as I had the others, in a manure hot-bed under glass, and when thoroughly established I sent it to Kew. There is the end of that, as I never could find out what became of it.

Then I thought to try seed, and got seeds of five varieties of *Nelumbium nuciferum* from Japan. These I distributed to Kew and Chatsworth, and every botanic garden and private collection I could think of. I raised a few myself, but the seedlings, as usual, died in the dark winter days. Had I known more, I should have cut off with some very sharp instrument the hard shell of the seed, which would have enabled the first growth to shove up more easily. I should be obliged to any gentlemen who have raised plants from my seed if they would tell us what the flowers were like. These *Nelumbos* are the sacred Lotus of the Buddhists and typified Buddha. Possibly once the seeds were used as a staple article of food, and so became sacred. The sacred Lotus of the Egyptians is a *Nymphaea*, as may be seen any day in the frescoes of the British Museum. Sir Joseph Hooker mentioned to me that on some mummies

being found with large Water Lily leaves over their breasts perfectly preserved, he examined them, and found them to be varieties of *Nymphaea dentata*, blue and pink, the well-known Lilies of the river. I fancy the blue variety grows higher up, nearer the sources than Egypt. It probably typified the resurrection (like the *Scarabæus*), inasmuch that the tubers remained dormant and invisible in the Nile Valley till the waters came over them. "Cast thy bread on the waters and thou shalt find it after many days" likely enough means cast the *Nymphaea* seed on the river, and eventually it shall be returned in manifold quantity. Then I tried all the *Nelumbos* I could get hold of—*caspicum*, *jamaicense*, *speciosum album*, and *aspericaule*, and several others. It will be understood my wish was to prove these could be grown in the open air in tubs, or in a common hot-bed, and did not require any more heat than that. Again I mysteriously lost every tuber except album, the variety *Lady Wemyss* has so excellently grown. This grew well, but would not flower in the open. I sent roots of it to Chatsworth, whence possibly *Lady Wemyss* obtained her plant. Perhaps that enthusiastic and enlightened lady will tell us of her success and failures. The plant has never flowered with me, and never will, unless it gets more heat and warmer water to grow in.

As to *Nelumbium luteum*, which some people thought would easily grow in the open air in England, it is quite true it did stand one mild winter in the pond at Bingham, but the next summer it came up smaller and dwindled away. This is, too, I believe, Mr. Potter's experience at York. Perhaps Messrs. Rodger McClelland & Co. will tell us how it behaves in Newry. I thought perhaps seed would do better, and Woolson, of Passaic, kindly sent me a bagful; this was distributed to twenty or thirty gardeners. I raised quantities of plants which did capitally and sent a lot to Kew. There they were jammed into those corner beds of *Nelumbium speciosum* and mixed with other things, and so there is no account of them. Mr. Lynch (the Cambridge expert) managed, however, to flower some of my seedlings last year in a greenhouse. The flower was, I believe, not a large one, but perhaps next year we shall have a better result. I have lost all my plants from the winter, and possess *luteum* no longer, but hope the exertions were not entirely wasted.

OF *NYMPHEAS*, we had to move all the collection from Bingham, in Nottinghamshire, to this place in Gloucestershire. Then we grew them for a year in their tubs on a warm border till they were all thoroughly established, and put them this spring into an old pond in my cousin's (Mr. Napier Miles) garden, Kingsweston, near Bristol (Sunnyhill is close to Kingsweston), under the care of Joseph Toucher. Before putting the tubs into the pond they (the tubs are half hogsheds cut in half) were strengthened by small lead pipes beaten out flat and fastened with copper nails round the tubs. The labels were made of lead, and the names of the different *Nymphaeas* stamped into them, and these were nailed to the sides of the tubs. In order to know at once the name of each Water Lily, I made a list and put a piece of wood with numbers cut on it to each tub, attached by copper wire, so as to float on the surface. The following varieties are here:—

*NYMPHEA ALBA* VAR. *RUBRA*.—This was obtained ten years ago, through Messrs. Henderson, of Professor Agardh, of Lund University, Sweden, from the University Botanic Gardens. The plant this year only had about a dozen blooms, as there was a terrible plague on all the leaves of



some kind of smother fly. After several years of practice and failure, and with some assistance from Professor Caspary, of Koenigsberg, I have succeeded in raising this plant from seed, and carrying the seedlings to the flowering stage. I find two out of three seedlings are red like the parent. They will not flower under three years from seed. There are two large plants at Mr. Frederick Pennington's place, Broome Hall, under Leith Hill, Surrey. I should like to know where there are any more. I believe the seedlings raised at Kew died in their infancy. Will *Nymphaea* growers tell us their experience regarding drying of the seed? Professor Caspary told me never to let seed of Water Lily get dry. Mr. Watson, of Kew, one of the ablest of cultivators and propagators, showed me dry *Nymphaea* seed from which he said he had raised seedlings.

**NYPHÆA ODORATA.**—The sweet-scented white species from America. I find this quite hardy if strongly established, but I suspect it would do better if in warmer water.

**NYPHÆA ODORATA RUBRA.**—This is a great beauty and not to be judged by its condition in the tropical house at Kew. In the open air it is as red as *alba rubra*.

**NYPHÆA FLAVA.**—This, the lemon-yellow *Nymphaea*, seems to be hardy, but I cannot flower it in the open. A correspondent of THE GARDEN gave an account of its doing well and flowering in a pond in Kent. Perhaps that same person will tell us how it is doing now. This Lily is the same, or nearly so, as *amazonica*, and Sir Joseph Hooker expressed his astonishment to me at the idea of its living through an English winter. It comes from Florida.

**NYPHÆA NITIDA.**—This is the Water Lily described by travellers as growing on Lake Baikal and on the great Siberian rivers. It is smaller than *alba*, and with very pointed and narrow petals.

**NYPHÆA TETRAGONA.**—This is the charming little wee Water Lily, commonly called *N. pygmaea*. It is exceedingly distinct, besides being so tiny, and is common in Japan.

**NYPHÆA TUBEROSA.**—This, when strong, throws its leaves and flowers up out of the water, but the flowers hardly differ from *alba*. Figured lately in THE GARDEN. American.

**NYPHÆA ALBA.**—From China. Variety brought by Sir George Staunton.

**NYPHÆA CANDIDISSIMA.**—I suspect this is the same as *N. candida* (syn., *cashmeriana*), from Cashmere. Our resident there kindly sent to me some plants and seeds of *cashmeriana*, but they arrived in a pickled condition, having been sent hermetically sealed. To send any Water Lily, it should be packed in dry earth, or else in moist Moss with a hole in the box to prevent mouldiness. Seed is best sent in a little mud in a bottle, the mud exposed to the air till it is hard. This is how *Nymphaea zanzibarensis* was first sent to England.

**NYPHÆA ALBA VAR. LOCH AWE.**—I owe this to the kindness of Lady Wemyss, but nowhere can I find any account of it. It is a small flowered variety with an inclination to be pink, showing on its outer petals the purple spots of *rubra*. Mr. Laxton has observed one similar in the Ouse near Bedford. It is a remarkable thing that both *alba* and *odorata* have in one spot, and only one spot, of the world thrown off a rose-coloured sport. What is the exact locality of *alba var. rubra* no one knows, as Professor Agardh did not wish it to be exterminated. Mr. Sturtevant, who sent over here the plants of *odorata rubra*, got it from a lake in Newfoundland, near

Cape Cod, on private property. A lady tells me she saw quantities of the flowers when staying in the locality, and was disappointed in not seeing the lake itself.

Of a new variety of *alba* I obtained from Lake Tiava, in Macedonia, through the great energy of Consul Blunt, I can give only a disappointing account, as so far it by no means shows the huge size attributed to it in a botanic book at Kew. Consul Blunt kindly sent a small expedition through a bandit country into the district of Vodeno, 70 miles from Salonica, to get this plant. It is hardly fairly judged, however, as the white Water Lilies beside it in the pond are all of the splendid large Somersetshire kind, noted by the late Mr. Ellacombe at Tiverton, who wrote to me lately at the age of 96 on this subject. This Macedonian variety is hardly established enough yet to show its true form, but the leaf is singularly distinct, as instead of a narrow cleft in the leaf, a large triangular piece is taken out. Mr. Ellacombe, of Bitton, does not think the white Water Lily was in England at the time of the Romans. Apparently, however,



*Incarvillea Olgae*.

places like Clatford Bottom are so called from the Saxon name *clat* or *clote*, still used in Dorsetshire and in Barnes's poems, meaning Water Lily; but Mr. Ellacombe says it means the common yellow Nuphar. Mr. Ellacombe says, if this white Water Lily existed in the time of the Romans it would have filled up all the lakes. I do not think seedlings are raised in a natural state except under peculiar circumstances, which I can only guess at. And for my part, the growth of the white Water Lily has always seemed singularly slow. At Bingham three plants put in twenty years ago had not covered more than 6 square yards of mud at the very utmost.

Of blue Water Lilies I can only say I did not find *cyanea* hardy at Bingham; but I fancy *scutifolia* is far harder, and there is said to be a pond at Lord Cawdor's place, Stacpoole, in Pembrokeshire, where these plants grow in unheated water in the open air. Perhaps this may meet the gardener's eye, and evoke some information.

In many ways this culture of Water Lilies has been most disappointing, though perhaps now some benefit will arise from it in the distribution. If the red *Nymphaea*. I had hoped to have grown

easily the great *Nelumbos* of America and China and Japan, and to find them about as manageable as *Pæonies*; and I had hoped to cross and raise seedlings, and so enrich our English gardens. I did get from *alba* a cross from *scutifolia* to get a hardy blue Water Lily, but no one then could raise the seed, and at Kew, where the experiment was also tried, the seed did come up and showed no signs of the cross. It would be absurd to argue from this that the experiment is no longer worth trying, so I hope in future years to make some more successful efforts.

FRANK MILES.  
*Sunnyhill, Shirehampton, Bristol.*

P.S.—As for Chinese varieties of *Nelumbium speciosum*, there are three or four at Cherkley Court, Leatherhead, and no doubt Mr. Abraham Dixon will later on give us some account of them.

### INCARVILLEAS.

Of the four species of *Incarvillea* described by botanists, two are in cultivation, having been introduced to this country through Dr. Regel, of St. Petersburg, and M. Max Leichtlin. They are *I. compacta* and *I. Olgae*, the latter represented in the annexed illustration. The generic name has done duty for some of the *Æschynanthuses*, for *Paulownia imperialis*, and also for the two greenhouse perennials now known as *Amphicomes*. In the *Botanical Magazine* (t. 6593) *I. Olgae* is represented as *I. Koopmanni*, but it has since been proved that the latter is merely a second name of the former, and that the mistake in the *Botanical Magazine* arose from the very misleading figure in the *Gartenflora*, which was supposed to be typical *I. Olgae*, but which is altogether wrong, presumably through its having been prepared from dried specimens. In addition to this error respecting the name of *I. Olgae*, there is that of describing it as being "distinctly annual" (*Botanical Magazine*); whereas it is certainly perennial, the stems perishing only when subjected to severe frost, whilst the root-stock remains intact, and pushes into vigorous growth again as freely as a *Pentstemon* does on the return of spring. A plant at Kew has stood out of doors against a south wall for the last three years, where it grew to a height of 3 feet, and flowered freely from July to September. The frost of last year did not appreciably affect the branches, which in the spring were quite fresh and healthy, though they were removed to induce new shoots from the base to start with vigour. So far as can be made out, there is no difference between the *Amphicomes* and *Incarvilleas*, and they might reasonably be placed together under one generic name. Indeed, the plants we have in gardens as *Amphicomes* were first called *Incarvilleas*.

*I. OLGEÆ* is an erect growing herbaceous perennial, with stems 3 feet or 4 feet high, opposite pinnate leaves, the segments pinnatifid and their surfaces smooth and shining. The flowers are trumpet-shaped, 2 inches long, the top divided into five lobes, which spread out, forming a limb  $1\frac{1}{2}$  inches across; their colour is bright rose, tinged with a deeper red inside. The inflorescence is produced on the apex of the shoots, and is in the form of an upright panicle, branching at the base; the flowers open slowly in succession, and last for a week or more. The plant is perfectly hardy in the neighbourhood of London. It deserves a place in every hardy plant border, where, if once established, it will look after itself as such plants as *Asters*, *Phloxes*, *Chrysanthemums*, &c., do.

*I. COMPACTA* has not yet flowered in this country, though young plants of it are at Kew. It has funnel-shaped flowers,  $2\frac{1}{2}$  inches long and



bright rose-pink in colour. The leaves are unequally pinnate, the segments being short. This species is also hardy. It is a native of North-west China, the former coming from Turkestan.

#### NOTES ON HARDY PLANTS.

**RANUNCULUS MAGELLENSIS.**—This pretty form of the Alp Crowfoot (*R. alpestris*) always flowers here more or less in the finer days of a not very severe winter. The pure white flowers on that tufted, deep shining green and prettily crenated herbage have a wonderfully fresh look about them, the more noticeable because nearly all other late flowers have gone. Almost all that can be said for the Snowdrop and Saxifraga Burseriana might be claimed for this if it were grown in as large quantities for garden effect. I only fear that it may not prove winter flowering with different treatment from that it gets here—a method by which I find many plants, and especially Ranunculads, can be made to flower well twice a year; the simple plan is to highly cultivate single crowns of two years' growth. I know many would object to such a sacrifice of what might be termed the natural habit or beauty of a plant. By such treatment it is needless to point out that two distinct features are brought to notice in the same plant; a sort of compromise is done by growing the single crowns set closely together; true, then even the growth is more rank and the flowers are abnormal in period, extra size, and numbers, but these are pardonable faults.

**ANDROSACE FOLIOSA.**—This most beautiful, and as yet rare, alpine has reached me from three different sources, and though the plants were very young, up to this time they seem to stand the murkiness of our climate much better than plants of most other species; the comparatively large leaves, in shape and arrangement not unlike those of the common Daisy, but hairy, have pleasing autumn tints, and otherwise they hold out conspicuously; there are all the signs of unusual vigour about the plant yet, and if it gets safely through the winter we may reckon it a great gain to our rock gardens.

**FREESIA REFRACTA ALBA** is standing in a cold frame in which no frost have been registered. The delicate foliage is 3 inches to 5 inches high, but does not seem hurt, though young plants of *F. mon Scouleri* appear to be fatally nipped.

**PETROCALLIS PYRENAICA** is one of the "difficult" alpine, as I should imagine from the many failures that are experienced with it by expert growers. I rarely keep my fully exposed specimen in good health through the winter, and have to replace it in spring from stock that has been sheltered either in cold frames or with the glass and wire shelters. There can be no doubt that the very small, but very hairy and closely compacted, leaves of the tiny rosettes, which turn sere and grey naturally, but are most persistent, are the cause of death from the way in which they gather and hold a deal of moisture. As surely as the plant dies with me when fully exposed, as surely can it be preserved in good health by being kept dry. It is most happy in the growing season on a sunny bit of rockwork, with its roots in calcareous soil or rubble and nothing whatever to overshadow it.

**FERTILISING MOSS**, as it is called, seems to fascinate many of our flower friends—why it is hard to say; and as efforts are being made to use it for hardy flowers, or, more strictly speaking, to use hardy plants for it, it comes within shot range. It may be a bold statement to make that those who seriously use it are inexperienced in flower

culture. They are those who have not, perhaps, grown things as they can be grown in the more natural way. I am aware that the novelty of the business will tempt many; but when they publicly seek advice, surely the best that could be given would be that they should first master the natural mode. This is not said in a forbidding spirit, but with a full belief that if such results as can be attained without resorting to the so-called "fertilising Moss," that method of growing flowers would only present itself as a ludicrous and self-contradictory practice; for who ever grew bulbs or plants so that did not in a short time find them exhausted?

**ENOTHERA SPECIOSA.**—Unlike most other Evening Primroses, this slender-stemmed and charming white-flowered kind almost totally disappears at this season; when its roots are sought for the vital portions are found to be very small indeed. I wonder how many people who complain that they cannot keep this desirable plant have overlooked its existence, and so, perhaps, actually destroyed it. In light land, if allowed a two years' run, it may be said to become a weed, a pleasing one, doubtless. Even after that time, if the roots are examined when the tops have disappeared, they will mostly be found dead, but mixed among them will be swollen or fleshy, somewhat tuberous bits, tapering finely at both ends, and beset with one-sided minute tufted sprouts, nearly cherry-red. These are very near the surface and so hardy that the keenest frosts do not kill when quite exposed. I mention this because many have thought the plant not so hardy as to be able to take care of itself. The present is a good time to seek the scattered vital pieces (for they run a good distance from the original stool), and set them so as to form a compact specimen or patch. Two inches will be deep enough. They are mostly the length of a toothpick, but not so thick, even in the middle.

**PLANTS NOW WELL KNOWN TO BE HARDY** used to be spoken of in old books as tender, or such as "will assuredly be destroyed" by winter. Either then the winters were more severe or now the same families of plants have grown hardier, with which higher cultivation may have something to do, for it is well proved that perfectly-drained and deeply tilled land raises the temperature, or, more strictly speaking, keeps it warmer. But do we not find that certain species do grow hardier in time, and especially such as are increased by seed produced in our climate, and provided such seed has not been crossed in fertilisation with another kind so as to lower the normal vigour? An opposite view may be taken to prove the same point, and the Wallflower may be instanced. Old books always, so far as my reading has gone, speak of the Wallflower as a reliable open-garden flower, and if we supposed the winters were formerly more severe for other plants, Wallflowers might have been more severely tried then than now. However, our present strains of this favourite are anything but hardy. There must be a cause; can it all, or in part, be that the present strains have become by the "improving" processes too far removed from the type, and that some of the hardness has been lost from artful selection and cross-breeding for the sake of colour? The useful moral to be gathered from this is that we should seek to make hardier those plants of doubtful hardness, and that in aiming at a development of other desirable features in a reliable hardy plant its constitution is not let down below the normal quality.

**PRIMULA OBCONICA** stands the biting frosts well. Whatever may have been reported of the hardness of this distinct species has, so far as I have seen, been incomplete. Let us have the

plant raised and entirely grown in the open air and there let it be left with its roots entire and well established, and then we give it what may be termed natural chances. Plants about nine months old are being so treated, and whereas *P. japonica* has gone to pulp and the crowns become rent from their sockets by the recent frosts, *obconica* has a fresh and verdant appearance.

Woodville, Kirkstall.

J. Wood.

#### GARDEN FLORA.

##### PLATE 524.

##### THE VIRGINIAN COWSLIP.\*

**THE Virginian Cowslip** (*Pulmonaria virginica*) is without doubt one of the most conspicuously beautiful of spring flowers. Of singular grace of habit and truly beautiful colouring, no plant better deserves a choice spot; indeed, it is one of such high merit that no pains should be spared to find it such a place as will both suit its own needs and display its fine qualities. It thrives in cool woody spots in deep, light, rich soil; if peaty, so much the better. The young growth as it first rises from the soil is of a purple-black colour, curiously developing as growth proceeds into the pale green of the leaves and stalks and the delicate blue of the flowers. The buds are tinged with pink, or are pink throughout; this colour fades or changes into blue as the flower reaches maturity. The cluster is perhaps most beautiful when the rosy tint is gone, the blue of the flowers being of a rare quality that can be best appreciated when unmixed. This valuable plant grows about 18 inches high. It looks best in a group away from other flowers, where its distinguished beauty may be enjoyed without distraction, or in company only with a few pale Primroses.

**Christmas Roses.**—Notwithstanding the delicate whiteness of these flowers and the murkiness of the season in which they open, they may be said to keep fairly clean even when not protected, and, besides, they are capable of enduring 20° of frost without perceptible damage. What they most and very much suffer from is the slug tribe; the way in which the buds lift the soil and form cavities just about the year's end when slugs seek to go down out of the reach of frosts favours their resorting to the crowns of the Hellebore plants, where of course they feed on the tender and undeveloped flowers; when these expand they are deformed, full of little holes, and quite unfit for use. A perfect remedy for this is to give a heavy dressing of white, dry wood-ashes in early winter or autumn. The slugs are then either destroyed or cleared out quickly; even yet a good dressing will be of benefit, and the sooner it is applied the more flowers will be saved; otherwise, the wood-ashes do good, fertilising the roots and imparting a healthy, deep green lustre to the foliage. As regards the later-flowering coloured Hellebores, my experience is that they are not nearly so much damaged by slugs, though not free; it may be that the floral leaves are some protection for the buds; anyhow for these a heavy dressing of the ashes now would not be amiss.—J. W.

**Freesias out of doors.**—So much has been said of the difficulty of making these bulbs push, that I am induced to state my own experience. I tried some in

\* Drawn at Munstead, Godalming, in May.





PULMONARIA VIRGINICA.







a hot frame, some in a cool greenhouse, some in pots under a north wall, others planted out on a warm south-east border. All these came up more or less well; but on the warm border, exposed to the chances of sun and rain, every bulb pushed freely, and these are now my strongest plants, and so far they appear quite uninjured by the late severe frost. With only an occasional protection of an old piece of carpet, I shall be much disappointed if they do not prove hardier than *Lachenalia tricolor*, which flowered on the same border last spring.—T. H. ARCHER-HIND, *South Devon*.

## INDOOR GARDEN.

### SELECT GARDEN CACTI.

In *Cereus giganteus* and *C. Blanki* we have the two extremes, as it were, of the genus, the one a trailing plant with stems no bigger than one's fingers, and comparatively very large beautiful flowers; the other, the Titan of the whole Cactus family, whose stems are like ship's masts in girth as well as in strength, whilst we may safely assume that the age of the largest specimen is as great as that of the *Orotava Dracaena*, or the Baobab of the Tropics. These pole-like plants are almost the sole representatives of large vegetation in the desert regions, where their home is "their solemn silent forms, which stand motionless even in a hurricane, giving a somewhat dreary character to the landscape. Some look like petrified giants stretching out their arms with grand effect, and others stand like lonely sentinels keeping their dreary watch on the edge of precipices." From this down to the small fry of the genus, and to which the species here represented belongs, is a very long drop, but it is from the regions of wonder to the more satisfying one of what is possible in a small greenhouse where these tiny *Cereuses*, as we said at p. 613, may be grown satisfactorily. To the four species described a fortnight ago we must now add a fifth, viz.:—

**C. BLANKI.**—This is cultivated in Continental gardens as *Echinocereus Blanki*. It is very similar to *C. Berlandieri* both in habit and the characters of the stem and flower. The difference is found in the longer, broader, less spreading petals, the club form of the stigma, and the colour of *C. Blanki*, which is deep rose flushed in the throat with crimson. A comparison of the two, as here represented and the fig. on p. 614, will show better than a description can the principal differences between them. In growing these plants for their flowers (and in the species we are now referring to there is no attraction of stem or spines such as we find in many of the *Cereuses*), the point to be remembered is that of their requiring a long season of rest to be followed by one of liberal treatment. It is highly probable that treatment similar to what suits *Opuntia Rafinesquei*, namely, exposure to full sunshine and air all summer, and only such protection as is afforded by a handlight or frame in winter, would agree with these little *Cereuses*. It is only recently that we have discovered the value of the above *Opuntia* as a rockery Cactus, and the change of treatment has proved of immense advantage to the plant. Why not, then, try

these *Cereuses* in the same way? They are reputedly as hardy in Continental and American gardens as this *Opuntia*. B.

### PROPAGATING CHRYSANTHEMUMS.

It is a great mistake to propagate *Chrysanthemums* in heat, for although they may form roots quicker and are apparently forwarder than when allowed to take their own time in a cool place, they lose thereby in strength. I much doubt if first-class flowers can be produced by plants which in an early stage of growth have been subjected to the enervating influence of a close, warm propagating pit. If cuttings are taken as soon as they are made and are kept quite cool, they will form good roots by early spring, and will start into strong growth with the advent of fine weather.



*Cereus Blanki*.

I think, however, that better cuttings are produced if the plants after flowering are effectually protected from frost. If they are stored away in a cool pit, some litter should be put on the lights in severe weather. It stands to reason that if the soil is hard frozen for a week or two at a time the progress of the young shoots is retarded, and that even if the cuttings come as good they will be later. The earlier the cuttings can be taken the better, that is, if the object is the production of large specimens of first-class bloom. I prefer to dibble the cuttings into boxes or pans, as then, after giving a good watering to settle the soil around them, they will need little or no more water until they are rooted, that is, if they are inserted during December. If small pots are used the soil is apt to dry out, thus necessitating more frequent watering, which is apt to cause an attack

of mildew. This in any case must be watched for, and the infested parts immediately dusted with sulphur. Mildew allowed to take its course for a week will ruin the best of cuttings. If the boxes are filled to about half their depth only with soil, a pane of glass can be laid on them, reversing it every morning so as to give a change of air, and removing it entirely in damp weather, when no air is given to the house.

Where large quantities of *Chrysanthemums* are needed, by far the easiest plan is to dibble them in a frame in a light, well-sanded soil. All the attention they will then need is to give a little air in mild weather and to cover up from frost. If they are allowed sufficient space, they may remain there till spring, topping them when needful, and pulling the lights off on fine days so as to keep them hard. About the middle of March lift them carefully, and plant out 18 inches apart in good soil. This is the simplest, if not the best, way of propagating and growing *Chrysanthemums*. J. C. B.

**Tropæolum Deckerianum.**—The *Birmingham and Midland Gardening Magazine* for 1851 contains a coloured illustration of a variety of this under the name of *Wagnerianum*, the flowers of which have rose-coloured corollas and green sepals. This variety was of Venezuelan origin, and bloomed in the nursery of Mr. Cowdrey, then of Edgbaston, who supplied the following observations respecting its culture: "Finding, on examination, that the plant was tuberless, I came to the conclusion that it must be an annual—not having previously heard of such a division in that genus. However, I found it grew on, all through winter, spring, and the following summer, without any signs of flowering until September, when it bloomed, perhaps for the first time in England. I then observed that the shoots made in winter and spring began to assume a light brown colour, and soon after became completely deciduous. In a short time many eyes broke, and are now making fine shoots, the plant looking as green as it did in June. From this circumstance, I apprehend it is likely to flower in spring as well as in autumn. It will no doubt become a valuable plant for pillars in conservatories, rafters, or to hang in festoons. It grows freely in any light, rich soil well drained, and is easily cultivated, being very different from many other greenhouse climbers not being subject to damp off in winter. During the time it has been under my notice, not a single leaf or shoot has suffered from damp. Its propagation is equally simple. Take a pot or pan and fill it three parts full of any coarse drainage, filling up with white sand. Water this, and if any given number of plants are wanted, just cut as many single eyes;

spread them on the surface, cover with a bell-glass, and in the space of three weeks they will be found to have emitted roots and fit to pot off. The pots should be plunged in bottom heat. Do not insert the cuttings in the sand. Longer cut twigs will strike freely, but they do not make such good plants." If, as Mr. Lynch suggests, *T. azureum* and *T. Deckerianum* are synonymous, the variety figured in the above work appeared to be quite distinct both in foliage and flowers.—R. D.

**Eucharis amazonica.**—We have a fine plant of this beautiful Amazon Lily now in bloom, making the third time in which it has flowered this year. It is growing in a compost consisting of loam, leaf mould, and sand, in a 15-inch pot, in which it has been for the past two years. It produced its first crop of flowers in February (twelve spikes), the second in June (thirteen spikes), and the third now consists of forty-one spikes, the majority of which



are carrying five flowers in various stages of development. When growing freely and showing flower-spikes it receives liberal treatment in the way of liquid manure.—W. BROWN, *Prideaux Place, Padstow*.

#### PLANTS IN A COLD HOUSE.

MANY a one who loves a few plants and has them in flower during the summer is now face to face with the difficulty as to how to preserve them during winter without the aid of artificial heat. Much, of course, depends upon the position of the house and the degree to which it is exposed. When suburban villa residences are built, and small greenhouses are added, they are almost invariably attached to the building, either at the front or back. I have seen a street of villa residences of the same pattern, running from east to west; on one side of the street the greenhouses are on a north aspect, on the other side they have a south aspect. Very often these houses are constructed much more as ornaments than as adapted for the culture of plants, a circumstance which adds to the difficulty of keeping plants in them through the winter. The houses in a north aspect, *i.e.*, that lie due north, may get a little sun early in the morning and late at night just before and for a time after mid-summer, but only for a brief period, and that only in the event of no building or trees interposing. It is obvious that ordinary flowering plants will fare badly under such circumstances, and the best thing to do would be to convert such houses into cold ferneries, or use them for the culture of certain hardy Evergreens as permanent occupants—plants such as *Aucubas*, *Retinosporas*, *Aralia Sieboldi*, *Aspidistra*, *Fortune's* variegated *Bamboo*, &c., that do not need much sun, and so make brightly-marked foliage, as far as possible to do duty during the summer months with such flowering plants as would be likely to remain in bloom for a time.

Houses that have a sunny aspect are capable of being made gay in spring, summer, and autumn; but as they are exposed to the full glare of the sun, watering during hot, drying weather has to be attended to twice and thrice a day. These houses, being constructed as much for ornament as for use, are very frequently sadly deficient in ventilation, and especially towards the roof, where the hot air congregates, and causes the house to become almost unbearable. Roof-ventilation becomes a matter of urgent necessity, and it should be provided as an indispensable condition of successful plant culture. Blinds and other shading can also be extemporised with which to lessen the internal heat during the height of summer.

It is often very difficult to heat such structures. It can occasionally be done by means of a gas apparatus; but the remedy, through defective management, is sometimes more destructive than the result intended to be obviated. Then there are petroleum lamps, and they can be made to keep a good deal of frost away, but they cause an offensive smell, which is disagreeable in the extreme, and is certain to find its way into the dwelling-house. And thus it is that the villa gardener is frequently found saying, "I will abandon all thoughts of artificial warming, and allow the plants to take their chance."

When this latter alternative is adopted, what is best to be done? I find in my intercourse with villa gardeners that many of them place a high value on plants they have been able to keep through the winter. Now, one of the best things a villa gardener can cultivate in one of the houses we have described is a collection of zonal *Pelargoniums*. It is surprising what a large measure of frost some of these will stand if they are

allowed to go dry in the middle of November, or if the weather is likely to be severe, earlier. In my own experience young plants bear the ordeal of winter much better than old ones, and so I put in cuttings of the old wood of the previous year in May, placing them singly in small pots. In July they are potted in 5-inch pots, and they bloom until quite late in the year. All the oldest of the old plants are thrown away in the autumn; they are not worth troubling with. When the young plants are allowed to go dry they lose some of their leaves, and these should be picked off and the surface soil kept a little stirred. When a thaw follows a spell of frost and a little bright weather ensues, the house is thrown open, air freely admitted, and some water given to the driest. Such plants will bear dryness of the roots better during winter in a cold house than they will excessive moisture. When the plants are watered it is done early in the day, so that the shelves and floor of the house may dry before night comes on. *Fuchsias* are similarly treated, only that the old ones are retained longer than in the case of the zonal *Pelargoniums*. By placing *Heliotropes* on the warmest shelf, I have kept plants through a sharp winter, and by careful attention made good plants of them the following summer; but they will not bear so much dryness at the roots as the *Pelargoniums* and *Fuchsias*.

Tuberous-rooted *Begonias* are allowed to go quite dry, and they are then covered up with newspapers to keep them safe from frost. Some of the hardier Ferns, such as *Pteris cretica*, *P. serrulata*, &c., can be preserved in the same way by allowing the roots to go dry in the winter, but not sufficiently so to injure them. This can be prevented by giving them a good soaking in mild weather, and then allowing the pots to drain freely. I am able to keep some of the finer *Cannas* in pots, *Eucalypti*, *Pachyphytum bracteosum*, fine plants that flower freely in summer, and *Marguerites* in this way.

And in winter there are Christmas Roses to give flower; berried *Aucubas*, variegated *Box*, *Retinosporas*, *Aralia Sieboldi*, *Yucca recurva*, the green and variegated forms of different *Aloes*, *Latania borbonica*, and other hardy or nearly hardy plants, green and variegated, to furnish the house and make it pleasant to the eye when the days are shortest, as well as dull and dismal. Attention—daily, if necessary; weekly certainly—is a main factor in the prosecution of such work successfully; only let there be present a love for plants and a desire to preserve them in the most successful manner, and due attention will be readily given and success be raised to the level of a certainty. R. D.

#### FORCING TREE PÆONIES.

We should have to look through a long list of hardy plants before finding one that can compete with the Tree or Moutan *Pæony* as regards easy culture and the manner in which it adapts itself for flowering in pots. We should not, I am sure, find another so striking and imposing in character, taking into consideration the early period of the year at which it can be had in flower by gentle forcing. When I speak of its imposing character, I have in view plants large enough to fill a 16-inch pot, and unless one has seen such examples, no idea can be formed as to what striking objects they are when brought into flower in the early days of February. We grew plants to this size here for years, and have had them on the 1st of February with as many as a score of flowers open at one time. The sizes of the blossoms, too, were but little less than those produced in the open. Those, therefore, who are acquainted with the striking flowers which these

*Pæonies* produce will understand what a grand display two or three plants of them are capable of producing. Their beauty was also further enhanced by the ample foliage which unfolds before the flowers expand. We used to take up our plants from the open ground in the middle of November, and when potted they were set on the floor of a cool Peach house. About the middle of December they were placed in a temperature of from 55° to 60°, the last never being exceeded; nor was it necessary to do so, for they responded so readily to artificial heat, that hard forcing would have diminished the size of the flowers. We found that six weeks in such a temperature brought them well into flower. These plants suffer, however, more than most others from such treatment; indeed, two or three years must elapse before they are again in a condition fit for early flowering. There are both double and single-flowered *Pæonies*, but for early flowering the double varieties are most appreciated, and they last longer in good condition than single ones. J. C. C.

**Roman Hyacinths failing.**—The cause of these bulbs failing to bloom freely is improper cultivation during the previous year. It may be from having been grown in too shady a position, from exhaustion, from want of water or proper feeding during the time of growth, or from lack of sunshine during the period of ripening. The bulbs may appear all right when potted, but the embryo flower-bud is not within, and cannot therefore be produced. The blue variety is more disappointing than the white one in this respect. The best criterion of a good flowering bulb is comparative weight and high finish, *i.e.*, a glossy, bright appearance.—W. C. T.

#### BOOKS.

##### BROWNSMITH'S BOY.\*

THIS story-book for boys, full of adventure and well-sustained interest, the hero of which is a gardener's apprentice, whilst the scene is mainly laid first in a market garden and afterwards in a private garden, is certainly a novelty in juvenile fiction. Mr. Manville Fenn has already added a well-earned reputation as a writer for boys to his name as a novelist appealing to adult readers, and "*Brownsmith's Boy*" will increase this reputation. In addition to exciting adventures, this book contains much information that must be of practical value to any young gardener, not only on pruning, fruit-picking, and such topics, but also on the real meaning and teaching of his work. As the delightful old market gardener, Ezra Brownsmith, says: "I don't know any business that is more full of teaching. I've been at it all my life, and the older I grow the more I find there is to learn. A man who has brains may go on learning and making discoveries, not discoveries of countries and wonders, but of little things that may make matters better for the people who are to come after him" . . . "Don't you never be ashamed of having learned to be a gardener . . . for there's something in gardening and watching the growth of trees and plants that's good for a lad's nature; and if I was a schoolmaster I'd let every boy have a garden, and make him keep it neat. It would be as good a lesson as any he could teach." As a mere matter of literary art, perhaps the hypothetical dissertation on the origin of surgery from pruning may be a little prolix, and once or twice Mr. Fenn's minute description of incidents gives the reader erroneous ideas as to the lapse of time; but the life-like portraiture of the brothers Brownsmith, of the under-gardener, Ike,

\* "*Brownsmith's Boy*." By G. Manville Fenn. Blackie & Son.



and of the untamed waif, Shock, often remind one of Dickens. With twelve pleasing illustrations by Gordon Browne and a satisfactory "get-up" as to paper and binding, it is difficult to imagine a more welcome present in the bothy or the school-room than "Brownsmith's Boy."

G. S. BOULGER.

## TREES AND SHRUBS.

### THE EASTERN SPRUCE.

(*ABIES ORIENTALIS*.)

ALTHOUGH of but slow growth and very doubtful value as a forest tree, still for ornamental planting, more particularly for lawns of small extent or wherever larger growing trees would be out of place, this Spruce is of particular value, and cannot fail to attract attention and win the admiration of tree lovers generally. The usually dense habit of this Spruce, combined with its deep dark green foliage, which is perfectly distinct from any other Conifer, renders it of great value for contrasting with other trees of a more light and airy appearance.

Unlike the generality of our Spruces, the one in question not only thrives well, but actually seems to delight in a dry sandy soil, and that where the common Norway form refuses to grow altogether, numerous examples of which are to be found in various parts of the country. In most situations it has also been found to be perfectly hardy, although we fancy it is improved by partial shelter. It is of slow growth, but remarkably sturdy, and well branched to the ground. Usually the tree assumes a pyramidal habit with rather ramifying branches, this latter being occasioned by the slender spreading branchlets, and which quite relieve the tree of any stiffness or formality. The leaves are of a bright glossy green above, slightly paler beneath, three-eighths of an inch long, stiff, and produced in great profusion. Cones pendent,  $2\frac{3}{4}$  inches long by three-quarters of an inch diameter at thickest part, ovate, oblong, and tapering gradually to a point. In their young state the cones are so thickly covered with resin as to quite hide both their appearance and formation; later on, however, this entirely disappears.

The date of introduction is not quite certain, but this is generally supposed to have been about 1838. Nearly 300 years before that time (in 1553), however, it was noticed by Belon, who, according to his work published in the following year, visited its native country. Whole forests of it occur in the Caucasian region and in the country to the east of the Black Sea. In the latter district and near Trebizond it occurs in quantity, ascending in some instances to a considerable height on the mountain sides.

When grown under favourable circumstances the Eastern Spruce, in its native country, frequently attains a height of 70 feet or 80 feet, with a straight stem of from 1 foot to nearly 3 feet in diameter at ground level. As scarcely half a century has elapsed since the introduction of the Eastern Spruce, combined with its slow rate of growth, no trees have reached maturity in this country, although in not a few pinetums specimens of fully 50 feet in height are not uncommon.

On the Penrhyn estate the largest tree, which came originally from Elvaston Castle, is growing on gravelly loam in a somewhat sheltered position on the banks of the Ogwen River, and is the tree of which mention is made in the "Pinetum Britannicum" as being then (now nearly thirty years ago) 13 feet in height and about twelve or fourteen years old. It is now fully 50 feet high, girths  $4\frac{1}{2}$  feet at a yard up, and has a diameter of

spread of branches covering 26 feet. Owing to overcrowding, some of the lower branches up to 4 feet in height have been killed outright, otherwise it is in every respect a model of its kind, with an abundance of bright healthy foliage, a well-balanced stem, and an unusually symmetrical contour. Being planted in conjunction with various species of hardwoods, the decided character of this Spruce is well brought out, and it also offers a strange contrast to the light green, silvery foliage of a large *Abies Webbiana* that grows in close proximity. The small ornamental cones were borne in quantity this season, and, owing to the presence of a fair number of male catkins, seeds of good quality have been produced. It suffers considerably from stem-pruning; indeed more so than almost any other of its tribe with which we have experimented, resin oozing from the wounds for a long time after amputation has taken place.

Why this valuable ornamental Spruce is so seldom met with, for it is rare even in good collections, is hard to understand. It can neither arise from price nor quantity, for in one nursery list at hand it is offered at the low price of 9d. each, and by the dozen. I am inclined to think that the present scarcity of this Spruce in collections arises from its valuable qualities, for ornamental planting especially, being but little known, and that ere long, when its hardy nature and distinct appearance in our landscapes has been more widely extolled, we may expect to find it occupying conspicuous positions in our parks and grounds and taking its place amongst the more ornamental of our recently introduced Conifers.

Regarding its value for timber production I know but little, although the few specimens of wood I have had the chance of examining support what a friend recently pointed out, that it is of good quality, the graining and texture resembling very closely its near ally, the Norway Spruce.

A. D. WEBSTER.

**Paulownia imperialis.**—This tree is so seldom met with, and probably unknown to many, that I venture to think it should be more extensively planted, especially in the southern part of England. There is a grand specimen of it growing in Ashted Park, near Epsom, which, I believe, was among the first planted after being introduced into this country—which, I think, was about the year 1840. The tree in question is between 20 feet and 30 feet in height, and has fine spreading branches. Its beautiful large foliage much resembles that of the Catalpa. Small hard knobs are generally formed on it in the autumn or early in winter, and unless severe frosts destroy these knobs or buds, the tree always flowers about the end of May or the early part of June. The flowers are of a lilac colour, and have a Gloxinia-like appearance and a perfume like that of Violets.—THOMAS CARLTON, *Wilderness, Sevenoaks*.

**Daphne neapolitana.**—The various hardy Daphnes are all low-growing shrubs, but, with the exception of the Mezereon (*D. Mezereum*) and the Spurge Laurel (*S. Laureola*), they are not much grown. Probably this is to some extent owing to the fact that a cool fairly moist soil, more or less of a vegetable nature, is essential to their well-doing, and it is not always possible to supply these requirements. However, where such conditions are to be found, the Daphnes will commend themselves where favourably situated. *D. neapolitana* is interesting at the present time, as it is in full flower. It is a much-branched upright-habited shrub, with small Box-like, dark green leaves, and bears clusters of deep pink fragrant blossoms. Though a South European plant, it appears to be quite hardy in this country. Of the Mezereon there are a couple of varieties differing from the type, one having the flowers of a deeper tint, while in the other the blossoms are white. There are inferior forms of both in cultivation, but when the best are obtained they are good and distinct. The common

Spurge Laurel (*D. Laureola*), though unattractive in bloom, is a good Evergreen, flourishing in situations where many others would not grow. It is most at home just on the outskirts of a wood or plantation, where it is always shaded and yet just clear of overhanging foliage. *D. Cneorum* is a pretty little trailer with highly fragrant pink-coloured blossoms, well suited for planting on rockwork, as is *D. Blagayana*, a white-flowered kind and very fragrant. The newest hardy Daphne is *D. Genkwa*, a native of Japan. It is an open bush, and about March its bare branches are wreathed with pretty lilac-coloured blossoms. The foliage of this is deciduous; therefore the flowers being borne on the still leafless branches are thus rendered still more conspicuous.—ALPHA.

### DISEASES AFFECTING POPLARS.

WHEN Poplars are planted upon dry shingle, they are apt to contract heart-rot, but when such soil is mixed with clay, vegetable matter, or both, sufficient to attract and retain moisture, the timber is generally sound and of excellent quality. Trees growing upon wet, boggy ground occasionally produce a knotty excrescence on the stem and larger branches, which places are favourite haunts of the millepede insect (*Julus terrestris*), whose long, flexible body, composed of small rings and covered with a hard polished substance, enables it to penetrate between the fissures of wood and bark. The nests of these insects always contain a black, earthy substance, like vegetable mould. Such places should be dressed by paring off the knotty bark around the lips of the wound, and scraping out the insects as well as any dead matter in the interior. The place should then be well scrubbed with a solution of lime-water and soot, which will cleanse and purify the surface and destroy insect eggs. I have sometimes seen trees suffer in this way when planted upon ground that was too dry, as well as ground that was too wet for their healthy development. In the latter case a few extra drains will be beneficial, and in the former the trees had better be cut down, as renovation in this case would be too expensive, except in cases where the trees are planted for ornamental effect.

The stems are also sometimes perforated by the caterpillar of a goat-moth (*Cossus ligniperda*), in which they eat extensive galleries, and as they are three years in arriving at the imago or winged state, they often do considerable damage to the timber. Another species of wood-boring caterpillar (*Ægeria asiliformis*), although less common than the former, occasionally commits damage by scooping out its cell in the solid timber. The puss-moth (*Cerura vinula*) may sometimes be found in July upon the Poplar, where it deposits its eggs in a group upon the surface of a leaf. The caterpillar of the puss-moth, however, does not excavate a hole in the timber for protection and food like the former, but rears a little house for itself in the chinks of the bark below a branch, the material used for its construction being principally composed of the bark of the tree. The caterpillar of the Clifden nonpareil (*Catocala fraxini*), which is of a large size, often attacks and feeds upon the foliage of the grey and white Poplar during summer.

The black Poplar is sometimes attacked about midsummer by a small four-winged fly (*Eriosoma populi*), whose body is covered with a white downy substance. It feeds upon the sap of the leaves and leaf-stalks, which it punctures with its beak for that purpose. These places form spiral-shaped galls, and here the mother lays her eggs, which are safe against enemies. After a period of dry weather, the White, Grey, and Lombardy Poplars are occasionally affected with an atmospheric blight or mildew, which in many cases kills the foliage, and the trees are rendered quite



bare by the end of August. Trees affected in this way often die outright for want of the leaves to elaborate the sap and keep up circulation in the stem and branches. Such attacks can only be prevented by planting the trees in soil suitable for their requirements, as already briefly glanced at. Trees, however, planted upon dry soil for ornament that are suffering in this way will be much benefited by timely watering, manuring, mulching, &c.; but such a mode of culture where the trees are planted for utility would be impracticable. J. B. WEBSTER.

## KITCHEN GARDEN.

### NOTES ON VEGETABLES.

**CABBAGES.**—1, Early York, not compact, and very liable to bolt in spring, not reliable, and therefore superseded; 2, Heartwell Early Marrow, heads large and fine, quality good, not the earliest; 3, Emperor, growth very compact, heads formed

Miniature Drumhead, a small form of the ordinary Drumhead, very compact in growth, hardy, and excellent in quality; 18, Sugar Loaf, too much like Enfield Market, inferior; 19, Matchless, early and compact, turning in quickly, and good in quality; 20, Reliance, inferior to Matchless; 21, Rosette, or Colewort, unequalled late in autumn; 22, Beefheart, rather tall in growth, but produces excellent hearts, very solid, stands long, useful in summer, not early; 23, Vanack, a sort we only get true from Edinburgh, compact, early, and fine in quality, a good profitable Cabbage; 24, London Market, large, but one of the old kinds which cannot be recommended or grown profitably now; 25, Battersea, concerning this the same remark may be made; 26, Chou de Burghley, a combination of Cabbage and Broccoli, and very useful in autumn and winter—it is hardy and excellent in flavour, much better than Cabbage, and a first-rate vegetable; 27, Chou de Milan, like a Savoy, but hardier and not so good in flavour; 28, Chou de Milan

large and rather spreading, quality first-rate, a grand early summer variety; 8, Walcheren, no better than Erfurt, late, but poor; 9, Early London, an old and fairly good kind, but superseded in earliness by Extra Early, and in size and quality by Mammoth; 10, Eclipse, partaking of the character of Autumn Giant, but not so good; 11, Stadtholder, a late free-growing variety, and not so hardy as it ought to be, heads moderate in size.

**CARROTS.**—1, French Forcing, very compact in growth, roots so short as to be almost globular, the earliest of all, a delicious little Carrot; 2, Scarlet Horn, longer than the preceding, but not so early, good for first crop in the open; 3, Nantes, longer still, roots thick, of fine form and excellent in quality; 4, Stump-rooted, only offered by one firm, the best of all short Carrots—it is thick alike all through, and therefore has no long tapering end, fine in colour and first-rate in quality; 5, James's Intermediate, very fine, slightly above medium size, and good in quality;



Westwood Park. (See p. 651.)

quickly, and altogether excellent, a standard sort; 4, All Heart, a distinct little Cabbage, wonderfully compact in growth, with few useless outside leaves, delicious in quality, and a great acquisition; 5, Imperial, large, not very early, good for summer use; 6, Ellam's Dwarf Early, small, but very good, very early, and high in quality, should be sown in autumn; 7, Cocoa Nut, too small for general use, and therefore discarded; 8, Venus' Selected, a new north of England Cabbage, which possesses many good qualities—it is very early, compact, and moderately large; 9, Tom Thumb, not worth growing; 10, Little Pixie, same as Tom Thumb; 11, Enfield Market, too tall, quality moderately good, discarded; 12, Redbraes, a grand summer variety, very large, conical in form, and very profitable; 13, Nonpareil, a misnomer, of no special merit; 14, Red Dutch, decidedly the best red variety; 15, Winningstadt, of the type of Redbraes, heads moderate in size, exceedingly firm, and good in quality; 16, Drumhead, large, hardy, and good in quality; 17,

Imperial, a slight improvement on the last—both kinds will be found useful in severe winters.

**CAULIFLOWERS.**—1, Autumn Giant, when true excellent, comes in in August and continues until Christmas, it is a strong grower, sure bearer, and always in to time, heads very large, pure white, sound and good, supersedes all in autumn; 2, King of the Cauliflowers, earlier than Autumn Giant, slightly more compact in growth, produces fine heads that are useful in summer, a desirable sort; 3, Erfurt, tender in constitution, and the heads are straggling and poor in quality; 4, Extra Early Dwarf Forcing—three or four sorts are sold under this name, best from Messrs. Veitch, another nearly as good from Messrs. Carter—it is the earliest of all and should be sown in spring, heads small, white, and excellent, a capital first-crop sort, which becomes quickly fit for use; 5, Pearl, hardly so early as the preceding, but a little larger, a first-rate second early Cauliflower; 6, Snowball, inferior to extra early; 7, Mammoth, very compact in growth, heads

6, Long Orange, very coarse; 7, Long Surrey, requires a deep soil, hardly choice enough for garden culture, but good in flavour; 8, Altringham, very long and requires deep soil, but not so much valued as James's Intermediate for main crop and winter use; 9, New Intermediate, beats the old one, being earlier, larger, and of better quality, excellent for exhibition; 10, Golden Ball, novel and useful for early forcing.

**CELERY.**—1, Solid Ivory, dwarf and compact, pure white, good in flavour and very useful, there being but little waste; 2, Major Clarke's Red, strong in growth, very hardy and excellent; 3, Leicester Defiance, in every way good; 4, Sulham Prize Pink, medium as regards growth, centre large, solid and crisp; 5, All Heart, American, dwarf, hardy and very good, heart large; 6, Matchless, a large red sort, very solid, and requires a lot of space in which to fully develop itself, fine for show; 7, White Gem, very dwarf, leaves dark green, stems pure white, crisp, juicy and good; 8, Sandringham White,



dwarf in habit, solid, and possessing a fine nutty flavour; 9, Wright's Giant White; 10, Wright's Grove Pink, both good for main crops; 11, White Plume, American, a useful novelty, requires no earthing up, becomes perfectly white all over in autumn, a fine Celery for autumn use, and excellent for stewing; 12, Turnip-rooted, bulbs like a Turnip, hardy, and very useful; 13, Celeriac, same as the last; 14, Horticultural Prize, dwarf, compact, firm and crisp, a hardy and good Celery; 15, Defiance, the best of the reds, strong in growth and very hardy, blanches well, crisp, juicy, and excellent for show.

**CUCUMBERS.**—1, Telegraph, of medium size, pale green, hardy, extra prolific, and fine in quality, a first-rate main crop sort, some kinds not true to name; 2, Tender and True, long, deep green, good for exhibition, but not prolific enough for main crop, and unprofitable in winter; 3, Cardiff Castle, a good all-the-year-round sort, below the average in size, very prolific, and excellent in quality; 4, Volunteer, longer than the last, but like it in habit, though not so prolific; 5, Masters' Prolific, a fairly good medium sized variety, handsome, but not good in winter; 6, Marquis of Lorne, large and showy, but not prolific enough for general culture; 7, Model, a good strain of Telegraph, longer and even handsomer, but hardly so prolific, a good summer Cucumber; 8, Blue Gown, long and handsome, best hanging, black spined, not very prolific; 9, Duke of Connaught, another long Cucumber, excellent for show purposes, but poor in winter; 10, Duke of Edinburgh, medium sized, prolific and good; 11, Long Gun, pale green and handsome, not the most prolific, but a good show sort; 12, Scion House, not so good as Cardiff Castle, although of the same type; 13, Berkshire Champion, very long, 24 inches, handsome, good and fine in quality; 14, Purley Park, an improved Telegraph, very showy, prolific, and fine in quality; 15, Sooly Qua, a useless Cucumber; 16, King of the Ridge, best for open air, very hardy, prolific, and fine in quality; 17, Long Prickly, moderately prolific, and only second rate in quality; 18, Stockwood, hardy, prolific, and very good.

**CRESS.**—1, Plain, very early; 2, Curled, pretty and useful, bears cutting often; 3, Australian, extra fine in flavour; 4, American, a good substitute for Watercress; 5, Sweet Cress, mild, almost too much so, and delicate in flavour; 6, Watercress, easily grown in boggy spots and very useful.

**CARDOON.**—1, Large Spanish, mid-rib of leaf only usable; therefore not profitable.

**CAPSICUM.**—1, Prince of Wales, small, bright lemon in colour, prolific; 2, Princess of Wales, large, and lemon in colour; 3, Little Gem, fruit very small, red, and prolific; 4, Long Red, and 5, Long Yellow, both prolific and useful.

**CORN SALAD.**—1, Broad-leaved Italian, very useful for salads in autumn and winter, easily cultivated.

**DANDELION.**—1, French Large-leaved, valuable for salads; 2, Improved French Early, roots grown on in summer, and lifted and forced in winter.

**EGG PLANT.**—1, New York Purple, the largest, very fine, hardy and prolific; 2, Black-fruited, not so large as No. 1, inferior in flavour; 3, White, very delicate in flavour, moderately prolific.

**ENDIVE.**—1, Broad-leaved Batavian, very hardy, grows large and free, and blanches well, an excellent Endive; 2, Fraser's Broad-leaved, almost identical with the last; 3, Improved Round-leaved Batavian, very broad in the leaf, compact

and useful; 4, Digswell Prize, large, curly, and tender; 5, Green Curled, very fine in appearance, beautifully curled, and fine in flavour; 6, Moss Curled, the finest curled of all, but not very hardy, suitable for early autumn use only; 7, White Curled, too tender, but delicate in flavour; 8, Model, a very fine form of the curled class, large, compact, and excellent.

J. MUIR.  
*Margam Park, S. Wales.*

### EARLY VEGETABLES.

A GREAT deal of early produce may be obtained from a small plot of land if rightly prepared and well sheltered. It is impossible to over-estimate the value of depth of soil, but this depth should be accompanied by perfect drainage, as anything in the shape of stagnation lowers the temperature. Some years ago I had to deal with a heavy, cold clay soil, and in preparing a site for our early border I excavated a good many loads of clay, which was afterwards burnt, and became exceedingly useful for mixing with the surface soil and to get increased depth and add to its warmth. Indeed, a layer of the roughest portions of burnt clay 6 inches or so thick forms an excellent foundation to place next the clay in forming an early border. The best way of using it is to pass it through a half-inch sieve, keeping the fine material for mixing with the soil and using the coarse to put in the bottom. It is impossible for a border to be wet or cold with 6 inches or 8 inches of rough particles of burnt clay in the bottom and from 2 feet to 3 feet of good soil on the top sloping well to the south and sheltered by a wall or a good stout hedge or fence to keep off the north and east winds. The amount of labour employed in preparing such a situation is not a serious matter. A good many

**EARLY POTATOES**, for instance, may be grown on a comparatively small piece of well-prepared ground. They should only be allowed one stem, and if the sets are placed crown upwards in trays or shallow boxes in a light situation the principal crown eyes will form stout shoots, and all others can be cut or rubbed off. Plant them early in February as soon after the first week as the weather will permit. But it should be borne in mind that Potatoes planted so early in a sound warm border will grow rapidly under the advancing light and sunshine of spring, and some protection will be needed to keep them safe from frost. I have adopted a good many expedients for keeping off frost, all more or less effectual. I have sewed mats together with twine, hooped the Potato beds over and covered them with mats. I have driven stout stakes into the ground to support covers made of straw. These latter are portable and easily applied, and I know from experience that it will take a sharp spring frost to injure Potatoes under a double thickness of fishing nets. Potato tops are more tender when just through the ground than they are when they have become hardened by a fortnight's exposure. I still like the Ashtop best for the earliest crop.

**LETTUCES AND RADISHES.**—A part of the early borders will doubtless be planted with Lettuces. The Brown Cos and Tom Thumb Cabbage are as good as any, and superior to most others. They are reliable alike under all conditions, and here again a covering of fishing nets, propped up 12 inches or so above the plants, will do much to forward their growth. A few Radishes may be sown shortly, and be covered with a straw mat, the covering to remain on them on cold days, but lifted off when the sun shines and the air not frosty.

**AMERICAN WONDER PEAS** may be planted at any time between this and March, and in such a

border will be sure to give satisfaction. This Pea only grows from 12 inches to 16 inches high; therefore the rows need not be more than 18 inches apart. Some say these dwarf Peas do not require any sticks, but all Peas, no matter how dwarf their growth may be, will pay for sticks. Besides, in a neatly-kept garden sprawling vegetables are an eyesore, and when the Peas are on the ground they do not bear so well as when upright, nor are the pods so well developed or so well filled. Sometimes Peas are started under glass on strips of turf, hollowed out to receive the seed; the whole when hardened off are then placed in the drills, or they may be started in pots or boxes, or in any way which individual ingenuity may consider best.

**FRENCH HORN CARROTS** should have a spot reserved for them where the soil is light and warm, and these, too, should be started early in February. I have occasionally sown earlier, but there is not much gained by sowing earlier than the first week in February, unless we can cover with glass, and in that case it would be better to make up a hot-bed to place the glazed frame upon. The purpose of the early border is to bring them forward as soon as possible in the open air, with no other protection than can be given by such temporary expedients as nets, mats, straw covers, &c. Stirring the soil among young plants at any season is very beneficial; in winter it tends to warm the soil. If we take the hoe on a sunny day when the surface is unfrozen and moderately dry, and stir it up from 1 in. to 2 in. deep, the soil is warmed and dried and the roots and tops of the plants are invigorated, and the oftener such work is done the better. By-and-by

**CAULIFLOWERS** may be planted in trenches in the early border, and be sheltered in some of the ways suggested unless handlights are available, and in the matter of protection a preference should always be given to glass if it can be had. Early in April French Beans may be planted, and as one crop comes off others will be ready to take its place all through the season. Vegetable Marrows, ridge Cucumbers, Tomatoes, Capsicums, &c., will follow the crops of early vegetables. I need not say that land in a warm dry situation must be well manured, and that as soon as the days lengthen and the sun gains power in spring, mulching such crops as Cauliflowers, French Beans, and Peas will be beneficial. It is next to impossible to make the soil of the early border too deep, so at this season, in addition to the usual dressing of manure, any good soil that can be spared may be added to it. There are always accumulations of good soil that can be spared for such a purpose where many plants are grown in pots, and where vine borders are requiring occasional renewal. There are also considerable relays of good material coming from the periodical clearings-up which are constantly occurring in a garden. Some of these that do not readily decay will be reduced by fire, and in this condition make excellent top-dressings for the early border, or, indeed, for any other purpose.

E. HOBDAV.

**Bird-proof Peas.**—Most gardeners know but too well how destructive birds are when they attack Green Peas, but until last season I was not aware that they had any special liking for any particular sort of Pea. A gardening friend, however, avers that there are some sorts of Peas which birds will not eat, and adds, that the sorts that are remarkable for superior flavour when cooked are the varieties which they soonest attack, and for that reason he has given up growing such old favourite table sorts as Ne Plus Ultra, Veitch's Perfection, and Champion of England, and confines his selection for mid-season and late supplies to Telegraph, which birds never touch, as



it is not sweet enough to please them. Telegraph is a wonderfully fine variety to fill the vegetable basket, but it appears that it has other qualities in addition to productiveness.—J. C. C.

### KITCHEN GARDEN NOTES.

**SOWING PEAS.**—That Peas are generally sown too thickly will, I think, be admitted, and as the sowing season will soon be here, it may be of some service to direct attention to the ill effects of thick sowing. We need not stop to describe the absolute waste that occurs when double the quantity of seed is sown that is required to furnish a crop; that will be apparent to all; but it is not so easy to make the inexperienced understand that both quantity and the quality of the crop are diminished when the plants stand too thickly in the row, yet this is what actually occurs, because when crowded there is no part of the plant that can attain proper proportions. The greater the number of plants, too, which occupy the ground the more roots there are, and the more there are of these the greater must be the battle for existence. The result, therefore, is a diminished crop. I have seen many crops of thickly sown Peas collapse at the beginning of August after a short spell of dry weather, and I have known others sown about the same time which stood thin in the rows to go on and furnish green Peas in October under just the same conditions of soil and climate. The reason for such results needs no explanation after what has just been stated. Although all sorts of Peas are in most cases sown too thickly, the large-seeded sorts that grow to a height of 6 feet or more suffer more than those of shorter growth. All the large-seeded Peas, whether of tall or dwarf growth, should be planted singly in drills in the same way as one would plant Broad or Kidney Beans. The seeds of such sorts as Ne Plus Ultra, Emperor of the Marrows, and British Queen should be planted 2 inches apart. This is especially necessary in the case of crops that are expected to go on bearing up till late in the autumn; when thicker there is such a multitude of roots, that they quickly exhaust all moisture, and an attack of mildew speedily follows, which if it does not destroy the crop, so cripples it, that it is comparatively worthless.

**THE BEST PEAS** for the table are not always the most suitable for exhibition; for the latter purpose appearance is everything, and flavour only a secondary consideration. For exhibiting, Telephone is undoubtedly the best Pea in cultivation, but it is only of second-rate flavour; Stratagem is also a fine showy sort, and of about the same table quality as Telephone. The two best flavoured tall growing Peas are undoubtedly Ne Plus Ultra and British Queen, and of those that do not exceed 4 feet in height Veitch's Perfection and Laxton's Supreme. Amongst sorts which vary in height from 9 inches to 2 feet, the best flavoured are American Wonder and Laxton's Alpha. These are invaluable for small gardens, inasmuch as they need but very little support, a few feathery branches from 1 foot to 2 feet high being all they require. They may be grown without sticks altogether, but even such dwarf growers as American Wonder are more productive with than without them. The dwarfest of all Peas is Maclean's Blue Peter, and for its height—usually about 9 inches—it is wonderfully productive. We have grown this in drills 12 inches apart and have had very good crops, but the worst feature in reference to these dwarf sorts is that they go quickly out of bearing, two gatherings at the most being all that can be reckoned upon. It therefore requires two sowings of these to one of the taller growers in order to keep up a suc-

cession; as regards space there is therefore nothing gained. As respects earliness, I still regard Ringleader as the best, but for those who do not mind waiting a week longer for their first dish of Peas, I would recommend them to grow William the First in preference to any of the other early sorts; it is a capital cropper and superior in flavour to any of those in the early section.

**SEA KALE FROM SEED.**—Sea Kale plants are so easily raised from seed, that it is to be regretted plants so obtained are in point of colour inferior to those raised from cuttings obtained from plants that are white when properly blanched. Some may be quite equal to plants from cuttings, but others may produce growth with such a purplish tinge, that however carefully light and air may be excluded from it, it will be comparatively worthless. Such is my experience of plants raised from seed, and for that reason I have given up increasing our stock in that way. Sea Kale requires very careful selection in order to secure a pure stock, and it is unfortunate that it must be thoroughly tested by being grown in a dark place before it can be known whether the growth will come quite white or be disfigured with veins of a strong purple shade. That is what I have found necessary to do, and from the best plants we have now secured a pure stock that gives us Kale as white as any that we could desire to see.

**TAP-ROOTED VEGETABLES.**—Under this head must be placed Carrots, Parsnips, Salsify and Scorzonera, and in order to get perfect examples of these more discrimination in the treatment and choice of soils is needful than is commonly supposed. There are, no doubt, some fairly light and not very rich soils in which all tap-rooted vegetables can be grown in good condition without any special care; but there are others in which it is a difficult matter to secure really handsome roots. None of the sorts just named require a rich soil. It is more important that it should be both light and deep, and if sandy, so much the better, nor are the large roots which a strong soil will produce the best; they are generally forked and ill-formed and much waste attends their preparation for table. If we take Parsnips as an illustration, it will be found that those which do not exceed 9 inches or 10 inches in circumference round the crown are more appreciated than those which measure 16 inches. It is the same with Carrots; a straight root that measures 7 inches round the crown will be more highly valued than larger and badly formed examples. Having to deal with a strong and rather heavy soil, I find I get much the handsomest, and, taking weight for weight of really serviceable matter, much the best crops by sowing on land that has been pretty well exhausted by Cauliflowers or Cabbages the previous year, and in the case of Carrots I like to sow on newly-dug ground and to break all large heavy lumps well to pieces. As to using manure for Carrots on land already fairly rich, I would rather see it go out of the garden altogether than do so. In regard to Scorzonera and Salsify, a poor, sandy soil will give better returns than a rich one. In rich land the roots come forked, and even when the seed is sown as late as the end of May many of the plants will run to seed in the autumn, which necessarily weakens the size of the roots. Turnips are tap-rooted vegetables, but they are less particular as regards soil than the crops just named.

**SEED-SOWING.**—Seeds often fail through being sown too deeply, or through being insufficiently covered; therefore, a word of warning may be of service to the inexperienced. I would first caution them against sowing too deeply. This is a common error, and one which it is more im-

portant to avoid in early spring than in the summer; in spring the soil is often both wet and cold, and tender seeds under such conditions lose their vitality before the earth imparts sufficient warmth to induce them to vegetate. The depth at which seeds may be buried depends entirely on their size. A quarter of an inch under the surface is deep enough for all seeds belonging to the Cabbage tribe and other seeds that approach them in size. Drills 1 inch in depth are enough for Onions, Carrots, Parsnips, Spinach, Beetroot, and seeds of similar character. Up to the end of March Peas should not be covered with more than 1 inch of soil, but as the land gets warmer they may go deeper. Next to sowing too deeply, many crops are lost by the opposite treatment, i.e., not covering deep enough. The common practice of raking the seeds in is bad, as many of them are not covered at all, while others are buried deeper than is good for them. It is all very well to rake over the surface to break any large clumps, but this is better done before than after the seed is sown. All not sown in drills should be covered with some finely-sifted earth, and then all will be buried at one uniform depth, and if the quality of the seed is good, all the plants will come through at one time, because all will be receiving the same amount of heat and moisture. Another frequent source of failure is sowing too early. In soils that are of a retentive character, wrinkled Peas ought not to be sown before the middle of March, and such tender subjects as French Beans are better kept out of the ground until the first week in April.

J. C. C.

**Mushroom culture.**—In Mr. Muir's remarks on Mushrooms (p. 618), he says that he hopes "there are not many growers who use fire heat in their culture," and again, that he "would never desire a better place in which to grow them than a tool-shed, a potting-shed, or a shed of any kind." Five years ago the land in this neighbourhood was frost-bound for over thirteen weeks, and the thermometer on one occasion indicated 36° of frost. Would Mr. Muir undertake to grow a continuous supply under such conditions in "a shed of any kind" without artificial heat? The winter to which I allude—1879 and 1880—was an exceptionally cold one, but we are at any time liable to a recurrence of such weather. I quite agree with Mr. Muir that Mushrooms grown without artificial heat are of better quality than those grown by means of it; but it would, I am sure, be advisable to have the means of applying a little when requisite for the purpose of excluding frost.—W. NEILD, Wythenshawe, Cheshire.

\* \* A few Mushrooms sent along with this communication grown in an average temperature of 52°, which Mr. Neild considers to be quite low enough, were in every way excellent.—ED.

**Bitter Cucumbers.**—There can be no doubt whatever that "Reader" (p. 641) is quite correct in attributing the cause of bitterness in his Cucumbers to low temperature if the plants are in a healthy condition, and if, as he states, the maximum temperature is seldom above 60° and the minimum frequently as low as 45°. He will soon find the bitterness disappear if the minimum temperature is raised to 60°, or it may be 55° for a short time in severe weather, and the daily maximum temperature be increased to 70° or 75° by pipe heat and from 75° to 80° with sun heat. At the same time it is very important, at this season, that the bottom heat temperature should be kept about 3° degrees higher than the mean of the highest day and the lowest night temperatures. Bitterness will sometimes result from other causes, such as a sudden check by an attack of insects on the foliage or dryness at the root, but these seldom occur at this season of the year, when this evil is most prevalent and may invariably be traced to low temperature.—W. C. T.

—Bitterness may arise from more than one cause. I have distinctly traced it to dryness at the root, and have removed it in a few hours by pouring



manure water down the opening left for moistening the bottom of the bed. When the bottom heat proceeds from pipes or flues sometimes the bottom of the bed may be too dry whilst the top is moist enough. Bitterness may be caused by want of sufficient heat, inducing slowness of growth. Cucumbers, to be good flavoured and tender, require to be grown quickly. Sometimes the fruits produced by plants that have become exhausted by long bearing may lack quality. In the case in question if a good soaking of liquid manure poured down among the rubble in which the pipes are laid does not remove the bitterness in forty-eight hours, I should raise the temperature.—E. HOBDAV.

**Hardiness of Veitch's Autumn Protecting Broccoli.**—I was agreeably surprised to find that this very useful early Broccoli is much harder than I at one time thought it to be. Large breadths of it have been destroyed here and elsewhere by a by no means severe frost, but this winter it has not been much injured by a short succession of severe frosts. On two out of the three coldest nights which we recently experienced the thermometer fell as low as 15° or 17° below freezing point, and this proved fatal to Autumn Giant Cauliflowers not sufficiently advanced for storing under glass. It is true all the most forward of the Broccoli had been lifted and planted closely in a pit in the centre of a vinery, but since the frost many of these have been cut and cleared out, their places being taken by the most advanced of those left in the open. Here they develop very useful clean white heads, which are much appreciated. Snow's Winter White is not yet available, and but for the variety under notice it is doubtful if we should have any Broccoli fit for use.—W. I.

**Gilbert's Universal Savoy.**—We have planted several long rows of this, and on the whole I am well satisfied with it. We were enabled to cut it in quantity early in November, and it was then equal in quality to the Ulm and other Savoys after these have been improved by severe frosts. The stumps remain, and I am rather curious to learn in what way the Universal differs materially from other Savoys. I cannot help thinking that Mr. Gilbert is progressing too fast, and would do well to devote more time to the proper selection of his stocks. Chou de Burghley varied considerably, and I find several forms, some of them very poor, too, in the batch of Universal Savoy grown here. The original stock may have been right enough, but where there are seeds being saved it must be, and is, in fact, a most difficult matter to prevent injurious crosses from occurring.—W. I.

#### WORK DONE IN WEEK ENDING DEC. 22.

DECEMBER 16.

Slight frost in the early morning, but fine and dry afterwards. Began to cut Grass verges of pleasure ground walks with edging iron, and rolled all walks that don't require surface gravelling; these parts are left till the forking up of the old and a sprinkling of fresh gravel can be done. Continued the planting of Rhododendrons in new part of pleasure grounds, and dibbled in between the Rhododendrons some thousands of wild Daffodils, Snowdrops, and common wood Hyacinth—Blue Bells—so we hope are long to have a veritable "wild garden;" all the same, though, I shall continue to give preference to flower gardening proper, or, at any rate, till there is a radical change in my ideal of flower gardening, which is, that neatness of surroundings—exclusion of weeds especially—is essential to the fullest enjoyment of flower gardening, for whether it be the bedding, massing, or the mixed herbaceous and alpine plant style, slovenliness in respect of keep is fatal to the charms of the rarest flowers. Made up another bed for Asparagus. Sowed Mustard, Cress, and Chervil in boxes and placed in early Peach house, which is now kept closely shut up, and the trees are syringed about two o'clock. The buds are showing pink, and soon as they begin to expand, a little heat will be turned on to ensure a night temperature of 50° in the coldest weather, and of from five to eight more when mild. Some years ago we were persuaded to put in a hive of bees to aid fertilisation of flowers, but the experiment proves such an ignominious failure, besides the death of the greater half of the bees, that we shall not be guilty of such folly again. If the trees are in

good health (and if they are not, neither bees nor any other artificial aid will cause the fruit to set) a gentle tap of the trellis to disperse the pollen is all that is necessary to get a good set; but those who wish to be doubly sure will do no harm by going over the flowers lightly with a camel's-hair brush. Finished tying late Peaches to trellis; top-dressing of border cannot yet be done, as soil is not ready, and meanwhile a little long litter has been put on the border to keep the soil from cracking and that we may the more conveniently stand plants on the border. Cut down Chrysanthemums that have done flowering; some varieties are but now at their meridian of beauty, and consequently are of the highest value for Christmas decoration, and for this reason alone deserving of special attention. Our best of this class are Princess Teck, Meg Merrilies, Dick Turpin and Golden Dragon.

DECEMBER 17.

Fog, but very mild. Again planting Rhododendrons, also cutting Grass verges of walks and rolled lawn with horse roller. When damp through fog—as today has been—the soil from worm-casts does not adhere to the roller, and for this reason we always strive to do the rolling of lawn in winter under such weather conditions. Planted Raspberries; our soil is not of the best for this fruit, which should be a heavy loam, but with deep trenching and abundant manurial mulchings, we manage to get plenty of good fruit; no digging nearer than 4 feet of the canes is ever permitted from the time of planting to renewal of plot. I consider them on a par with Strawberry plants in this respect, namely, that to dig between the rows deals destruction to a great proportion of the best roots. Potted more clumps of Lily of the Valley and Spiræas; shook out old pot roots of Liliun auratum, sorted them into sizes, with a view of getting the several bulbs that are potted in the same pot to flower at the same time. They are potted in loam and peat in equal proportions, a little bone meal being all the manure that is mixed with the soil. Bulbs of the same that are intended for planting out in February in the herbaceous garden have for the present been packed closely together in boxes of leaf soil, and put in a pit from which frost and vermin will be rigorously excluded. Put in another dozen of Tea Roses in heat and a few Hyacinths and Tulips. The slight bottom heat from the bed of leaves on the floor of early vinery we find a capital place to start into growth plants and bulbs of this description; but, soon as well started, it is necessary to shift them to more airy positions, such as Fig, Peach, and Camellia houses. Primulas, Tree Carnations, and double zonal Pelargoniums I find like a good deal of heat at this time of year, but free from atmospheric moisture, and as we have no house specially for them, we have decided to keep them still in the Strawberry house, giving them more warmth, and meanwhile force along the Strawberries on shelves in vineries, Melon and Peach houses. The present saturated state of the atmosphere is proving injurious to Apple and Pear preservation; our fruit to-day are really quite damp, and the best lots of Pears have been wiped over with a dry cloth, which is really all that can be done besides the exclusion of fog by keeping doors, shutters, and ventilators closed; but soon as ever there is a change to a drier state of the atmosphere all the ventilators will be opened.

DECEMBER 18.

Dense fog still prevails, but fortunately the ground is sufficiently dry to admit of planting and trenching, which have again been continued. Mulched newly planted Raspberries and part of Pears on walls. Peaches are being loosened from walls and the branches tied in clusters, so that we may the more readily repair and colour the walls with liquid cement. Nailing and tying Apricots to walls. The ground is rather wet, else the old mulching and surface soil would have been cleared off and fresh soil applied, as nailing was done; under these circumstances top dressing will be postponed until the ground is drier. All our Apricots are restricted as to root space to about 5 feet from the wall, the said 5 feet, though, being held as sacred to the roots, no other cropping of any kind of being permitted, nor yet digging within the same space, and this treatment, combined with good top dressings of manure and

plenty of water in the summer, ends in the production of fine trees and good crops of fruit. I ought perhaps, to add that root restriction is assured by annual deep trenching of the borders at the head of which the trees are planted, every particle of Apricot root that is found being cut clean back. Perhaps, in the strict sense of that term, such a practice may not be considered restriction, but as the process is repeated every season, it virtually amounts to that. The borders in front of the trees are used for early vegetables, such as Peas, Potatoes, Cauliflower, Lettuce, and other saladings, as many as three crops of some sorts being taken off the borders in the course of the year; which successive cropping is also another hindrance to root extension, and is an additional reason for keeping a certain portion of the border for the fruit trees only. Thoroughly overhauled all bedding Pelargoniums, freeing them from decayed stems and leaves, and arranged them on border in late Peach house. Even in such a little matter as this we don't feel that it is beneath our dignity to arrange them to the best advantage, that is, to look their best—and why not? The greatest success is but the realisation of painstaking in trifles, and, into the bargain, by the exercise of pains on so-called common jobs, has not one the present and constant satisfaction of having done the work to the best of his ability! And, personally, I can vouch that that feeling acts as an incentive to continue on in the right way. Smooth Cayenne Pines, being shy of sucker production in the ordinary way, therefore when the fruit is cut we shake out the plants, cut the foliage back to the stumps and pot the old roots in small pots, and plunge them in the strongest bottom heat available, and in this way each stump produces a couple or three good suckers. Several plants we have served in this manner to-day.

DECEMBER 19.

A clearer and drier atmosphere, and ventilation of Grape, Apple, and Pear rooms has been of the freest kind. We have a hot-water pipe runs round the former, so that we have no difficulty in keeping the air dry there, as if the heat is turned on for an hour each day, and the door and roof ventilators are open the while, every bit of damp is dispelled. Apples and Pears have again been examined as to the removal of decaying fruit. Hitherto Pears have kept remarkably well, and have ripened true to their season, but with the later kinds I now note a disposition to ripen prematurely. Ne Plus Meuris, Josephine de Malines, Knight's Monarch, Bergamot Espere, and Beurré Rance all seem as if they would soon be fit for table. Why should this be the case any more than with kinds that, up to the present, have ripened at their rightful season? The "happy thought" of why may dawn on someone; meanwhile, I'm puzzled. Gave all houses a thorough clean up, rearranged plant stove; Calanthes and Poinsettias are at present the most conspicuous plants, and these we have arranged on a ground-work of Ferns, or, rather, have interspersed them amongst the Ferns, the greenery of which makes them look massive and more numerous than they really are. We have taken the same pains with a number of Bouvardias of various kinds in another house, these being arranged on a ground-work of variegated Panicum in small pots, common Lycopod also in pots, whilst overhead on the Melon trellis are tied the long flowering stems of Euphorbia jacquiniæflora. Except the usual Saturday's sweeping up, rolling of walks, &c., outside work has been the same as that of yesterday. Finished nailing and tying of Apricots, and began to prune Morello Cherries.

DECEMBER 21 AND 22.

Weather conditions have again been favourable for our shrub moving and re-planting, as well as for edging of walks and turning of gravel on such parts as have got discoloured and Moss-grown through drip of overhanging trees. Grubbing old tree stems in wood that is being laid down as lawn, and trenching in kitchen garden. Pruned Morello Cherries, and began to paint them all over with a strong lather of soft soap and Gishurst in mixture, after which the wall will be well syringed with the same mixture, as a preventive against the attacks of black fly, to which, in this district, Cherries are peculiarly liable. Potted and placed another batch of Seakale in heat, and got



out more Potatoes to sprout and root in boxes of leaf-soil preparatory to being planted in manure frames. Our first sowing of Melons and Tomatoes having germinated, a second sowing of Melons has now been made, and the first sown placed on a shelf in fruiting Pine stove, close to the glass, light being a necessary condition to the making of a sturdy growth that shall effectually repel the attack of mildew and canker to which weakly plants are always susceptible. Stock pots of *Alternantheras* that look a little "seedy" we have placed in more heat and nearer the light on shelves in early Muscat vinery; all other kinds of bedding plants being in good health, they will be kept on the quiet side of growth for another month or so, after which we shall overhaul them and place them, according to requirements, in the best places we have at command, that cuttings for spring propagation may, when wanted, be ready in quantity. Housed all Grapes, except Lady Downes, and this variety would be housed, did space permit, and till that can be had, we shall keep the vinery cool, as is consistent with the exclusion of frost and damp, that the Vines may have as long a rest as possible. In bottling Grapes, we take special care to retain the entire length of wood in front of the bunch—an essential condition to the prevention of cracking of Grapes, more particularly during the first few days after being cut.

HANTS.

## FRUITS UNDER GLASS.

### PINES.

Short days followed by severe frosts by night will now necessitate a general lowering of the temperatures in every department devoted to the culture of Pines. Succession plants in medium sized pots well filled with roots must be carefully examined, and if it is found that their near proximity to the bottom-heat pipes is likely to lead to unsatisfactory results, advantage must be taken of a favourable day for moistening the fermenting material about the bottoms of the pots with tepid water or diluted liquid. A little may also be given to the plants if on examination the crock roots are found drier than is consistent with the maintenance of steady progress until the time arrives for a general turn over in February. Years ago Pine growers never thought of giving succession plants a drop of water during November and December, but then they allowed them to lose one or two sets of roots before they reached the fruiting stage. At the present time, aided by plenty of heat and an abundance of light in well appointed span-roofed pits, they put up large well ripened suckers early in the season and keep them steadily progressing until, at the age of eighteen to twenty-four months, they have them swelling or perhaps ripening off fine fruit infinitely superior to the majority of the Pines formerly produced by plants twice their age. In order to carry out this system, although the winter temperatures may be lowered, moisture in sufficient quantity to keep them growing must be administered to the beds as well as the roots, otherwise large autumn suckers will most likely throw up their fruit with the first flush of growth in the spring. Some pits, although equally light, are not equally adapted to winter growth, simply because the bottom heat from closely placed pipes predominates over and counteracts the good effect produced by the old-fashioned bed of fermenting leaves. The meagre supply of plunging material soon becomes dry and abstracts the moisture contained in the pots, when the plants suffer, unless this silent and perhaps unsuspected abstraction is made good by the timely application of water in the way suggested at the commencement of this paper. Still further to aid them in their progress the plants will be benefited by a slight dewing over with the syringe about twelve o'clock on bright fine days. The plunging material and other surfaces liable to become parched and unfavourable to growth will also be the better for damping when the pit is closed, always provided steam is not produced by wetting the top-heat pipes when they are highly heated. The temperature in these pits may now range from 60° on cold nights to 65°, when mild up to 70° or 75° by day; but no hard and fast line must be drawn, as it is always wise to give and take with external condi-

tions, and to economise dry fire heat and to cover up the glass during the hours of darkness. Covering is not, unfortunately, so strictly attended to as it ought to be, but this neglect is easily accounted for by the abundant supply of hot-water pipes which every builder now puts into modern pits, and the ease with which powerful boilers are made to do the work. Strong heat generated in this way, while costing more money in fuel, is not, however, so genial to the plants, neither can a moist, steady atmosphere be maintained where the glass is constantly exposed to the direct action of the elements in severe weather.

*Fruiting house.*—Let the mean temperature range from 68° to 70° by night, and from 75° to 80° through the day, and see that a sufficient supply of atmospheric moisture is provided by damping the paths, walls, and other surfaces on fine days, and whenever the hot-water pipes are lightly treated. Direct syringing cannot often be indulged in, but a dash from the syringe over the surface of the bed and about the axils of the lower leaves combined with a good supply of fermenting material placed in the front linings or under the path gratings will produce conditions favourable to steady progress until after the turn of the year. Look well to the roots of the plants where they are plunged over the bottom heat pipes, and give a sufficient quantity of diluted liquid to moisten the balls through when watering becomes necessary. Also examine the plunging material placed over hot-air chambers, and if this is found too dry beneath the bottoms of the pots, draw away the tan or leaves and correct the evil by pouring on warm liquid from the drainage tanks. Repeat the operation if necessary, as plants in a bed of this kind will take more water than when plunged in a solid mass of tan or leaves resting on a rubble formation. Keep the plants well up to the glass, which must be cleansed occasionally, and give a little air every day if possible, to prevent the crowns from becoming drawn, as is too often the case when the house is kept close and moist during the winter.

*Early succession plants* that have been well rested, that is, kept in a somewhat lower and drier temperature with the view to their throwing up fruit in February, may now be stimulated by the gradual application of tepid water to the roots and an increase in the top and bottom heats. Queens that had filled their pots with roots by September, and show a number of sharply pointed leaves in their centres, do not require much starting; therefore a very steady rise until the bottom heat touches 85°, and the top heat ranges from 70° at night to 80° by day, will be found quite sufficient to throw the majority of plants into fruit. Those that do not respond to this treatment will throw up with the main batch later on in the season. Use water about the house sparingly at first, and gradually increase the amount of atmospheric moisture as the top and bottom heats are raised, but strictly avoid overhead syringing until after the fruit is up, as many good "shows" are ruined by water finding its way into the hearts of the plants during this critical stage.

The general stock from which these forward starters have been selected may still be kept moderately dry and quiet, as nothing so quickly resents cold, sloppy treatment as the Pine plant. When the time does arrive for starting let the balls be gradually and thoroughly moistened, as good shows cannot be expected under starvation treatment, and the better to maintain a steady supply of general atmospheric moisture, let the beds be renovated or top-dressed with fresh well-worked fermenting Oak leaves.

*Suckers.*—The temperature in the sucker pit may now range from 50° to 56° at night and 5° to 10° higher by day. Cover them up every night to save any fine heat and keep the bed well moistened to prevent the tender young roots suffering from drought. When plants are wintered in very small pots it is a good plan to keep them well away from the bottom heat pipes, and when in a thoroughly moist state to mound the tops of the pots over with decaying leaves or tan.

### THE STORE YARD.

Provided with good houses and pits well stocked with plants, the Pine grower will not be able to make

much progress without a well ordered store yard. He must have soils of different kinds, correctives, such as charcoal, old lime rubble, leaf mould, sand and artificial manures. He must have clean pots and crocks, and he ought to have a light, well-heated potting shed fitted with bins for storing and warming his compost ready for use. Crocks, pots, and correctives he can generally obtain, but old turf or loam specially adapted to the culture of Pine-apples cannot always be met with. Yet every district is capable of yielding a supply of some kind, good, bad, or indifferent, but unfortunately the good does not always come into the gardener's reach, and yet, like the Israelites of old who were expected to make bricks without straw, he is expected to perform horticultural miracles while the main staple of available compost is denied him. Why is this? Simply because the field he has set his mind in is sight or lets for forty shillings an acre. His argument that he would do wonders if he might only set foot-iron on this or that knoll, or even the little dip out of sight, and make all green again in six weeks is set at nought because the bailiff says it is impracticable. In many places shrewd owners who know their interests are identical allow their gardeners to select turf or other soil suitable for their requirements, and it rarely happens that men so trusted tread on what they know to be treasured ground. If they do, they take a strip and leave a strip for inoculation, fill up with rich soil from the old kitchen garden, when a handful of Grass seeds soon puts all to rights again. Men less favoured struggle on as best they can. Turf they must have, but once refused, perhaps rebuffed, some of them try other tactics, bad feeling springs up, and many good gardeners are accused of doing by stealth that which they had wished to do openly under the eyes of the owner. Many people under the impression that gardeners can roam over thousands of acres in search of turf-labour under a misconception, and the sooner a mutual benefit society is established between owners of broad lands and their gardeners the better will it be for consumers as well as producers. Assuming, then, that the intelligent young horticulturist is not expected to make his bricks without straw, now is the time to look round for suitable materials for the coming year. Many gardeners prefer cutting turf in the spring, but autumn and winter answer equally well, provided it is carted and stacked when dry. For ordinary purposes it may be cut and stacked in the sod, but for Pines tough fibry turf should be taken off thin as if for relaying a lawn, rolled up and stacked in narrow ridges, ends outward, the better to let in the mellowing influence of frost and air. Turf taken from old pastures infested with worms or grubs should be allowed to lie for a time grass side downwards, fully exposed to the action of frost, or it may be stacked at once, and dusted with soot as the work proceeds. Manure should never be introduced, as it eats away the fibre and loses much of its value before it is wanted for use. Moreover, turf stacked with manure is not always suitable for special purposes. Every ridge should be covered with shutters or thatched to throw off rain and snow, and a reserve in good condition for use should always be kept in the open soil shed.

*Leaves.*—Now is the time to collect Oak or Beech leaves for plunging and bottom heat purposes. Oak leaves are the best, but where they are not plentiful those from the Beech or Sweet Chestnut answer very well. If possible, they should be raked up and harvested when dry, otherwise violent fermentation will set in and the woody fibre will be destroyed before they are wanted for use. Formerly, many people, even in wooded districts, gave preference to tanner's bark for Pines, and, doubtless, it was at one time the cheapest, as they could use the genuine article for a season, then sift it and return the coarse parts to the plunging pits, where with a little fresh added it formed an excellent mild bed for successions a second year. All this is now changed, for what with very fine grinding, the addition of Larch and other barks, and the use of chemicals, it is no longer worth carting home, although the pits may be within easy reach. We always commence collecting Oak leaves as soon as the trees are clear, but instead of carting as they are gathered, we place them in large heaps in the groves, where slight fermentation carries off a great deal of moisture; they are then brought home and



stacked in a large open shed for future use. Last year we had a favourable time, and the residue of our stock is now as sound as when first harvested. For giving bottom heat to Pines, Melons, and Cucumbers for forcing vegetables and covering up Vine and Peach borders, Oak leaves are invaluable, as they not only give off genial warmth favourable to growth, but they also form an indispensable article in the potting shed when decay has reduced them to light vegetable mould. Where an open shed is not at command leaves should be stacked in a snug corner in the store yard and well thatched to keep out rain and snow. An open shed is, however, the best and cheapest in the long run, and all who collect leaves either from choice or necessity at cleaning-up time should set up a few black poles for supports and roof in with sheets of corrugated iron. In all well ordered gardens advantage should be taken of the present slack time for gathering together good stocks of turf, leaves, and other materials ready for use when time is precious. Crops and pots should be washed when the men would otherwise be working out in the wet, and nothing should be deferred until to-morrow if it can be accomplished to-day.

#### THE GRAPE ROOM.

If not already done, no time should be lost in getting this important store room cleansed, ventilated and fired to draw the damp out of the walls preparatory to cutting and bottling Lady Downes and other late keeping Grapes. The room in which I keep my Grapes is built with hollow walls and is well ceiled with apex ventilators for letting out superfluous moisture. There is one window with shutters facing the west and a small slow combustion boiler, placed in the men's messhouse below, also ceiled, which feeds a flow and return pipe when warmth is needed for dispelling stagnant moisture. This is not often wanted, as the temperature rarely falls below 45°, which is the best mean for a well-managed Lady Downes store room. All the bunches of this variety, Mrs. Pince and Alicante are kept well away from the hot-water pipes. Muscats and Gros Colmars, which require a little more warmth, are suspended from bottles, placed in sacks a few feet above them. The end of December or the first week in January is generally considered the best time for cutting old Grapes intended to shake hands with the new; but this has been an exceptional season, at least with us, for all the Grapes were quite ripe early in September, and we have thought it advisable to ease the Vines by commencing cutting ten days earlier than usual. All the Lady Downes have been cut to-day, the 17th of December, and the Vines, thoroughly ripe and clear of foliage, have been pruned. Gros Colmar, a variety which is greatly improved, both for keeping and eating, by the application of a little dry fire heat, after the leaves fall, will not be cut till the first week in January. Every spur not carrying a bunch has been pruned; dry heat will heal the cuts, and the house will be cleansed and thrown open as soon as storing is finished. Amateurs, who have not hitherto relieved their Vines of their load, by cutting all their Grapes in one day, should leave the room in perfect order before they begin. Every faulty berry should then be removed, and the bunches with the wood intact, not shortened in front of the bunch, should be cut off at the pruning bud, and carefully carried to their destination. When ripe Grapes are cut from thoroughly ripened Vines, they take up a quantity of water during the first fortnight; the bottles should, therefore, be quite full after the wood has been inserted. The water may be changed occasionally, but this is not really necessary, as I have frequently kept Lady Downes for four months by merely filling up the bottles with a very small, but rather long and pointed, can as often as they require it. Grape growers who do not succeed in keeping their Grapes fresh and plump sometimes blame the system, but it is not the system; it is imperfect maturation of the wood and fruit that is the cause of disappointment. The Grape room may be all that one can desire, but badly ripened Grapes will shrink either on the Vines or off them as soon as the leaves fall, and the only way to prevent it and to bring out their best quality is the application of Muscat heat and treatment throughout the growing season.

Eastnor Castle, Ledbury.

W. COLEMAN.

#### RHUBARB.

It is said that Mr. Joseph Myatt, of Deptford, was the first to cultivate Rhubarb on a large scale. It is probably nearly seventy years ago that he sent his two sons to the Borough Market with five bunches, of which they could sell only three, so little was this now popular vegetable then esteemed; the other two bunches they had to take back again. The next time they went to market they took ten bunches with them, all of which were sold. On the principle that "coming events cast their shadows before them," this small but increased sale encouraged Mr. Myatt to persevere; he assumed, and rightly, that Rhubarb would become a favourite. He therefore determined to increase its cultivation; year after year he added to his stock, and the demand for it increased in the same ratio. It is recorded that for the first dozen roots he was indebted to his friend, Mr. Oldacre, then gardener to Sir Joseph Banks. They consisted of a kind imported from Russia, finer and much earlier than the puny variety cultivated in gardens at that time. Was this the Tobolsk? It would be interesting to know from what variety Mr. Myatt raised his Linnæus and Victoria, the latter being in all probability the best late variety grown. There are many who can remember the large Rhubarb fields of Deptford, now very much curtailed in extent, owing to railway and building operations. But the consumption of Rhubarb has enormously increased during the last few years, and new areas of culture are gradually being opened up. The two sorts mainly grown are the Early Albert and Victoria, the former being a spring, the latter an early summer, variety. A fairly light soil appears best adapted for field culture. A market gardener in my own neighbourhood, who grows the foregoing two sorts of Rhubarb on a large scale, has a somewhat light, stony soil, resting on loam, beneath which is gravel. Here he gets fine Rhubarb early in the season. During the last month the beds had been cleaned out and carefully dug, and then the beds remain until February, when the buds begin to swell, and then a good layer of long stable manure, from which all the short material has been shaken, is placed all over the beds, forming a protection from frost and cold winds. As the leaf-stalks begin to rise, the covering is carried up with them, and so the protection is continued until the first crop can be gathered. The earliest crop is taken from a piece of ground sheltered on the north and north-east by a broad belt of trees, and open to any sunshine during the early spring months. A plantation is continued for five or six years; then the roots are ploughed up and utilised for a new plantation, or, if not wanted, they are destroyed. A new plantation is formed by first of all heavily manuring and deeply ploughing the ground; then the large roots are cut to pieces; each having an eye is planted, and trodden firmly into the soil. The first year nothing is gathered; the second year a partial but invariably a good crop; the third year a very heavy one.

R. D.

#### WINTER GREENS.

I HAVE recently been cutting some hybrid Cabbage heads, which seem exactly to resemble the now popular Chou de Burghley, though raised from a sprouting white Broccoli. No doubt of all the Brassica family few kinds sport so remarkably as do Broccolies when they are once out of sorts. I saved two years since seed from what seemed to be a capital white sprouting kind, itself a sport amongst others, but find that the produce is as diverse as possible, some plants being as above named, some almost resembling Savoy Cabbages, others like Cottagers' Kale, and

others anything. A patch of materials of this character, now that all kinds of greens are scarce, is not to be despised, but very specially are the Chou de Burghley heads good, for they turn in at a moment when really tender and deliciously marrow-like green stuffs are scarce indeed. Mr. Gilbert, in succeeding in fixing that which will probably prove with me to be a very fleeting form, has done gardeners good service, assuming as, of course, I do, that his Chou de Burghley is really a fixed, permanent form, and always to be depended upon. That these sort of hybrids produce Broccoli heads in the spring seems to be a matter of small moment as compared with their usefulness in producing heads of snowy whiteness and delicious quality in midwinter. We have plenty of first-rate Broccoli that turn in in the spring, but very few that can be relied on to turn in well at this time of the year. The high prices which all kinds of garden and field green vegetables are now obtaining shows that a few acres of some hybrid Cabbage of the nicest Chou de Burghley type would be a great boon, and certainly if carefully marketed would sell well. Coarse white Cabbages, Drumhead Savoy, and indifferent Coleworts are not very tempting diet, if cooked ever so well. Still, they are in good request now. Perhaps some of our market growers may be induced to try Mr. Gilbert's novelties, and may be with success find them both profitable and highly appreciated.

A. D.

**White Laurustinus.**—"H. P." (p. 267) is correct when he says that the Continental Laurustinus is pure white when opened under glass. Six years ago this variety was recommended to me by Mr. John Wills, who supplied me with six half standards. During summer we grew them outside, plunged in the ground; we took them up about the first week in November, and placed them in a cool house. They come into flower about Christmastide, and, their heads being now large, they are quite a boon to us. This plant is one of those good things from which we can "cut and come again." Where white flowers are wanted at Christmas (and where are they not?) this is one of the things that should be grown in quantities.—R. GILBERT, *Burghley*.

**Schizostylis coccinea.**—This is especially useful in a cut state, lasting as it does a long time in good condition after being cut from the plant, and buds, quite folded up, open just as well in water as if left on the plant; in fact, if left fully exposed at this time of year to alternate frosts and heavy rains, the blooms soon get soiled, but when cut and placed in water they expand freely and form very striking objects at this dull period of the year, when any bit of cheerful colouring is welcome.—J. G. H.

At a recent meeting of the Metropolitan Public Gardens Association, Lord Brabazon in the chair, it was announced that Earl Cowper had offered to purchase a freehold site in Finsbury for the sum of £1500, on condition that it should be laid out and maintained by the Association as a public recreation ground. It was further reported that a gentleman had offered to bear the expense of laying out Soho Square, on condition of its being maintained by the Public Gardens Association.

#### LATE NOTES.

**Names of plants.**—*A. P. Nic.*—Fern is *Pteris serrulata*, *Laela acuminata*, or *L. pedunculata*; cannot say which without seeing growth.—*W. T. Hop* good.—*Odontoglossum Schlieperianum*.—*H. M. White*.—*Helleborus niger angustifolius*.—*W. H.*—?, send mature frond; *S. Pteris argyrea*; *?*, *Nephrolepis exaltata*; *?*, *Asplenium bulbiferum*.

**Naming fruit.**—Readers who desire our help in naming fruit will kindly bear in mind that several specimens of different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

**Names of fruit.**—*A. B.*—Cox's Orange Pippin.

#### BOOK RECEIVED.

"The Illustrated Dictionary of Gardening." Vol. ii. L. Upcott Gill, 170, Strand, W.C.



## WOODS & FORESTS.

### THE ACACIA OR LOCUST TREE.

(ROBINIA PSEUDACACIA.)

THIS tree appears to have undergone more of the vicissitudes of undue praise and subsequent neglect than almost any other which has been introduced to this country. The first notice of it in Europe comes from France, where, early in the seventeenth century, it was raised from seed by Jean Robin (not Vespasian, as stated by Loudon), a celebrated botanist and herbalist to Henry IV. of France, and from this circumstance its name was derived.

Some time after this it became the fashion across the Channel to plant the False Acacia largely, and much was said and written in its praise. Especially at the end of the last century and the beginning of the present it was brought into prominence. It was, however, some twenty years subsequent to this that the great rage in this country occurred about it, when Cobbet reintroduced it from America as the Locust tree. By many it was regarded as a new species, and although an ample supply of Robinia Pseudacacia remained on hand, enough of the Locust could not be raised.

How long this rage lasted I do not know, but it could not have been for any great number of years, as very few of these trees, except in purely ornamental situations, are now to be met with. The reasons for this are not very clear, as although its merits were without doubt over-stated by enthusiasts, the False Acacia possesses certain properties which give it a claim to attention as a timber-producer. In ship-building in America it seems at one time to have been considerably used, not so much in large dimensions as in the shape of bolts and treenails. For these purposes it was preferred by some to iron, and as a proof of the hardness of the wood, it is stated that, on removing the bolts made of it, the same method as is used in the case of driving out iron was adopted, instead of boring them away, as would have been done with the Oak.

From my own knowledge of the wood this does not seem unreasonable, as in respect of this quality of hardness it seems to have much in common with the Box. The property of forming heartwood at a very early age is certainly an important one, and for this reason it can be used to advantage much sooner than many trees. Respecting its durability for gate posts and in similar positions some very extraordinary statements have been made, as one writer goes so far as to say that in America no one will admit that he has ever seen a bit of it in a decayed state, and that it is absolutely indestructible by the powers of earth, air, and water. Such language as this is of course extreme; but when its use is advocated for purposes which have to stand exposure to the wet, such as pillars or posts for cart-houses and stalls, there seems much to be said in its favour. Indeed, there is evidence that the wood has stood in such situations for forty years or upwards. For sleepers, too, the timber seems to be very suitable. What, however, is the remarkable fact about this tree in connection with its durability is the rapidity of its growth, as it is common to associate fast-growing trees with wood of little durability or value. It may be argued that this does not hold good with the Larch, as this tree is of rapid growth, and yet the wood is lasting; but although this is so, the respective woods of the Larch and the Acacia are very different in character.

From actual measurements taken of trees planted in the first decade of the present century

near a village in Hampshire, two trees of seventeen years' growth gave the following figures: The first, 42 feet high, was 68 inches in circumference at ground level, 58 inches at 3 feet up, and 40 inches at 6 feet, the first limb branching out at 9 feet; the second, 38 feet high, measured 60 inches at the ground. This tree appears to have branched off into two divisions at 3 feet, each of the two being 34 inches in circumference. Such items as these look a little startling, especially the ground measurement, but when the thickness and rugged nature of the bark and the general habit of its growth are taken into account, it will be seen that very little indication of the cubic measurement can be gained from the statement, as the actual timber would be very much less. The figures, however, seem to prove that it does not grow to any great height on a single stem. Perhaps, however, it would be hardly fair to assume this, as I know trees of this species which are very tall in the stem. I saw recently a tree which had scarcely a branch for some 40 feet. Another plan by which a comparison was instituted between the Acacia and other common trees was by taking the various kinds at fifteen years old, as they grew mixed together in a plantation. The figures were the following. The dimensions were taken at different heights, but here it will only be necessary to give the sizes at 6 feet from the ground. Acacia, 25 inches circumference, 17 feet high; Scotch Fir, 10 inches circumference, 17 feet high; Sycamore, 10 inches circumference, 22 feet high; Lime, 8 inches circumference, 18 feet high; Spanish Chestnut, 14 inches circumference, 19 feet high; Beech, 9 inches circumference, 19 feet high; Ash, 10 inches circumference, 17 feet high; Oak, 7 inches circumference, 12 feet high.

A considerable drawback to planting it in exposed places is its liability to be shattered by the wind, as on account of the brittleness of its branches it is a tree very quickly disfigured in this respect. The experience of those who have had to do with this tree goes to prove that it thrives much more rapidly on good loam, but that it will grow on almost any soil. This, no doubt, is true of most trees; but as the roots of the Acacia ramify at a very little distance beneath the soil, in the same way as the Ash, Beech, Poplar, &c., the character of the soil has the greater direct effect upon it. Barlow says that the strength of Acacia timber as compared with fine English Oak is as 1867 to 1672.

D. J. YEO.

**Management of Thorn fences.**—A Thorn fence should be every year weeded once or twice, and should be regularly pruned to render it bushy until it gets to a certain height, when it may be allowed to grow up to its full size without further pruning, or kept to a uniform height. With the fences of a farm the first method will answer, but the latter plan makes the best and neatest fence, although it is more expensive. Managed thus, a hedge will continue vigorous for a long time; but when it grows thin at the root, or grows feebly, and the lower side branches begin to fall off, it must be renewed by cutting down.

**Systems of forestry.**—One of the great points the advocates of a school of forestry in this country argue upon is the results which have been obtained by their agency in other countries. Taking, for instance, the returns from the royal woodlands here, where no particular system is in use, we are ready enough to admit that, considering the immense areas, they are very poor. They, however, pay the cost of management, and so far as the figures show, where elaborate educational establishments have been formed, and everything is carried out in the most scientific manner, they do little more. If this assumption is correct, what gain is made in the end through the agency of such an institution? If the advantages

were material, would not the example be readily followed? and is not the apathy which exists about it the condition of things to be expected if nothing tangible is obtained where the plan is in work?—J. N. B.

### THE SCOTCH PINE.

It is unusual to find this tree covering very extensive areas about here, or growing to a very large size. Now and again one meets with an isolated example of good dimensions, but nothing approaching the most ordinary sized Elm or Oak. Sometimes plantations of moderate area, *i.e.*, what we should deem such, are to be met with, but it is most common to find it mixed with Larch and Spruce. With regard to its timber value, it is looked upon as being better, but it does not fetch a much higher price than the last-named tree. Probably this may arise from the climate and soil not being so suited to it, for as a matter of fact for many purposes I would prefer to use good Spruce. As is well known, one of the favourite uses of the Conifers grown for timber in this country is that of fencing, but although the Scotch Pine is often employed on estates for this purpose, railway companies will not accept it, and insist upon having Larch.

For posts there seems reasonable ground for this, but why it should be objected to for rails is not so clear. Really good grown wood finds its way to the collieries for propping with the Larch and Spruce; but with regard to price it is oftener classed with the latter than the former. In selling for these purposes, the general way is to reckon it at per ton of 20 cwt. or 21 cwt., but when the sizes are large enough to be sawn for sleepers and other like purposes, it is not uncommon to sell by quarter-girth measurement. It is not much used for house-building, and its sap shows a more marked difference to the heartwood than is the case with the Larch or the Spruce. In a house in which I spent my earlier years it was, however, used for flooring; but the trees from which these boards were cut must have been larger and better than those commonly grown in the neighbourhood, for after a quarter of a century's wear they appeared to be almost as good as when first laid. A writer upon the uses of this wood some forty years ago says that it was employed in joinery and house carpentry, almost to the exclusion of every other kind of timber wherever it could be procured. This, of course, was before the days when the markets came to be flooded with foreign wood; so there is just this satisfaction about it, that if the supplies stop, as is constantly predicted, the wood which did duty before will be equally fit to do so again. For rustic fences and similar purposes, when its bark is retained upon it, the Scotch Pine, so far as appearance goes, is scarcely equalled, as its rugged character adds greatly to its value in this respect.

For bridges spanning streams in ornamental grounds it is very often used, and when properly constructed of this wood, such things are more in harmony with the surroundings than if made of almost any other material, and on various other ornamental structures in grounds and gardens the Scotch Pine can often be turned to account with advantage. Such purposes as these would, of course, consume only a relatively small quantity, and would not affect its market value one way or the other. Whether in the respect of a profitable tree it will ever be worth growing in this part of the country is extremely doubtful, as, generally speaking, as before remarked, the climate and soil are less adapted to it than to many other things. In woods and plantations it has a certain value for shelter and cover, and in the winter belts of it amongst deciduous trees give variety



to the landscape, and for these reasons it will most likely continue to be planted. Were it not for these considerations, *Pinus sylvestris* would soon vanish from this part of the island, and trees to which the soil is more congenial would take its place, as the slow demand and the price offered for it at present leaves it out of what may fairly be looked upon as remunerative trees.

WILTSHIRE FORESTER.

### THE SWEET CHESTNUT.

THE Sweet Chestnut is said to have been brought from Asia Minor, and it soon spread over all the warmer parts of Europe. In many parts of this country the Chestnut thrives well, and there are many trees recorded of great size and age in different parts of the British Isles.

The Chestnut holds a high place amongst ornamental trees in this country. It is valuable, not only for its bright green foliage, but also for the distinct shape of its leaves and its serrate edges, which are so different from the foliage of other forest trees. The shade imparted by this tree also increases its importance.

A tree at Hitchin Priory, Hertfordshire, is stated to have had in 1789 a circumference of over 14 yards at 5 feet from the base, and though the internal part was hollow and decayed, the outer wood was sound and the foliage vigorous. Another tree, one of four in the garden at Great Canford Park, Dorset, measured 37 feet in circumference, and though much decayed in the centre, it continued to bear good crops of fruit. Perhaps the largest Chestnut in this country is that at Tortworth, in Gloucestershire, described by Evelyn, and said to have been a remarkable tree, on account of its size, in the reign of King Stephen. Tradition carries the origin of this tree back to the days of Egbert; its measurement, as given by Strutt in 1820, was 52 feet in circumference at 5 feet from the ground, and its cubical contents was given as 1965 feet. At the height of 10 feet from the ground the tree branched into three limbs, one of which, at 50 feet from the main trunk, was stated to have been 28 feet in girth. The tree stands on a north-west declivity and in a soft loamy soil—a situation very suitable for its growth. The largest, and at the same time the most famous, Chestnut tree in existence is that which has been so often described as growing on the lower slopes of Mount Etna, and known as the *Castagno di Cento Cavalli*, or the “Chestnut tree of the Hundred Horses”—a name given, it is said by some writers, to the fact “that Jeanne of Aragon, when travelling from Spain to Naples, stopped at Sicily, and, accompanied by all the nobility of Catania, paid a visit to Mount Etna. She was on horseback, as was also her suite, and a storm having come on, she took shelter under this tree, the vast foliage of which sufficed to protect the queen and all her cavaliers from the rain.” Other writers regard this story as a fable, and state that the tree owes its name to the fact that fifty horses can be sheltered within its branched trunks, and fifty others round about it.

### NURSERY CULTURE.

Mr. Roland, in his book on tree planting, says of the Chestnut that in districts where late frosts prevail the nurserymen who are in the habit of raising Chestnut trees preserve the seeds during winter in a dry, airy place, such as a loft floor, upon which they are spread, and sow them early in the spring, so that the plants do not make a start above ground until the middle or end of May, when they may be supposed to be out of danger from frosts. In sowing it is generally customary to prepare beds 4 feet wide; 1 bushel of seeds will plant a bed 30 yards in length

and 4 feet wide. They are sometimes sown in drills 16 inches or 18 inches apart, the seed being placed about 3 inches from each other and covered up with 1 inch of soil. In very rich land the plants will continue to grow to a late season. When this is the case, they fail to ripen their wood before the frosts set in, which will cause them to lose their tops and they will then become branchy and bushy. The plants are removed from the seed bed at one or two years of age and transplanted in lines. When they are lifted they should be assorted in sizes and have the extremities of their tap roots cut off, so as to make the root grow more fibrous. The lines should not stand more than 16 inches asunder and the plants 6 inches from one another. If a more liberal space is allowed, the plants are apt to become crooked and stand in need of pruning. After having stood two years in the nursery lines the plants will be from 2 feet to 3 feet high generally speaking, which is the size and age best adapted for forest planting. If they are wanted of a larger size they must be transplanted again every second year, increasing the space between them in which they grow. They can be removed any time in open weather between October and March.

### SWEET CHESTNUT TIMBER.

A good deal of attention has been given to the Chestnut at different times in consequence of the reputation the timber once obtained for its supposed strength and durability. It was generally believed at one time that the great wooden beams so often seen in old buildings were of Chestnut, notably those in the Tower of London, Windsor Castle, and the roof of Westminster Abbey; subsequent examination, however, of the woods from these and other old buildings have shown them to be not Chestnut, but Oak (*Quercus Robur* var. *sessiliflora*). A similar examination made of the timber used in the construction of the old Louvre in Paris, which was supposed to be Chestnut, proved it to be also Oak. The comparative scarcity of Chestnut trees in this country as compared with Oak would militate against its general use, besides which it is more difficult to obtain sound Chestnut wood of large size than Oak. It is a fact, indeed, that the wood of the young trees is more durable, and consequently more valuable than that of the old. The timber of full grown trees is brittle and very apt to be shaky, especially in the annual rings, so that but little dependance can be placed upon it. The young wood, however, is durable, and is valued for posts, fences, and similar work, as it bears changes from wet to dry without impairing its strength.

### USES OF THE WOOD AND NUTS.

The Chestnut has been recommended by many writers of the last century as far superior to Oak for all sorts of purposes, and accounts have been given where fences, gate posts, mill beams, &c., have been found to be perfectly sound when those of Oak that were put up at the same time were quite decayed. A good many of these records, however, refer no doubt to the Oak of the variety *sessiliflora*, which has been mistaken for Chestnut. For Hop poles Chestnut is generally preferred before any other wood; but it is not for the wood alone that the tree is valued, the seeds themselves being, perhaps, more important, forming as they do in many countries where they are cultivated an important article of food; this is particularly the case in Italy, where they are not only eaten in their fresh state, but at Castigiano, in the mountains of Pistoja, the nuts are dried or roasted for three days and nights in a drying-room, on an open floor over a lower chamber, in which a fire is lighted. When thoroughly dried the husk is easily removed, and

the kernel is ground into flour, which is of a pinkish colour. Chestnut cakes called *necci* are made in a circular form by mixing the flour with water to the consistency of cream, which is then poured on fresh Chestnut leaves, and baked between heated stones. These cakes are a very important article of food in the Apennines. Samples of the Chestnut flour have been analysed by Professor Church, and reported by him as a food of very easy digestion, and suitable for children. Dried Chestnuts are also largely used in Japan for food.

J. R. JACKSON.

Kew.

### TREE PLANTING IN THE PAST.

IN reference to this subject, “Yorkshireman” says it seems necessary for me to explain what I mean by the distant past. I think that where there was no disposition to put a different construction on what I wrote than the remarks obviously bore, there was no difficulty in understanding what was meant. May I repeat that, in instancing the kinds of trees that have been planted in the places named and others of like character, I meant such as show in a way that cannot be mistaken that they have been planted. Anyone who visits the places in question, and others of like description existent throughout the country, and who is at all conversant with the subject, cannot mistake the planted trees from those that have come into existence naturally, which latter, though more or less present in the shape of old decayed Oaks in the grounds attached to most of the old places where Oak succeeds well, were outside the subject of my remarks. “Yorkshireman” seems unable to grasp the matter, and confuses it with forestry work, which has about as much in common with effective tree planting as the woodman who fells the timber has with the skilled hand that executes a masterpiece of carving. “Yorkshireman’s” cynical dismissal of the judgment and work of the early planters, in asserting that they are mythical, meets with complete refutation in the trees as they now stand in scores of old places in every county in England, and requires no further comment, except saying that few would care to stand sponsor to an assertion which is as unjust as it is untrue. It is passing strange that some appear anxious to discredit the judgment of the early planters, and try to make out that until comparatively recent times there was an absence of taste and appreciation of tree life from a decorative point of view.

The remarks made by Mr. Yeo on the subject show how easy it is to get wide of the point at issue. He asks if I believe that “one in a hundred of the young Elms now growing in this country have ever been planted?” I have not said a word about young Elms, or young examples of any other kind of tree, which have nothing to do with the question. When I first mooted the subject my remarks were distinctly confined to the old trees that show by the positions they occupy and the condition they are in that they have been planted. Amongst the young Elms Mr. Yeo speaks of as now existing he evidently includes the suckers that spring up from the roots of established trees, but these, needless to say, have nothing to do with the matter which relates wholly to old trees. The fact of the Elm producing suckers freely goes no farther than to show the possibility that some trees now existent may have originated in that way.

As there was no difficulty in understanding my communication referred to the trees that are standing in the grounds adjacent to most of the old mansions that are to be met with in most parts of England, the origin of which those who



are at all conversant with arboricultural pursuits can have little difficulty in arriving at.

Those who are satisfied to rest their views on improbabilities may, like Mr. Yeo, urge that because the Elm in question produces, as a rule, suckers in quantity, the trees now existing are as likely to have come into existence that way as if they grew naturally from seed. The weakness of such a line of argument is so manifest, that it scarcely requires notice further than to point out that trees that come naturally from seed, through the many ways the seeds are dispersed, spring up at long distances away from the tree that produces the seed; whereas suckers are confined to a limited distance around the tree from which they spring. If one were to shut their eyes to the abundant evidence which the big Elms to be seen in the old places about the country themselves afford of their having been planted, and to allow that they might have come from stools or suckers, it would only show that they were the second generation that had arisen from the actual trees first planted. The simple fact of this Elm not reproducing itself from seeds is sufficient evidence to satisfy those who take a reasonable view of the matter that the existing trees with few exceptions have been planted. T. B.

#### THINNING AND PRUNING.

An experiment is recorded where one of the late Dukes of Portland planted some young Oaks with the view of testing the effect of different modes of treatment and conditions of growth. The number planted was nine trees of four years old. These were set out on the site of an old sawpit, which had been filled up, in the centre of a wood. Three of these were enclosed, with only their heads left out. Three were stripped of their branches, and the remaining three were left untouched.

The result was, that the enclosed trees greatly outstripped the others. The enclosure was yearly added to, so that the heads only were left out, and at the time the experiment was made public these trees were nearly double the size of the others. From this the duke argued that trees which grow closely and with little light will make headway more rapidly than those exposed to light. The result was what the duke expected, as he adds, "it is exactly what happens in all thick woods."

With reference to the other six trees, three of which had been deprived of their branches, and three had been left to grow on naturally, the result was that after a lapse of years no difference could be detected between these six trees, and without a very close examination of the bark it was impossible to tell which were the pruned and which were the unpruned trees. It must not be forgotten though that these trees at the time the branches were pruned off were very young. Had they been older and the branches of a larger size, the same result could not by any means have been reckoned upon.

The primary object of this, however, was not so much to discover the effect of pruning upon the timber as to test the theory that the stem of a tree always increases according to the size of the head, as every healthy branch contributes to its growth. This, it was remarked, was putting the effect for the cause, as rather than every healthy branch contributing to the growth of the tree, it would be more correct to say that if the roots were vigorous and had room, the tree would extend its branches in every direction, but the branches themselves would do no good.

These points are certainly important, but there is a difficulty in having all the conditions present at one time, as if the roots are allowed room, the advantage of thick planting will of course be lost. I have seen it argued that because the gardener or the agriculturist thins his crops it must be necessary for timber to be thinned, but there is really no analogy between the two, as the farmer or the gardener sows his seed thickly, in the way the tree seeds would be sown in the seed bed, with the express object of only retaining the best, and not as the final crop. If the argument were pursued, it would be necessary to prove that a patch or field of Cabbages which had been transplanted to their proper distances must be thinned before they would come to perfection.

As it has been mentioned, the real difficulty in raising timber seems to lie in the question of where the two opposing factors of giving root room for proper development and growing thickly shall meet. Before this can be decided it is essential to know what really is sufficient root room, and this is a thing which cannot by any means be arbitrarily settled, as the class of soil, its constituents, and the trees most suited to it will have to be determined. In this lies the whole gist of what and how to plant.

A writer in these columns some time ago called attention to the way in which timber grows in ravines, and this is a thing which I have repeatedly noticed, but for which I cannot adduce any satisfactory reason, except indeed that by accumulations from the surrounding hills the valley becomes richer in plant food; be this as it may, it is no mere notion that timber generally grows taller and more rapidly in valleys than on hillsides. Some analogy may, perhaps, be traced between this circumstance and the way in which the enclosed trees to which I have referred grew, but whether it may or may not it is a very interesting fact which I should like to see clearly explained.

There is one other point to which I wish to refer before closing, and that is with respect to nurse trees, as it is not uncommon for the main crop of timber to be seriously damaged by this class of trees being allowed to overgrow them. A word on this is the more necessary, as the remarks on trees growing thickly may be construed into meaning that everything should be allowed to run riot in the belief that the fittest will survive. This I conceive to be very dangerous where nurses, for instance, have been employed which were never intended to remain longer than to effect their purpose. I know cases now where great numbers of valuable trees which cost large sums to plant are being literally smothered by coarser kinds, which were for a time very necessary, but are now undoing what they helped to do. Such errors as this must be carefully guarded against, and thick growth only permitted where all have an equal chance in the race. FORESTER.

**Single form of the double Sagittaria.**—In answer to Mr. Frank Miles' question respecting this, I may say that I have not propagated the single form of the double Sagittaria, as it has not reappeared. I believe the normal single flower is considerably larger than the double. In this case it was smaller—thus, I think, conclusively showing it to be, what I suspected at the time of flowering, an inconstant freak. Should it, however, again put forth a single spike, I will take care and secure the root for Mr. Miles. By the way, what a plant it is to increase. Only four or five years ago it was put out here—a single tuber in a pot; now it has spread far and wide, and will soon compel me, most reluctantly, to reduce its breadth, which trespasses on its neighbours.—J. M., Charmouth, Dorset.









